



orbia 

2019
Sustainability
Report



Contents

3

About Orbia

Business Profile	4
Our Shared Purpose & Common Values	5
The ImpactMark	6
Message from the Chairman	7
Message from the CEO	9

12

Our Impact

Financial and Sustainable Solutions Highlights	13
Responsible Business Highlights	14
Transformation Journey	15
Innovation Investment	16
Financial Strategy	17
Sustainability Business Strategy	20
Sustainability Goals	21
Sustainability Performance Data Summary	22

23

Advancing Sustainable Solutions

Feeding the World Sustainably	25
Making Health and Well-Being More Accessible	29
Better Managing Water Systems	31
Making Cities More Livable, Lovable and Resilient	34
Empowering Communities with Data	37

40

Advancing Responsible Business

Operating Ethically	41
Empowering Our People	43
Improving Health and Safety	46
Protecting the Environment	48
Helping Communities Thrive	57

63

Appendix

About this Report	64
UN Global Compact	65
UN CEO Water Mandate	66
GRI Content Index and Data Tables	66
SASB Index	77
Assurance Statement	79



About Orbia



Business Profile

Orbia (BMV: ORBIA) is a community of companies bound together by a shared purpose: to advance life around the world. Orbia's business groups have a collective focus on ensuring food security, reducing water scarcity, reinventing the future of cities and homes, connecting communities to data and information services, and expanding access to health and well-being through providing advanced materials, specialty products and innovative, human-centered solutions.

Orbia's business groups span the Precision Agriculture, Building and Infrastructure, Fluor, Polymer Solutions and Data Communication verticals. The company has commercial activities in more than 100 countries and operations in 41, with global headquarters in Mexico City, Boston, Amsterdam and Tel Aviv and a team of 22,000 dedicated employees working worldwide.

Orbia trades on the Mexican Stock Exchange (BMV) and is included in the BMV Sustainability Index. Since 2015, the company has been a component on the FTSE4Good Emerging Index. In 2019, Orbia was selected as an index component of the Dow Jones Sustainability Indices (DJSI MILA Pacific Alliance Index) and was recognized by the Latin Trade Index Americas. As of 2019, Orbia's consolidated annual revenue totaled \$7 billion (USD).

Fast Facts

- Commercial activities in more than **100** countries
- Operations in **41** countries
- **22,000+** employees
- **128** production sites
- **19** R&D labs

Market-Leading Business Groups & Brands



Building and Infrastructure

The Building and Infrastructure group is redefining today's pipe industry by creating durable solutions that last longer and require less labor to install. Serving customers in five continents, this group is also developing new, sustainable technologies around water collection and management and heating and cooling systems, as well as a revolutionary road surface that makes cities more livable, lovable and resilient for tomorrow.



Precision Agriculture

The Precision Agriculture group helps a world of farmers, growers and producers grow more with less, and feed the planet's consumers more efficiently. With a focus on providing end-to-end irrigation systems, services and digital farming technologies, the

group's solutions enable farmers and growers to get higher and better-quality yields while using less water, fertilizer and other inputs.



Data Communication

The Data Communication group operates under the belief that every company, every community and every person around the world deserves a chance to make the most of modern technology. The group produces more than 400 million meters of cable conduit per year and the advanced communication technologies that lay the pathways for fiber and other components—to ultimately carry vital information and data services to the world.



Fluor

The Fluor group provides fluorine-based products, technologies,

and other material applications to support modern living in a vast number of ways. With two operational fluorine mines and robust material science knowledge and production expertise, this group creates chemicals, propellants and advanced materials used across industries, including health and medicine, construction, transportation and more.



Polymer Solutions

The Polymer Solutions group is as adaptable and dynamic as the materials it produces. It focuses largely on PVC and other vinyl polymers with a wide variety of applications in products that enhance lives and livelihoods, including pipes, cables, flooring, auto parts, household appliances, clothing, packaging and medical devices.



Our Shared Purpose & Common Values

At Orbia, we recognize that we can't take on the world's biggest challenges alone. We take a collaborative, human-centered approach to creating a better future.

Our shared purpose is:

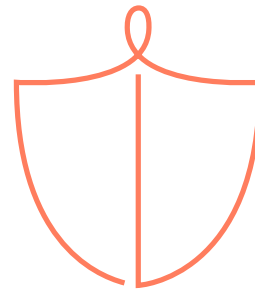
Advance Life Around the World



Our common values are:

Be Brave

We don't let our fears hold us back. In order to venture into the unknown, we move forward with curiosity and the ambition to create a better world.



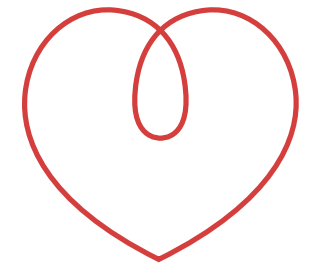
Embrace Diversity

We know that every voice matters. Every community deserves respect. Every challenge has an opportunity. We are stronger because we bring different perspectives together, united by empathy.



Take Responsibility

We realize that our actions have impact. We hold ourselves to the highest level of accountability, never losing sight of the ripple effect we have on each other, our customers and the world.



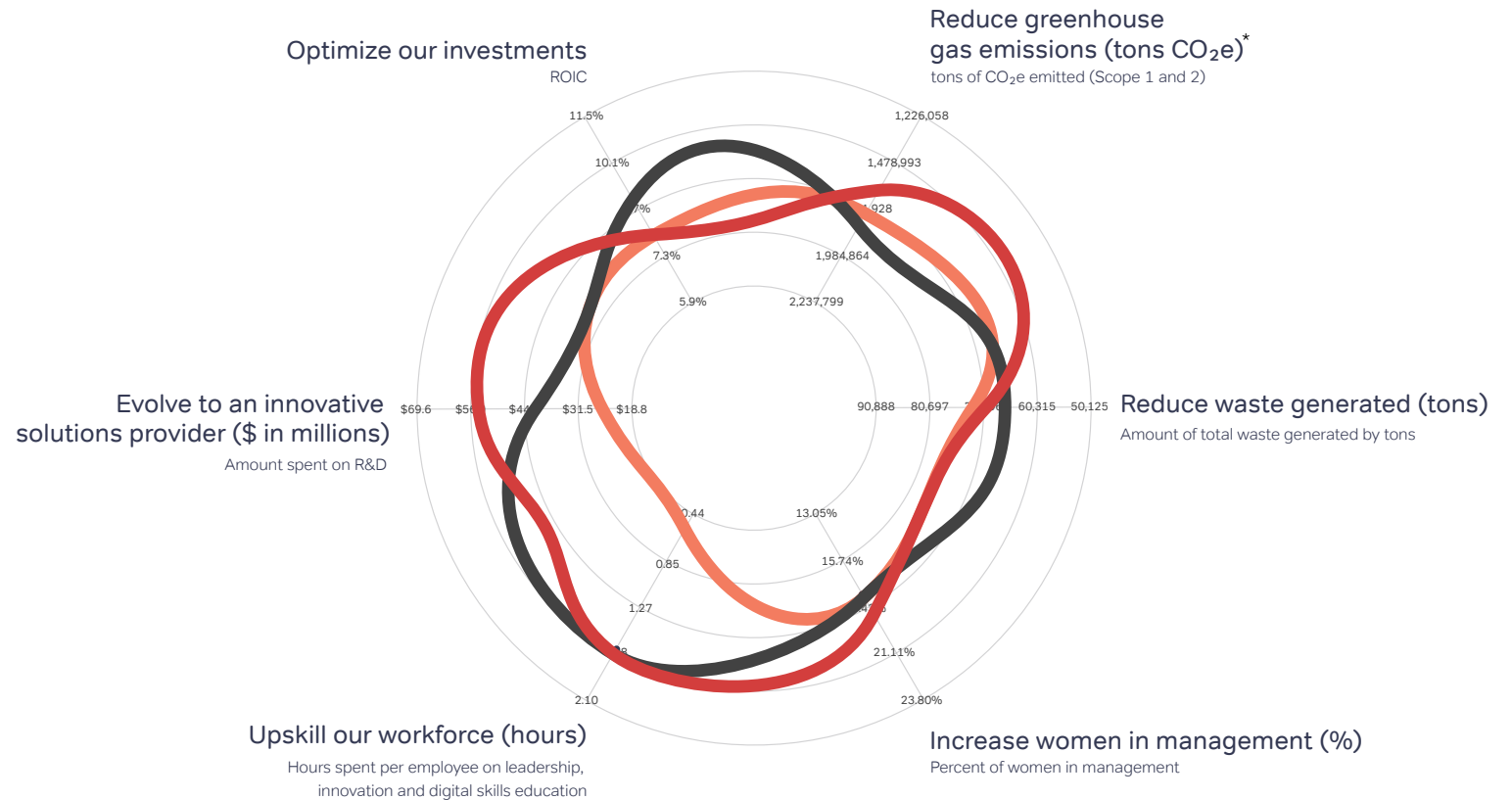


The ImpactMark: Making a Mark in the World, for the World

The main visual cornerstone of our brand is a first-of-its-kind “living” logomark: the ImpactMark. Reflective of three years of progress, the ImpactMark transparently represents Orbia’s movement on six key performance indicators related to planet, people and profit and the purpose to advance life around the world: reduction in generated waste (by tons), reduction in greenhouse gas emissions (by tons), increasing women in management (by percentage), upskilling our workforce (by hours), investment in R&D (by millions of dollars) and ROIC (by percentage).

The 2019 update of the ImpactMark demonstrates our ongoing journey toward achieving a perfect circle.

- 2017
- 2018
- 2019



* CO₂ equivalent (CO₂e) refers to greenhouse gases carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O) expressed as having the equivalent global warming impact as carbon dioxide.





Message from the Chairman

Dear Stakeholders,

More than a century and a half ago, Charles Dickens wrote lines that could describe our own time perhaps better than his: “It was the best of times, it was the worst of times, it was the age of wisdom, it was the age of foolishness, it was the epoch of belief, it was the epoch of incredulity, it was the season of Light, it was the season of Darkness, it was the spring of hope, it was the winter of despair, we had everything before us, we had nothing before us.”

If that sounds more than a bit like the world in which we now live and operate, then I have to tell you—Orbia’s stakeholders—how pleased I am to report your company and your management are not only performing well, but have positioned our company to prosper in the difficult, transformative years ahead.

Despite 2019 being characterized by a challenging macroeconomic climate, unpredictable markets and headwinds in many of our main verticals, we achieved our full-year guidance, maintained a strong balance sheet, upheld our investment grade rating and most important, defined with clarity our long-term purpose.

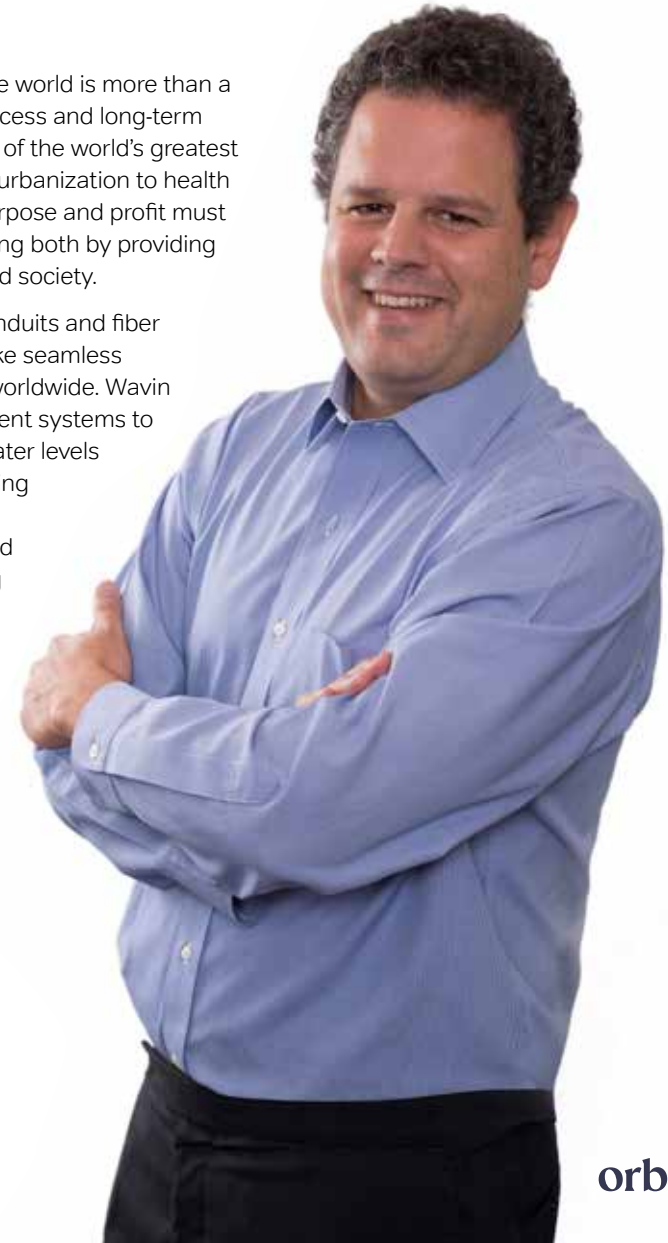
The collaborative effort that Daniel launched early in 2018 to contextualize who we are and where we want to go materialized in an important way in September 2019 with the launch of our new identity. We became Orbia—a community of businesses that is embracing diversity, being brave and taking responsibility to advance life around the world.

Our commitment to advance life around the world is more than a slogan: it is the key driver for our future success and long-term profitability. Orbia intends to address some of the world’s greatest challenges, from resource scarcity to rapid urbanization to health and well-being—and to do so profitably. Purpose and profit must co-exist for Orbia to prosper. We are pursuing both by providing solutions for resiliency to our customers and society.

For example, Dura-Line is deploying the conduits and fiber optic network infrastructure that could make seamless access to information the rule for citizens worldwide. Wavin is building city-scale stormwater management systems to keep feet dry through floods and groundwater levels stable through droughts. Netafim is deploying end-to-end precision irrigation solutions to help global growers increase crop yields and decrease resource use. Koura is developing fluorine-based battery additives for long-duration energy storage and Alphagary is creating polymers that are enhancing the construction of safe, consumer-friendly EV charging station hoses.

All of those and countless other initiatives and innovations are essential to achieving our purpose and creating value for all our stakeholders. But in a global environment that shows every symptom of becoming more complicated every day, we know that we can succeed only if we accelerate and intensify our sustainability efforts.

Last year we made considerable progress in implementing our sustainability agenda, from instituting forward-looking corporate





There is no doubt in my mind that sustainability and strong financial performance go hand-in-hand; indeed, sustainable operations and sustainable profitability are flip sides of the same coin. In that spirit, I can report to you that Orbia has already complied with the main recommendations of the global Task Force on Climate-Related Financial Disclosures (TCFD) framework, as you will read later in this report."

governance guidelines to clarifying our ESG practices and reporting; from developing circular product solutions across our businesses to achieving public sustainability milestones.

The best ESG practices start with good corporate governance. In 2019, we incorporated guidelines for the board that include a retirement age of 75 for directors starting in 2021 and director self-evaluations, among other key changes. Monitoring how we are doing every year and adding new members when others retire will help us evolve our leadership. In that context, we recently welcomed transformational leaders Alma Rosa Moreno and María Teresa Arnal to the board. Going forward, we will be overseeing and approving our sustainability strategy at the board level, with plans already underway to tie executive compensation to sustainability measures.

In addition, we conducted a broad-based materiality assessment to identify, evaluate and refine ESG issues of the greatest value to our employees, company and stakeholders. Using a bottom-up approach, we collected and aggregated data and inputs into business group-specific drivers as well as a full company materiality matrix, which you will see detailed in this report. This process defined our near and medium-term sustainability goals. For example, we intend to launch science-based emissions targets by 2021, to achieve zero waste to landfill by 2025, to realize 100% environmental management site certification by 2025 and to implement vulnerable community action programs by 2025.

There is no doubt in my mind that sustainability and strong financial performance go hand-in-hand; indeed, sustainable operations and sustainable profitability are flip sides of the same coin. In that spirit, I can report to you that Orbia has already complied with the main recommendations of the global Task Force on Climate-Related Financial Disclosures (TCFD) framework, as you will read later in this report.

Of course, sustainability is a journey, not a destination. Progress will demand commitment, patience, investment and constant action. That we are on the right path is evidenced by Orbia's inclusion in 2019 in the Dow Jones Sustainability Index (DJSI), alongside other global sustainability

leaders. Such recognition is an important milestone of what has already been achieved, but we all know that there are enormous challenges ahead.

I am confident in Orbia's future. We have the leaders, the team, the clarity of purpose and the full range of stakeholders to succeed regardless of the challenges that we must confront. I am thankful to the entire Orbia team for your dedication and to living our purpose, as well as to our investors and other stakeholders for your trust and support. Together we can achieve a better, sustainable and more prosperous future.

Juan Pablo del Valle Perochena
Chairman of the Board





Message from the CEO

Dear Readers,

At the close of 2019, my second year as CEO, I want to thank you for your investment in Orbia. Your commitment has ensured that the past year has been marked by accomplishments and that the stage is set for strong, sustainable value creation in the years ahead. I am truly honored to represent this company and guide its transformation journey. And I continue to be confident about our ability to improve people's lives for the foreseeable future.

2019 was indeed an important year for the company. After having successfully grown through acquisitions and expanded into new markets, we recognized the pressing need to define our existence as a global enterprise with elevated ambitions far beyond manufacturing commodities. This led us to unveil a new name, purpose, values, identity and strategy reflective of our shared drive to tackle the world's most pressing challenges, from food insecurity to rapid urbanization, water scarcity to data access, human health to the health of the planet.

In 2019, we became Orbia. We bound ourselves as a team of 22,000 people to the common purpose to advance life around the world and identified the values that would help us move on this purpose.

We introduced a first-of-its-kind living logomark—the ImpactMark—to hold us accountable in the world and track our year-over-year progress across key performance metrics, from percentage of women in management to greenhouse gas emissions to ROIC. We reorganized into five business groups focused on providing customer-centered solutions across the Data Communication (Dura-Line), Precision Agriculture (Netafim), Building and Infrastructure (Wavin), Fluor (Koura) and Polymer Solutions (Vestolit) verticals.

And critically, we started enacting a play-to-win strategy to capitalize on organic growth opportunities and deliver superior operational and financial performance. Across Orbia, our business groups have been doing just that—playing to win.

Koura has introduced a new low carbon footprint medical propellant for use in metered-dose inhalers, providing a next-generation therapeutic option for the over 300 million people worldwide suffering from respiratory diseases. Dura-Line has launched partnerships with major service providers to lay the lines for 5G networks that can connect 4 billion global citizens who are still information-underserved. Netafim has entered an agreement to provide end-to-end, agronomic-to-intelligent irrigation services to a Tanzanian conglomerate, with the goal to help them grow substantially more sugarcane with substantially less water across 2,000 hectares. These are a few examples. There are many more.

In over 110 markets and more than 40 countries, our community of businesses is providing solutions that demonstrate that a future where people, planet and profits thrive is within our sightline.

In 2019, we faced some headwinds in several of our main verticals, caused by the impact of illegal imports of refrigerant gases in Europe and challenging market conditions in our PVC chain. However, we saw significant improvements in the profitability of our Dura-Line and Netafim businesses. For the full year, revenue decreased 3% year-over-year from





In the year ahead, we intend to double down on operational excellence and focus on markets, products, services and solutions that will deliver higher profitability as we continue to control costs, manage our working capital and enact a disciplined capital allocation policy. But with these exacting goals, we will only see success by continuing to invest in our most valuable asset: our people."

\$7.2 billion to \$7.0 billion (USD) and our normalized EBITDA decreased 6% year-over-year from \$1.4 billion to \$1.3 billion. We continue to have a sound balance sheet as we maintained our discipline in capital allocation across the organization, resulting in a higher cash generation translated to a strong free cash flow conversion rate of 30.3%. Our dividend yield in dollar terms for 2019 was 4.8%. We also maintained our commitment to increase our return on invested capital (ROIC) going forward, which will be visibly reflected in our ImpactMark.

We know there is more to do to move the needle on our top-line growth and maximize our shareholder value.

Sustainability continues to be at the core of how we think about and do business. 2019 was a year in which we took action to measure and lighten our footprint, drive efficiencies and gain voice in the global climate conversation. We achieved new environmental milestones and made progress in terms of the transparency of our reporting. We started disclosing ESG indicators by business, refined a materiality assessment and carried out another assessment of climate-related risks and opportunities in concert with the Task Force on Climate-Related Financial Disclosures (TCFD) framework.

We were proud to be selected as an index component of the Dow Jones Sustainability Indices in recognition of our commitment to a systematic sustainability agenda. We reinforced that commitment by joining the United Nations' Business Ambition for 1.5°C as well as joining a select group of companies in signing the CEO Water Mandate to track our progress across six areas of water stewardship. And we saw our businesses scaling numerous resilient solutions—whether in the form of smart rainwater capture and recirculation tanks for use in times of resource scarcity, safe and lighter footprint PVC packaging or single-season irrigation driplines that meet farmers' needs for resource efficiencies and are fully recycled and reused anew.

In 2020, our focus will be on fully understanding our extended value chain carbon footprint so as to set science-based targets that will enable us to reduce and mitigate our impact.

In challenging ourselves to be future-fit and able to take advantage of horizon-line opportunities, generating innovation from within, across and outside Orbia was a priority for 2019. We created an internal innovation



I am extremely gratified that we are both optimizing for today and cultivating for tomorrow. We remain well positioned for sustainable growth and will continue to expand and invest to serve our customers.”

As we release this report, the world is facing an unprecedented health crisis due to the COVID-19 pandemic. We will be communicating on our response through other channels and in our 2020 Sustainability Report. This Report focuses on our 2019 achievements.

program to provide our most promising intrapreneurs with coaching, training, monitoring and support on the road from ideation to commercialization. We pursued partnerships with startups worldwide to pilot-test new technologies and from them, brought successes to market. We launched Orbia Ventures, a \$130 million corporate venture capital fund that gives us purview to invest in early-stage startups, expand our offerings to customers and decrease our costs. And we have officially opened our Lighthouse Lab in San Francisco to serve as the home base for our teams developing new ventures.

In the years ahead, we intend to double down on operational excellence and focus on markets, products, services and solutions that will deliver higher profitability as we continue to control costs, manage our working capital and enact a disciplined capital allocation policy. But with these exacting goals, we will only see success by continuing to invest in our most valuable asset: our people.

In 2019, we built out the corporate leadership team which lives our transformation journey, elevates the ambitions of our company and board members, engages our customers and employees and brings new expertise in areas including Health, Safety and the Environment and Ethics and Compliance to all of our stakeholders. Also, our new critical risk committee sets clear roles, responsibilities and accountability for how we manage risk and provides an enterprise risk management framework for how we establish risk appetite and associated limits for our activities. Strong leadership and governance will help us accelerate our progress as we seek to be the best in the world and the best for the world.

Through corporate training programs, we supported our employees to invest a total of 522,242 hours, up from 318,225 hours in 2016 on education, and steered company-wide transformation initiatives focused on talent, human-centered innovation, digitization, operational excellence and regeneration.

As we continue to hold the safety of our people as paramount, we worked in 2019 to ensure that each one of our 22,000 employees returned home safely at the end of the day. While we were proud to see a 31% improvement in our safety statistics and a new record Total Recordable Injury Rate (TRIR) of 0.71 down from 2018’s 1.03 (for employees and contractors), our work hasn’t ended with the year or the numbers. We will be launching new programming in 2020 to secure the safety of employees, contractors and visitors to all our sites.

We too maintain a foundational commitment to fostering an ethical culture led by integrity, transparency and compliance. In 2019, we continued to make significant investments in our ethics and compliance program and compliance governance infrastructure. In the year ahead, we will offer regular Code of Ethics training and communications for our leaders and employees. We believe it’s vital to continuously underscore the policies and procedures that will help us to conduct our business activities worldwide in full compliance with the law.

As you can see, 2019 has been a high-momentum and high-impact year for Orbia. I am extremely gratified that we are both optimizing for today and cultivating for tomorrow. We remain well positioned for sustainable growth and will continue to expand and invest to serve our customers.

Thank you again for joining us as we work together and become an ever more purpose-driven, customer-centric, future-fit force for the world.

Daniel Martinez-Valle
Chief Executive Officer





Our Impact





Financial and Sustainable Solutions Highlights

EBITDA of \$1.365B
reflecting 19.5% margin

\$414M free cash flow,
reflecting a conversion
rate of 30.3%

\$130M venture capital
fund launched and
\$55.7M invested in R&D

Became Orbia,
with a new identity, new purpose,
new structure, new strategy

Helped 57,000 farmers
in 100 Indian villages
grow more with less through community
irrigation projects



Provided conduit for
300+ telecom project
sites in the U.S.



Secured FDA approval
for our low carbon
footprint propellant,
Zephex® 152a, for metered-dose inhalers

Prevented flooding in
cities and optimized
stormwater reuse

through our new StormHarvester system
and Tegra street gully

Made electric
mobility easier with
thermoplastic elastomer Garaflex
hoses at charging stations
for leading automakers





Responsible Business Highlights

Created a Critical Risk Committee to assist the Board of Directors assessing enterprise risks

Increased women in management to 19% and delivered 522,000+ training hours

Completed our first TCFD-aligned climate risk assessment

Committed to sustainability goals for 2025 and net zero emissions by 2050



Improved safety rate by 31% (employee and contractor TRIR)



Reduced greenhouse gas emissions by 9% and increased renewable electricity by 47% in five countries

Updated our materiality assessment by engaging key stakeholders globally

Maintained 2.3% water use reduction since 2017



Quadrupled recycling in California to 12,000 tons per year for irrigation driplines





Transformation Journey



In 2019, Mexichem S.A.B. de C.V., a maker of PVC pipe, resins, compounds and specialty chemicals with a legacy of more than 50 years of business success and growth, proudly became Orbia Advance Corporation S.A.B. de C.V. This transition was more significant than the adoption of a new name: it represented a new strategy, operational reorganization and capabilities aligned to address some of the world's most pressing challenges and usher in a new era of social and environmental contributions. At Orbia, we took action and made moves on a transformation journey in several important ways over the course of 2019:

- **Underpinning the company's reason for being** with a name, identity, brand architecture, purpose and values that stand up to our ambitions as a truly global enterprise.
- **Prioritizing customer-centric approaches** through examination and adoption of capital and operational strategies designed to meet customer demand, capitalize on organic growth opportunities and deliver superior operational and financial performance.
- **Embedding innovation into our culture** with wide-scale innovation initiatives, including our first Orbia Employee Challenge to encourage employees to think deeply and differently about creating new solutions to pressing challenges, and company-wide transformation programming focused on cultivating talent, human-centered innovation, digitization, operational excellence and regeneration.

Moving forward on Orbia's transformation journey, we continue to seek out opportunities to align and evolve what we do together as a sustainability-led business working to advance life around the world.

"Orb" is the Latin word for spherical globe. "Bia" was a Greek goddess personifying force and power. Combining both to form Orbia, we consider our company as "a force for the world."



Innovation Investment



Human-centered design can be a powerful tool in the innovation process, essential to unlocking new capabilities and opportunities that will propel the business forward. Through Lighthouse, we're using this tool to build new ventures that align with Orbia's purpose."

Bryan Walker

Partner and Managing Director, IDEO

Embedding innovation into our organization is and will be critical to our success as a resilient and future-fit company. In 2019, we leveraged the breadth of innovation capabilities within Orbia as well as innovation-led external partnerships to bring new practices and solutions to market through the following activities:

In 2019, we invested \$55.7 million USD on innovation-led R&D efforts

- **Launched our multi-year \$130 million venture capital (VC) fund (Orbia Ventures)** to capitalize early stage startups with strategic connections to Orbia's core businesses and corporate purpose. For more details, see: www.orbia.com/ventures.
- **Became a corporate member at Greentown Labs**, the largest cleantech incubator in the U.S., to accelerate partnerships with startups and supplement our engagement with other VC leaders with mutual interests.
- **Opened the doors at Lighthouse, our venture studio in San Francisco** in partnership with [IDEO](http://www.ideo.com), a global design and innovation company, to house our ventures team and initiatives.
- **Activated intrapreneurs through Orbia LaunchPad**, an internal innovation program designed to help our promising ideators turning their concepts into realities.
- **Formalized a Global Innovation Forum** to bring R&D leaders from all our business groups to learn innovation methodologies, discuss opportunities, share best practices, and take action.
- **Built innovation skill development** through new training and educational programs, including the popular rapid prototyping program with design thinking world expert Tom Chi.



Financial Strategy

In line with the evolution of our company, in 2019, we maintained our focus on identifying initiatives, investments and synergies to fuel growth across each of our business groups in line with meeting our customers' needs to drive higher value creation, capitalization of organic growth opportunities and deliver superior operational and financial performance.

We introduced the following sustainable practices with associated KPIs in 2019:

- **Gaining market intelligence to expand into new geographies and markets** and offer more differentiated solutions to customers to enhance consolidated EBITDA margins;
- **Focusing on scaling operational best practices** for production safety and quality and process efficiencies for capacity utilization and global sourcing to realize economies of scale;
- **Harnessing synergies and shared service models** for logistics, transportation and operations to reduce operating expenses;
- **Leveraging internal R&D capabilities as well as external, innovation-led partnerships** to develop, test and deploy product and service innovations that will generate new revenue streams and
- **Responsibly allocating capital** to drive top-line growth. We maintained a strong balance sheet through exercising discipline in capital allocation across the company, in reflection of our commitment to increase our return on invested capital (ROIC).

Continued discipline in executing these practices over the coming years will translate into higher organic growth while maintaining healthy EBITDA margins and improving our return on invested capital.

Business Performance

In 2019, we saw significant improvements in the profitability of our Dura-Line and Netafim businesses, although we faced some headwinds in our main verticals, caused by the impact of illegal imports of refrigerant gases in Europe and challenging market conditions in our PVC chain.

For the full year, revenue decreased 3% year-over-year from \$7.2 billion to \$7.0 billion, mainly driven by lower sales in the Vestolit, Wavin, and Dura-Line businesses, impacted by lower prices of PVC and caustic soda, sluggish market conditions, and illegal imports of refrigerant gases in Europe. Our normalized EBITDA decreased 6% year-over-year from \$1.4 billion to \$1.3 billion. This was mainly due to the challenge in market conditions faced by Vestolit and Koura.

We continue to have a sound balance sheet as we maintained our discipline in capital allocation across the organization, resulting in a higher cash generation translated to a strong free cash flow conversion rate of 30.3%. Our dividend yield in dollar terms for 2019 was 4.8%.

Financial Highlights 2019

(\$Millions)	2019	2018	Variation
Net sales	6,987	7,198	-3%
Cost of sales	5,029	5,199	-3%
Gross profit	1,958	1,999	-2%
Operating expenses	1,135	1,064	7%
Operating income	823	935	-12%
Net financial expenses and variation in the exchange rate	296	284	4%
Income tax	206	195	6%
Income from continuing operations	327	460	-29%
Consolidated net income	327	483	-32%



Net sales: In 2019, consolidated sales decreased by 3% compared to the same period in 2018, to \$6,987 million, mainly due to lower sales in: (1) our Polymer Solutions (Vestolit) business mainly because of challenging market conditions that resulted in lower caustic soda and PVC prices; (2) our Fluent business mainly due to lower sales posted by Wavin Europe and Wavin Latin America as well as by Dura-Line, and (3) our Fluor business which was affected by the impact of illegal imports of refrigerant gases in Europe.

Cost of sales: Our cost of sales decreased by 3%, from \$5,199 million in 2018, to \$5,029 million in 2019, mainly due to lower average raw material costs across most our operations and to a better product mix.

Gross profit: Our gross profit decreased by 2% from \$1,999 million in 2018 to \$1,958 million in 2019. Our gross margin, which is calculated by dividing gross profit by net sales, increased 20bps in 2019, compared to 2018. This expansion was mainly generated in our Fluent business by Netafim and Dura-Line.

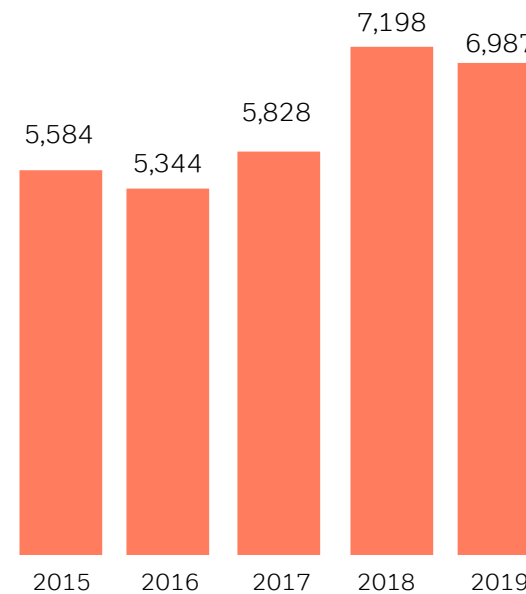
Operating expenses: Our operating expenses increased by 13% from \$1,064 million in 2018, to \$1,135 million in 2019. This increase is the result of (1) Vestolit's reserve related to a fine by the European competition authorities; (2) an additional full month (January) in Netafim and (3) expenses related to our business groups. Our operating expenses represented 16% of our net sales during 2019, compared to 15% in 2018.

Net financial expenses and variation in the exchange rate: Our net financial expenses and variation in the exchange rate increased by 4%, from \$284 million in 2018, to \$296 million in 2019. The increase is due to (1) the adoption of IFRS 16 that impacted our net interest expenses; (2) higher bank commissions related to the renewal of our \$1.5 billion Revolving Credit Facility, and (3) Netafim's refinancing of its bank loan facilities. These increased costs were partially offset by a decrease in foreign exchange losses.

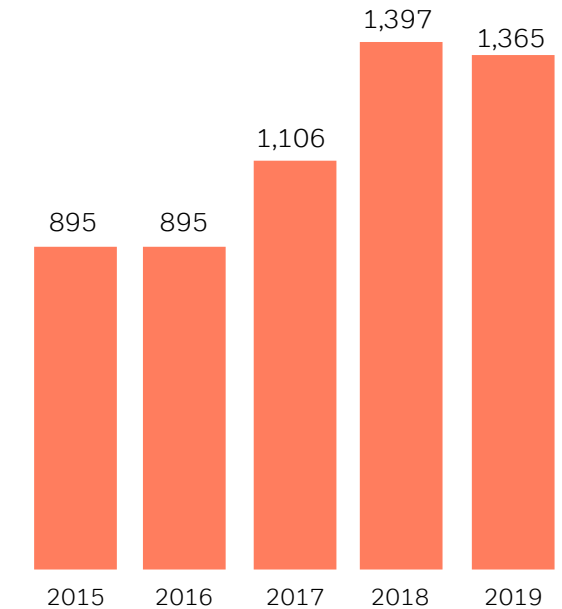
Income tax: Our income taxes amounted to \$206 million in 2019 compared to \$195 million in 2018. This increase was mainly due to the appreciation of the Mexican Peso over the U.S. Dollar as well as by the repatriation of dividends.

Consolidated net income: Consolidated net income decreased by 32% from \$483 million in 2018, to \$327 million in 2019, due to the factors described above. The majority net income decreased by 42%, from \$355 million in 2018 to \$207 million in 2019.

Revenues (\$ Millions)



EBITDA (\$ Millions)





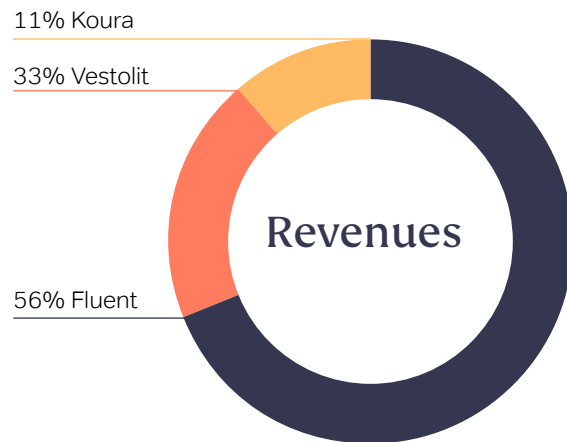
Results by Business Group

Fluent Business Group* (includes Wavin, Netafim and Dura-Line): In 2019, sales reached \$3,999 million, a decrease of 2% compared to the same period last year, mainly due to lower sales posted by Wavin Europe and Wavin Latin America as well as by Dura-Line. Dura-Line's lower sales numbers were largely due to a continued shift to a more profitable product mix as well as a reduction of sales in India. These declines were partially offset by a 12% increase in Netafim sales. EBITDA increased by 17% during 2019 to \$590 million, with an implied EBITDA margin of 14.8%.

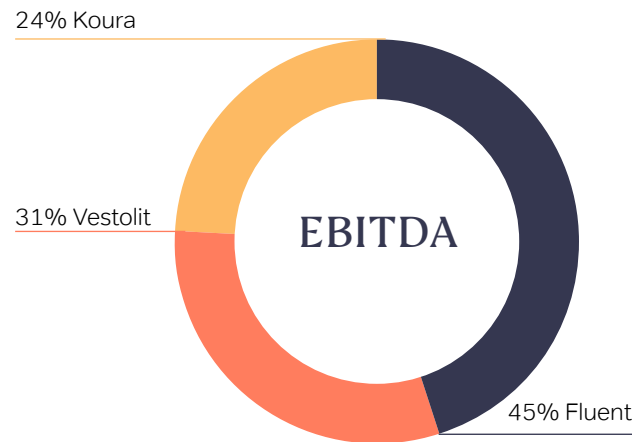
Polymer Solutions Business Group (Vestolit): In 2019, Vestolit's sales decreased by 5% from \$2,460 million in 2018 to \$2,334 million in 2019, mainly due to challenging market conditions that resulted in lower caustic soda and PVC prices. EBITDA decreased 17% to \$415 million from the

\$502 million reported in 2018, with an EBITDA margin contraction of 366 bps to 16.2% from 2018's 19.9%. Full year EBITDA was also impacted by a temporary force majeure of a key supplier in Germany, as well as longer than expected maintenance work in a main VCM supplier plant in the U.S.

Fluor Business Group (Koura): The net sales of our Fluor Business Group decreased 4% to \$805 million in 2019 compared to \$837 million in 2018. This decrease was mainly due to impact of illegal imports of refrigerant gases in Europe constrained Koura's "downstream" (i.e. higher value-added fluorinated products) business. A strong performance in Koura's "upstream" (i.e. fluorspar and HF) business partially offset this impact. EBITDA decreased 8% during 2019 to \$316 million, with an EBITDA margin of 39.3%.



Revenues are in \$Millions after intercompany eliminations (\$144M in the Polymer Solutions Business Group)



EBITDA is in \$Millions before intercompany eliminations

* Fluent Business Group is used for financial reporting purposes, in line with all our financial disclosures.





Sustainability Business Strategy

Orbia contributes to global sustainable development by delivering a large portfolio of products, services and solutions that can help meet the world's most pressing challenges. We are committed to responsible business growth in full compliance with the laws and regulations of all the countries in which we operate.

We are continuously seeking to minimize any discernible risks in our production processes and to lighten the footprints of the products and services we offer to deliver the greatest value to our stakeholders with the least environmental impact. See our [Sustainability Policy](#) for the full scope of our commitments.

Orbia's 2019 Materiality Assessment

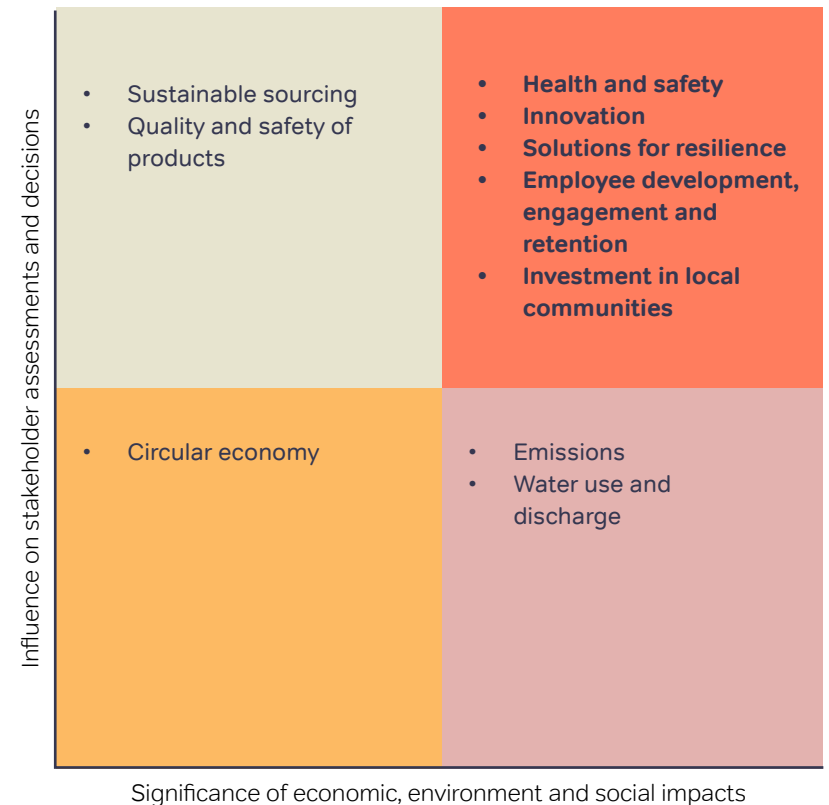
In 2019, we initiated a wider-ranging global assessment of our material impacts, to inform our sustainability strategy, goal setting and our longitudinal reporting in the year and years ahead. This built on previous work to define materiality (what issues are material to Orbia when it comes to advancing our sustainable operations), while expanding the scope of our standard assessment process to respect our new business group structure. Informed by our analysis of global trends, Orbia's capabilities and business strategies, leading sustainability disclosure frameworks and investor demands, we gleaned insights and solicited feedback on material matters from hundreds of stakeholders across 50 countries, including:

- Customers
- Joint venture partners
- Public agencies
- NGOs
- Business group leaders
- Investor groups
- Global suppliers
- Employees

Our 2019 approach was both bottom-up and top-down, inclusive of global megatrends and sustainability topics relevant to Orbia as a company as well as sustainability issues more closely relevant to individual business groups, based on product mixes, markets and activities. Our analysis of these inputs used a weighted mechanism based on business group revenues.

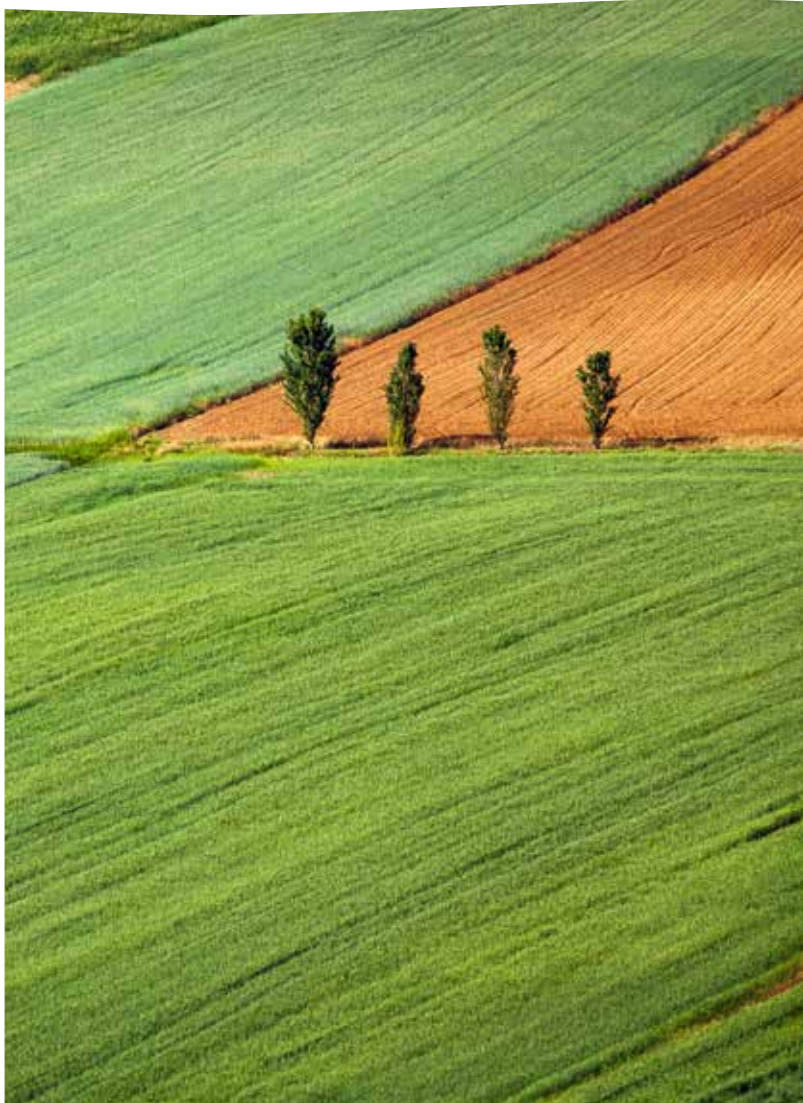
In addition to the top ten material impacts, our assessment identified a further nine issues that have relevance to Orbia's work on a global scale, as well as several additional issues at the business group levels. While our reporting is focused on our ten most material global impact areas, we address others through our ongoing activities at the corporate and business group levels.

Orbia's Top Ten Material Impacts





Sustainability Goals



Our new sustainability goals align with our top ten material impacts as well as several of the performance indicators that constitute the ImpactMark.

Impact area	Goal	Target year
Climate Change	Achieve net zero carbon emissions	2050
Air emissions	Reduce sulfur oxide (SOx) emissions by 60%*	2025
Environmental Management	100% of sites certified with an environmental management system	2025
Waste	100% of plants will send zero waste to landfill	2025
Safety	Total Recordable Injury Rate (TRIR) below 0.2 total for employees and contractors	2025
Safety	Process Safety Event Rate (PSER) below 0.5	2025

We will start reporting progress against these goals and baseline indicators in our 2020 Sustainability Report. Additionally, we are continuing to refine our goals in other areas—such as those around water use and community impacts—and expect to publish new targets in 2020.

* Baseline for SOx emissions is 1,355 tons (2018)



Orbia Sustainability Performance Data Summary

Environment	Units	2017	2018	2019	YoY
Energy (fuel and gas)	MWh	2,852,698	2,524,633	2,931,020	16%
Energy (purchased electricity)	MWh	2,457,173	2,723,899	2,662,448	-2%
Total energy consumption	MWh	5,309,871	5,248,532	5,593,468	7%
Energy intensity	MWh/ton	1.19	1.12	0.68	
Renewable energy	MWh		55,737	81,890	47%
GHG emissions Scope 1	Tons CO ₂ e	587,487	575,204	588,002	2%
GHG emissions Scope 2	Tons CO ₂ e	1,173,202	1,215,035	1,046,742	-14%
Total Scope 1 and Scope 2 GHG emissions	Tons CO₂e	1,760,689	1,790,239	1,634,744	-9%
GHG emissions intensity Scope 1	Tons CO ₂ e/ton	0.13	0.12	0.07	
GHG emissions intensity Scope 2	Tons CO ₂ e/ton	0.26	0.26	0.13	
GHG emissions intensity Scope 1+2	Tons CO₂e/ton	0.39	0.38	0.20	
NOx	Tons	779	689	753	9%
SOx	Tons	1,257	1,355	1,181	-13%
VOC	Tons	83	108	92	-14%
Total other air emissions	Tons	2,119	2,152	2,027	-6%
Total water withdrawal	1,000 m ³	16,328	15,753	15,946	1%
Total water discharge	1,000 m ³		10,540	11,902	13%
Water withdrawal intensity	m³/ton	3.66	3.35	1.93	
Total non-hazardous waste	Tons		54,407	56,104	3%
Total hazardous waste	Tons		12,426	13,251	7%
Total waste	Tons		66,833	69,355	4%

Environment	Units	2017	2018	2019	YoY
Percentage of total waste recycled/reused/recovered	%		51%	50%	-1%
Percentage of total waste to landfill	%		42%	37%	-10%
Waste intensity	Tons/ton		0.014	0.008	
Social	Units	2017	2018	2019	YoY
Employees					
Total employees	No.	17,671	21,900	22,123	1%
Contractors	No.		2,124	2,649	25%
Women in management roles	%	16%	17%	19%	9%
Employee training	hours	364,573	473,759	522,242	10%
Average training hours	hours/year/employee	20.63	21.63	23.61	9%
Safety (employees and contractors total)					
Injury rate	TRIR	1.74	1.03	0.71	-31%
Lost Day Rate (severity)	LDR	21.71	14.82	6.62	-55%
Lost Time Injury Rate	LTIR	0.5	0.36	0.33	-9%
Gender Diversity on the Board					
Female directors	number (%)	1 (9%)	2 (17%)	3 (23%)	33%
Community investment					
Total giving (cash and in-kind)	\$	1,690,618	3,711,183	2,888,737	-22%

Notes:

- Environmental intensity calculations in 2019 reflect methodology change from tons sold (prior years) to tons manufactured (2019 and going forward.) Tons manufactured are generally higher than tons sold, as calculations include internal company transfers of intermediate products.
- Community investment for 2018 investment includes a one-time donation of \$1.2 million to the Kaluz Foundation following the Mexican earthquake in 2018.
- Safety data for 2017 is employees only, and 2018 excludes Netafim.
- YoY: Year on year variation (2019 vs. 2018)



Advancing Sustainable Solutions





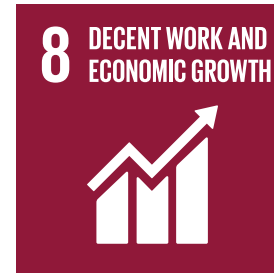
Advancing Sustainable Solutions

Ratified by the United Nations General Assembly in September 2015, the UN Sustainable Development Goals (SDGs) represent a comprehensive set of social and environmental benchmarks that demand the action of governments, businesses and communities to achieve inclusive global prosperity by 2030. In pursuing our purpose, we have identified six out of the 17 goals on which we can have the greatest impact, as noted below.

Feeding the world sustainably



Advancing responsible business



Making health and well-being more accessible



Making cities more livable, lovable and resilient



Better managing water systems



Empowering communities with data



Find out more: www.un.org/sustainabledevelopment/sustainable-development-goals





Feeding the World Sustainably



With estimates of reaching a population of 9.7 billion people by 2050, according to projections of the United Nations, ensuring accessible, affordable and nourishing food for all is one of the world's most pressing challenges.

At Orbia, we are playing a pivotal role in the global journey toward food security and agricultural prosperity. Through providing precision agriculture products and services, we are privileged to reach millions of the world's farmers each day, helping them grow more to sustain themselves and their communities with less burden on the environment and resources.





At Netafim, we have a long legacy of helping feed the world by helping farmers grow more with less.

As we continue to apply new technologies for drip systems and as our cumulative experience of the positive impacts of precision irrigation grows, we are finding that we can scale our contributions to global food security and resource conservation through partnerships within Orbia and public-private external collaborative programs that transform lives on our way to a sustainable future.”

Gaby Miodownik
President, Precision Agriculture

Transforming Agricultural Livelihoods in India

Agriculture around the world is dominated by smallholder farmers, and nowhere is this truer than in India. Despite smallholder farmers’ vast contributions to the Indian food supply chain, many struggle to gain access to markets and resources that will ensure their survival. Netafim has been working to enhance agricultural efficiency, quality and sustenance through drip irrigation, and has established deep roots in India’s smallholder farming communities through pioneering Community Irrigation (CI) initiatives. CI projects use a single water source (river, reservoir or canal) to support the needs of multiple farmers on the backs of irrigation systems and associated support.

Netafim’s first fully automated Community Irrigation project

- **Sponsored by:** KBJNL (Krishna Bhagya Jal Nigam Limited)
- **Where:** Ramthal region, Karnataka, southwestern India
- **When:** 2014-2017
- **Who:** 7,000 farmers
- **What:** 11,700 hectares in total in 22 villages with 77,000 kilometers of irrigation driplines, supplying water needs to all farms in the project.
- **What happened:**
 - **25-30%** yield increase reported by farmers in the project area using drip irrigation
 - **>50%** increase in water efficiency
 - **13** commercial agreements in place between farmers and food processing companies for supply of agricultural produce
 - **Increase** in women’s participation in farming due to less labor-intensive methods
- **What’s next:** Ongoing support and maintenance, improved quality of life and scaled-up food security.

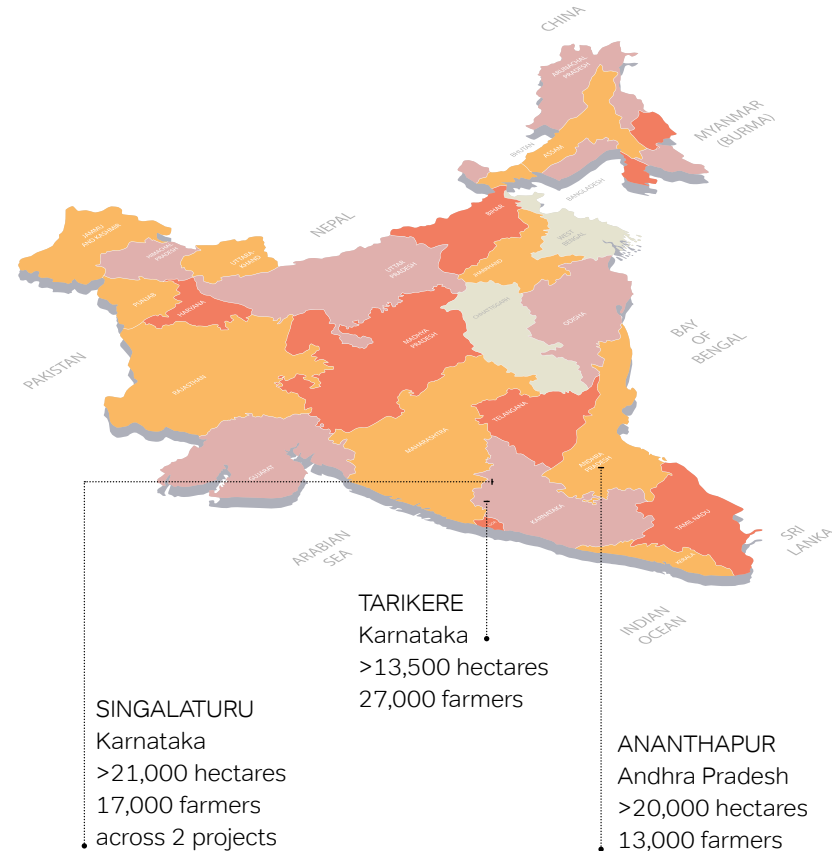




In 2019, Netafim advanced four additional large community irrigation projects in India. These four projects connect a total of 57,000 farmers in over 100 villages to end-to-end irrigation solutions across 55,000 hectares of farmland.

While each of the four projects has its own unique features, the overarching scope remains similar: providing automated drip irrigation systems through design, construction, operation and ongoing maintenance of these community irrigation installations over five-year periods.

Netafim Community Irrigation Projects in India 2018-2023



The community irrigation model enables us, together with local governments, to impact the livelihoods of thousands of farmers with our advanced precision irrigation and digital farming solutions. We have always known that collaboration can yield incredible results; our community irrigation model is now a proven success and we look forward to transforming many more farming communities across India in the future, starting with four projects in Karnataka and Andhra Pradesh to be completed in 2020.”

Randhir Chauhan
President, Orbia India



Streamlining Efficiency with PepsiCo in Mexico



In Mexico, PepsiCo's local team had an ambitious goal: to increase production of potatoes to meet the yearly product demand of more than 300,000 tons in a sustainable manner. With Netafim as a partner to support all installations at the PepsiCo Sabritas® Agricultural Development Center (CEDAS) in Toluca, Mexico, PepsiCo was able to harness Netafim's irrigation and cultivation technologies to **improve yields by approximately 40% and use almost 90% less water** through an advanced aeroponic and hydroponic growing method.

Supporting Farmers and Food Security

Deploying new technology, seeding crop trials and supporting positive impacts in farming communities around the world, Netafim introduced:

- **Advanced technology that saves energy in digital farming:** To help seamlessly power the automated irrigation, nutrigation and crop protection services provided through NetBeat™, Netafim's smart irrigation platform, Netafim trialed Sol Chip's maintenance-free Everlasting Solar Battery in 2019 to run NetBeat digital farming systems for 10 years without downtime or replacement. In 2020 and beyond, Sol Chip's component will be integrated into all NetBeat based digital farming systems.
- **First drip-irrigated rice crops cultivated across 1,000 hectares:** After a decade of field trials, the first commercial-scale drip irrigation systems for rice fields were installed in 2019 to support sustainable and safe cultivation across Turkey and India. Trial data over several years demonstrated that Netafim's drip irrigation systems resulted in 60% water savings, 30% fertilizer reduction, methane emissions decreases to nearly zero and 90% reduction of arsenic uptake into rice crops. With positive outcomes expected, the applications for rice farmers worldwide are promising.
- **An officially recognized water conservation system:** In 2019, the U.S. Department of Agriculture recognized Netafim's effluent subsurface drip irrigation (SDI-E) system for its conservation efficacy. Using advanced filtration and proprietary, patent-pending technology, SDI-E blends dairy wastewater with fresh water at an optimal ratio, reducing the freshwater volume required for growing feed crops. SDI-E was proven over three years of field trials with California dairy farmers, whose 1.7 million alfalfa-fed cows provide 20% of the U.S. milk supply.
- **A circularized drip irrigation model:** In Mexico, we are innovating a new business model that takes us closer to circular economy, providing precision irrigation as a full service. Working to help farmers reach optimum results and minimal upfront investment, access to drip irrigation is now easier than ever. In 2019, Netafim piloted this service on 147 hectares across two farms, cultivating corn and alfalfa. In both cases, yields increased by 20-40%, water consumption reduced by an average of 20%, and farmer income increased by more than 40%.

 **Netafim was the only company that could provide us the innovative irrigation solution for rice that we needed. Drip irrigation makes weed control easier, boosts yield and leads to higher quality crops as well as optimizing our water savings right from the start."**

Bülent Can
Rice Farmer in Beliksir, Gönen region, Turkey

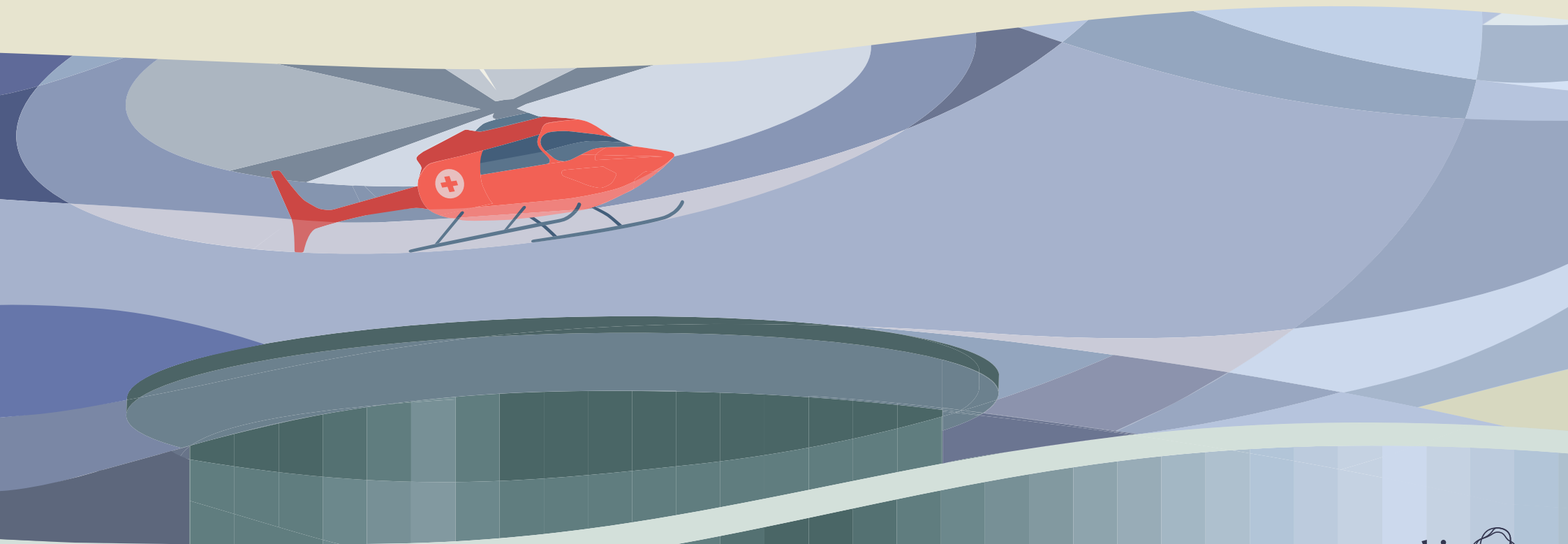


Making Health and Well-Being More Accessible



Ensuring widespread health and well-being is fundamental to global prosperity. At Orbia, we use our unique capabilities across our different business groups to advance solutions that make communities healthier and more resilient.

Orbia is the leading global supplier of polymers used in essential medical equipment such as IV bags, tubes, oxygen masks and a range of medical grade PVC enhancements for hospitals and clinics, as well as a manufacturer of the chlorine used in many life-sustaining applications. In addition, Orbia's Fluor business group leads global production of the fluorine-based medical propellants used to deliver life-saving medications in metered-dose inhalers and similar respiratory devices.





The versatility and wide application of fluorine-based products enables us to be at the center of many innovations that can help us advance life around the world. With our efforts in next-generation medical propellants, refrigerants with lower global warming potential and fluorinated additives for energy storage, we are at the forefront of developing solutions for a sustainable future.

At the same time, as a responsible operator, we are making our mining and manufacturing processes safer and more efficient.”

Sameer Bharadwaj
President, Fluor & Compounds

Supporting Human and Environmental Health

Today, Koura supplies over 70% of the fluorine-based medical propellants used in the metered dose inhalers (MDIs) that ensure millions of asthma patients worldwide can breathe easily. In a move-the-needle moment on the journey to sustainable and conscientious therapies, after several years of dedicated research and development, **Koura introduced Zephex® 152a (1,1-difluoroethane), a new propellant gas that will deliver more than 90 percent reduction in Global Warming Potential for pressurized MDIs**, as compared to current offerings. In early 2020, the U.S. Food and Drug Administration (FDA) approved progress to clinical trials.

Working with Chiesi Farmaceutici, an international pharmaceutical company based in Italy, Koura is now advancing the development of next-gen, lower carbon Zephex® 152a-powered MDIs with a slated market launch date of 2025. Chiesi plans to invest €350 to bring these new formulations to market, while Koura has committed a multimillion-dollar investment in a pharmaceutical-grade laboratory facility in the U.K. to develop Zephex® 152a to the requirements of the FDA and worldwide regulatory agencies as well as support further propellant development activities.



We believe protecting patient health and the environment should not be a matter of compromise. We are proud to supply both pMDI and DPI inhalers and to have taken decisive and ambitious action to ensure patients can continue to access the inhaler options that best suit their needs, while innovating to find the most environmentally conscious solutions available.”

Ugo Di Francesco, CEO, Chiesi Group



Better Managing Water Systems



While access to safe and sanitary water should be a basic human right, it is actually a pipe dream for billions of people around the globe. According to the United Nations, 3 in 10 people today lack access to safely managed drinking water and 6 in 10 people lack access to safely managed sanitation facilities.

At Orbia, we are seeking to open access to this critical resource by fluidly innovating to deliver safe, efficient water management systems and technologies. Our resilient solutions include capture, recycling and reuse of water, with rain and stormwater harvesting, street gullies and heating and cooling systems. Our smart products include solutions that ease the burden of installation for managing the movement of water for homes and buildings; sewer systems that support city-wide sanitation, and fluorspar applications for water treatment. These solutions help bring clean water to millions of people and bring more circularity to water systems within buildings and entire communities.





At Orbia, in so many parts of the world, we see the tragic loss of water in cities and in homes, through inadequate water infrastructures. That’s just one of the pressing challenges we are helping address through our innovative technologies and advanced solutions for water and sanitation through our Wavin brand. Enabling a water-secure future is the key to advancing life around the world.”

Maarten Roef
President, Building & Infrastructure

The Source for Sustainable Urban Living

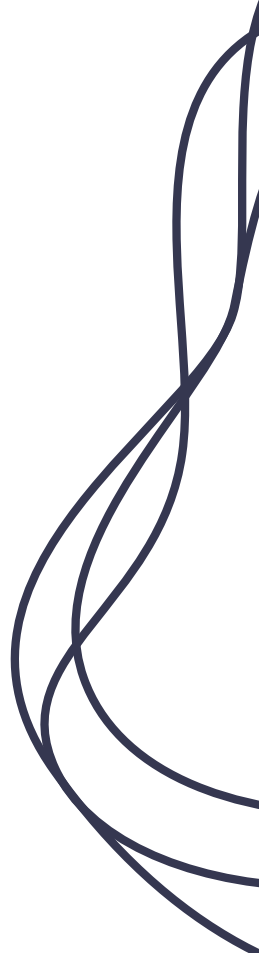
To keep global cities and citizens supplied with water through extreme weather cycles, Wavin’s stormwater management solutions reduce flooding risks and help control groundwater loss in urban environments. For example, we help compensate groundwater depletion and reduce floods through our Q-Bic Plus or AquaCell, modular units that are installed underground.

In 2019, Wavin introduced several additional initiatives to improve stormwater management, leak detection and rainwater harvesting around the world:

- **A smarter drainage system:** Through a new partnership with [StormHarvester](#), a leader in automated monitoring and control of drainage infrastructure, Wavin is now offering cities the Wavin StormHarvester system: an all-in-one-tank rainwater reuse and flood drainage system run on smart weather forecasting technology. The system is already achieving widespread recognition and awards in Europe, and is currently shortlisted as one of the five nominees for the 2020 Belgian VLARIO Innovation Award.
- **A new gully to prevent flooding in cities:** In 2019, Wavin introduced the new Tegra street gully (made from 100% recycled plastic), which uses patented technology to filter up to 98% more leaves, dirt and litter without compromising discharging capacity, keeping rainwater tanks and rivers and oceans clean while reducing the risk of puddles on roads and in parking places.



StormHarvester system

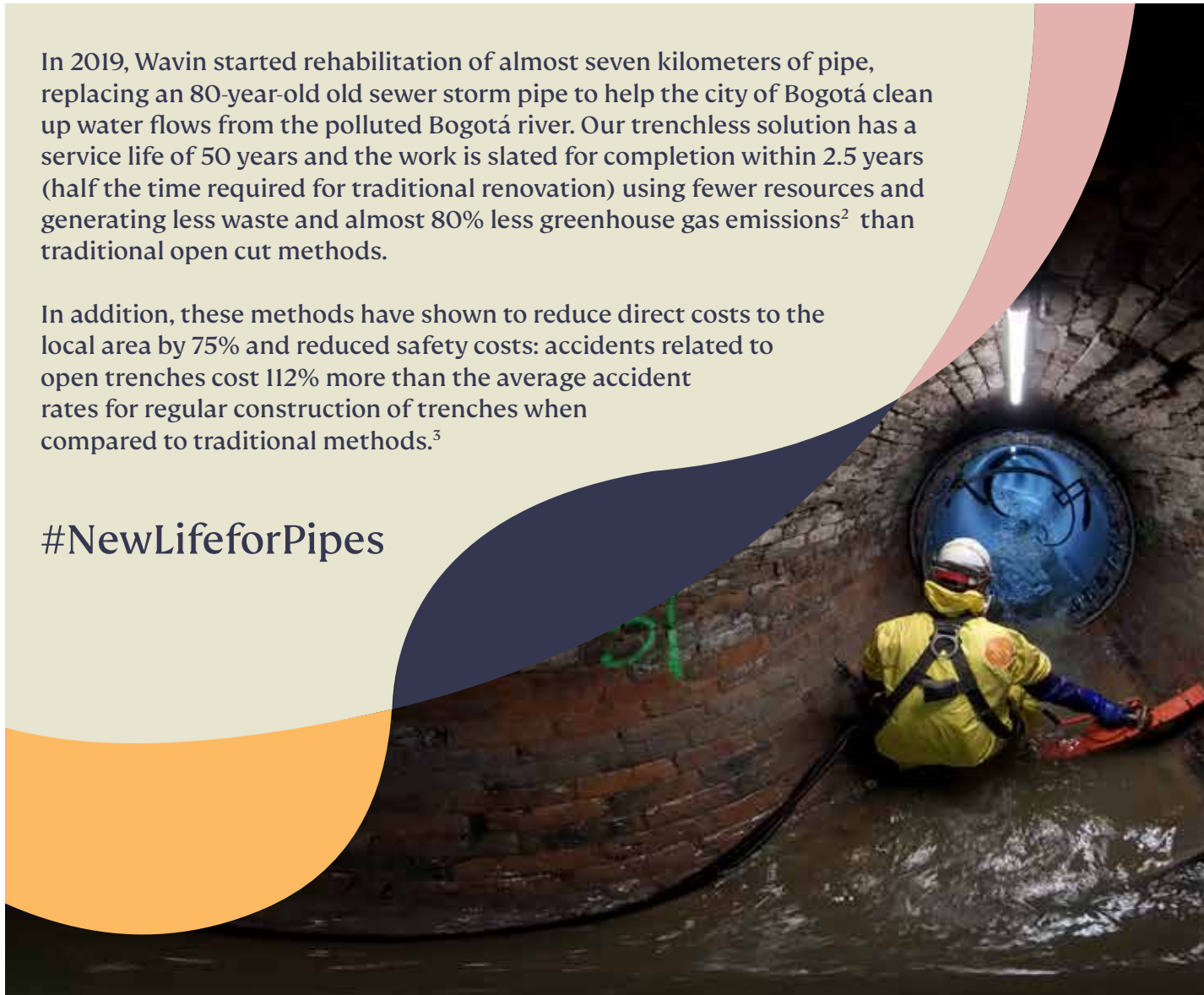




In 2019, Wavin started rehabilitation of almost seven kilometers of pipe, replacing an 80-year-old old sewer storm pipe to help the city of Bogotá clean up water flows from the polluted Bogotá river. Our trenchless solution has a service life of 50 years and the work is slated for completion within 2.5 years (half the time required for traditional renovation) using fewer resources and generating less waste and almost 80% less greenhouse gas emissions² than traditional open cut methods.

In addition, these methods have shown to reduce direct costs to the local area by 75% and reduced safety costs: accidents related to open trenches cost 112% more than the average accident rates for regular construction of trenches when compared to traditional methods.³

#NewLifeForPipes



- **No-dig water infrastructure for cities:** The trenchless (ZinZanja) rehabilitation solutions from Wavin using compact pipe and eight other no-dig technologies are now coming into widespread use for urban water installations and aging water infrastructure upgrades alike, offering dramatic gains in direct regional costs (with reductions in construction costs of up to 75%), times-to-completion, resource efficiency, maintenance needs and resiliency. To date, Wavin has now installed over 1.5 million meters of compact pipe systems worldwide to fix old buildings, repair leaking pipes, and reliably carry water to citizens worldwide for up to 80 years, unimpeded.
- **Scalable rainwater reuse systems:** To provide water to rural communities across Central America, Wavin has installed more than 3,000 systems over the past four years, improving water supply for more than 20,000 people. In 2019, Wavin provided more than 200 rainwater harvesting systems to keep Guatemala, Honduras and El Salvador running—as a mere one example, the installation of 15,000-liter tanks and conduits served 500 people in the local communities surrounding Baja Verapaz in Guatemala.
- **A productive pilot:** To get to the source of leaky water pipelines, Wavin partnered in 2019 with an engineering start-up and a utility to pilot a new system in the Netherlands: the pilot harnessed smart sensors and algorithms to detect and predict leak events over 500 meters inside a live water pipeline to ultimately highlight maintenance needs and reinforcement opportunities. The pilot was successful and in 2020, Wavin will team up with additional technology suppliers and utilities to scale this approach, aiming to provide safe, sufficient, and secure water supplies to the world.

² <https://meridian.allenpress.com/jgb/article-abstract/4/2/126/116322/Comparison-of-Emitted-Emissions-Between-Trenchless?redirectedFrom=fulltext>

³ Bidding strategies for conventional and trenchless technologies considering social costs R A McKim <https://doi.org/10.1139/I97-036>



Making Cities More Livable, Lovable and Resilient



As urbanization is on the rise, so too are the challenges of ensuring that cities become the enabling environments for connected, safe and fulfilling lives—and without further strain on our natural resources and climate. To make cities more livable, lovable and resilient, we need infrastructure that is truly efficient. Urban plans designed around green technologies and sustainable transportation models. Prudently managed and easily manageable water, energy and waste systems.

To these ends, Orbia has been a leader in urban solutions for decades, addressing a diverse range of infrastructure challenges and opportunities, from developing building information modeling (BIM) technologies for efficient construction to designing innovative material solutions for temperature regulation, sanitation, water management and more essentials for better and smarter urban living.





Our solutions cut across different applications, from chlor-alkali used in water purification, health care, aluminum, pulp and paper to vinyl used in medical devices, consumer products, building, construction and housing for social and institutional areas. These and many other applications are the key enablers that make our cities more resilient and offer ways to positively transform the everyday lives of people and communities.”

Carlos Manrique Rocha
President, Polymer Solutions

Sustainable Construction Around the World

Selected 2019 construction projects supported by the Building and Infrastructure group:

- **Gartnerkvartalet | Løren, Norway:** Designed and supplied all the piping systems for energy efficiency and noise reduction across this 450-apartment complex.
- **Apartment complex | Budapest, Hungary:** Supplied in-ceiling heating and cooling in the installation of 252 Wavin Sentio room-by-room climate control systems (one per apartment) and 500 wireless thermostats for efficient energy management.
- **Millennium Plaza | El Salvador:** A new high rise of 20 stories, constructed by using more than 20 kilometers of our pipe solutions for heating, cooling, water and sanitation efficiency.



Gartnerkvartalet | Løren, Norway

In 2019, Orbia advanced a range of innovative solutions to improve the livability, lovability and resilience of cities, for citizens around the globe:

- **Covering ground to a lovable destination:** In 2019, we completed an early phase in an ambitious project in Guatapé, Colombia, an important tourist destination. The multi-year megaproject revolves around reclaiming and redesigning 90,000 underutilized square meters surrounding the Guatapé reservoir into a park, docks, restaurants, shops and ample green spaces for visitors and residents alike. To support the development, Wavin provided 460 meters of durable, geosynthetic reinforcement infrastructure in a speedy installation with low environmental impact and a 40% cost reduction, achieved through using woven geotextile tubing filled with local materials.



Guatapé, Colombia

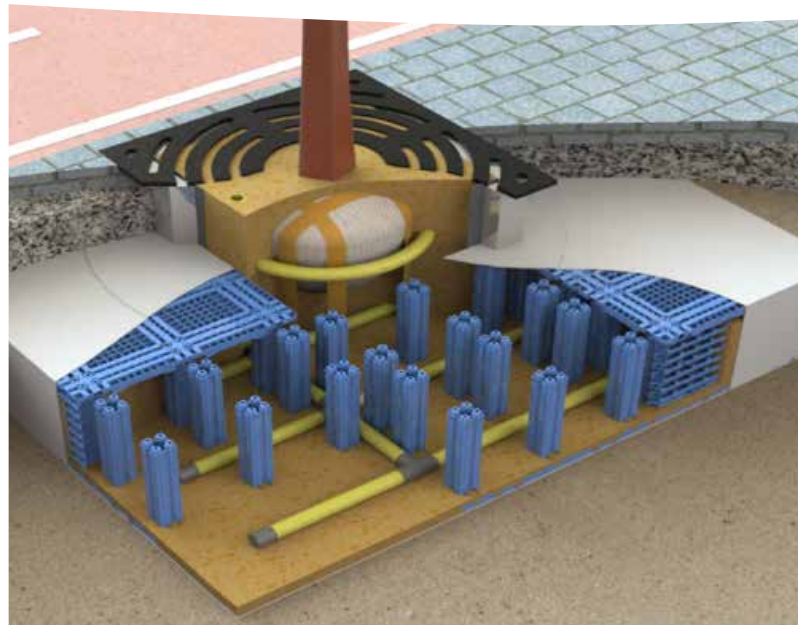


- **Charging into an electrified future:** Seeking to accelerate the electric revolution, Koura advanced the development of fluorinated additives for use in the current and next generation lithium-ion batteries that will be up to the charge of powering the world's electric vehicles, grid-scale energy storage systems and mobile electronics for the long, energy-light run.
- **Advancing electric mobility:** Meeting revved-up demand for carbon-light urban transportation infrastructure, Alphagary has developed a safe, flexible, and recyclable thermoplastic elastomer (TPE) material called Garaflex, that has been chosen by leading automotive manufacturers for electric vehicle charging station hoses. In 2019, Alphagary enhanced production of this durable, user-friendly material and shifted into producing custom formulations to meet customers' unique needs.



Garaflex application in hoses for electric vehicle charging

- **On the right path with PlasticRoad:** While Wavin's PlasticRoad is the world's first bicycle path made of 70% post-consumer recycled plastic, the road is now open to new applications for this award-winning solution. In 2019, Wavin introduced sensor monitoring and reporting from the pilot tracks of the PlasticRoad to test its performance under varying conditions and seasons. Determined to be three times as durable as asphalt while being 70% faster to install, parking lots, road systems, and a full market launch by 2021 are now right around the bend.
- **Rooting for urban trees:** To give trees a larger chance to survive in urban areas while greening up and cooling cityscapes, Wavin turned its existing Q-Bic Plus unit upside down to provide protection and aeration to tree roots in compressed urban spaces. In 2019, Wavin delivered Q-Bic Plus crates for the Quartier Blue project in the city of Hasselt, Belgium to support the build-out of an efficient arboreal ecosystem.



Q-Bic Plus Tree Bunker application





Empowering Communities with Data



A connected world is an empowered world. Access to connectivity and in turn, a world's worth of vital information and data services is the key to sustainable development.

Given present and anticipated growth in mobile technologies coupled with current movement toward 5G networks and IoT environments, Orbia's Data Communication group is working on the front lines of creating what connects us infrastructurally and technologically.





The data revolution has now become a mega-revolution. With progress towards 5G and Internet of Things (IoT) and all the other associated digital technologies, we are seeing an explosion in the use of data, and with it, a step-change in the need for efficient, future-fit data transport and connectivity infrastructures. That’s where we, at Dura-Line, are making a difference. Our data communications conduits and systems are bringing entire communities into a new digital world and at the same time, are enabling the increasingly rapid transition to a low-carbon future.”

Peter Hajdu
President, Data Communication

Revitalizing Connectivity Systems

To accommodate a present and future dependent on seamless, always-on access to data, Dura-Line is supporting infrastructure and network upgrade projects for today's roster of major U.S. telecommunications providers, in the midst of moving from copper to fiber optic cables; 4G to 5G networks. Over the course of 2019, Dura-Line shipped more than a half-billion feet of durable conduit to 300+ locations for installation projects by the power players, solidifying new infrastructure and fortifying pathways (inclusive of fiber rings around large cities) that will carry the world into a connected tomorrow.

In 2019, Orbia advanced several initiatives to connect and empower communities with data connectivity:

- **Providing safe and efficient technology for light rail expansions:** Dura-Line pioneered in the introduction of Low Smoke Zero Halogen (LSZH) technology into the U.S. market. Through the 2019 Northgate Link Extension project with Seattle Sound Transit, Dura-Line used the quick install, remotely upgradable LSZH and plastic HDPE conduit to bring three new light rail stations online to serve up to an anticipated 49,000 daily riders by 2022.



Orbia's Data Communication group is the only global manufacturer of communications conduit, as well as the largest conduit company in North America, having served the top-tier telecommunications companies for over four decades.

According to research published by the [Global e-Sustainability Initiative \(GeSI\)](#) and [Accenture Strategy](#) in 2015, Information and Communications Technology can enable a 20% reduction of global CO₂e emissions by 2030, holding emissions at 2015 levels.



The main reason we chose FuturePath is because there are seven pathways inside of one conduit. If you have FuturePath, you only spend time once to put it in the air - which involves permits and traffic control - and then you just go to a vault and push the fiber through.”

Joe Lockhart

Line Superintendent, Estes Park Light and Power

- **Powering a local economy:** To bring the power of broadband service to the remote community of Estes Park, Colorado, Dura-Line provided secure, high-speed expandable fiber access (and expanded opportunities) to 6,400 residents through using FuturePath Figure-8 Aerial 7-ways on existing power poles. With FuturePath’s functional connection capacity of seven pathways per installation, Estes Park long-awaited connectivity plan was realized safely and affordably too.
- **Upgrading Denver airport’s connections:** Connected flying into and out of the Denver International Airport is now possible without disruptions to operations or traveler experiences. Thanks to Dura-Line’s FuturePath, flexible control of pathway routing can happen in real time—and more than that, the FuturePath infrastructure undergirds an adaptable, sustainable system for 5G connectivity and easy, low-cost fiber upgrades.





Advancing Responsible Business



The basis of advancing life around the world rests on a foundation of advancing responsible business practices within our own walls and within our sphere of influence. We aim to act with integrity, support and empower our people, be good stewards of the environment and drive programs that have a positive impact in our local communities.

In addition to our own values and ethical standards, we are also signatories to the United Nations Global Compact and the UN CEO Water Mandate, committing to upholding the principles defined by these frameworks.

This section of the report describes our behaviors and practice over the past year across all these topics.

Operating Ethically

Orbia aims to operate to the highest possible standards of compliant and ethical conduct. We believe this is not only the right thing to do, it protects our business from risk and is the basis of sustainable growth. From our Board of Directors through our Chief Executive Officer and all our employees, we aim to instill a culture of personal accountability, supported by standards, policies and mechanisms that help everyone know what is expected of them and provide the best frameworks for action.

Ensuring Robust Governance

Our Board of Directors consists of 13 directors, 7 of whom are independent and represent more than 50% of our Board, well above the minimum 25% of independent members required by the Mexican Securities Market Law and bylaws. Three of the board members are women. Mr. Juan Pablo del Valle has presided as Non-Executive Chairman since 2011. Mr. Antonio del Valle Ruiz is the Honorary Lifetime Chairman (but not a Board member).

Three Committees assist the Board of Directors in carrying out its duties, and are mostly composed of independent Board members, as required by the Mexican Securities Market Law.

- **Audit Committee:** supervises external auditors, analyzes their reports and reports back to the Board of Directors, among other duties.
- **Corporate Practices and Sustainability Committee:** provides opinions and assistance to the Board of Directors in reviewing important reports and transactions; calling shareholder meetings; and in requesting and obtaining opinions from independent third-party experts. From 2020, this Committee will also oversee our sustainability strategy and practices.
- **Finance Committee:** supports the Board of Directors in fulfilling its responsibilities to shareholders regarding the policies, practices and strategies related to managing financial affairs.

Additionally, in 2019, we created a **Critical Risk Committee (CRC)**, chaired by our CEO, comprising our Business Group Presidents, CFO and other key functional heads, to assist the Board of Directors in identifying and assessing enterprise risks, evaluating the appropriate risk profile for the enterprise and developing risk mitigation plans and overseeing their implementation. The CRC meets quarterly.

Visit the [Corporate Governance](#) section of our website for further information.





A Commitment to Ethics and Compliance

Orbia is committed to conducting business with the highest degree of ethics, complying with applicable local laws, and following compliance program international best practices. We maintain a strong corporate legal and compliance team consisting of 31 in-house lawyers and compliance professionals, and more than 33 internal auditors.

Over the last several years, Orbia has invested heavily in its Ethics & Compliance program, establishing a tailored compliance framework that includes Orbia's [Code of Ethics](#). The Code guides our behavior and is a binding requirement for all Directors, executives, employees, contractors and temporary workers. In addition to our Code of Ethics, we have policies and procedures to address all major compliance risks, and a thoughtful training and communication program for all employees.

In 2019, Orbia reinforced its commitment to ethics and compliance leadership by establishing a new Chief Compliance Officer role and hiring a U.S. trained compliance expert with more than 20 years of legal experience. Reporting to the Audit Committee of Orbia's Board of Directors and administratively to Orbia's Senior Vice President and General Counsel, the Chief Compliance Officer is dedicated to reinforcing our culture of ethical conduct and compliance throughout the business and oversee all ethics and compliance programing to underscore our policies, processes and ethics training. Our Chief Compliance Officer reports on her progress to Orbia's business leadership and to Orbia's Audit Committee quarterly, and chairs Orbia's Ethics Committee, which is comprised of senior corporate executives, and meets monthly.

In 2019, we also strengthened our compliance governance and infrastructure by establishing ethics committees across our business divisions to reinforce accountability for upholding ethical conduct and implementing compliance program initiatives in each business group. In addition, we established a compliance liaison network to enhance the effectiveness of implementing corporate ethics and compliance initiatives across Orbia.

Ethics and compliance training: Training is a key pillar of our ethics and compliance program, encompassing a range of topics including

our Code of Ethics, anti-corruption, antitrust and competition matters, prevention of money laundering, human rights and prevention of modern slavery, as well as compliance in all functional areas of the business including labor practices, health and safety and environmental law. We train new employees on our Code of Ethics and provide periodic refresher training for current employees. Orbia's training strategy is to provide general compliance training for employees in roles that are lower risk from a compliance perspective, and targeted, live training for those in specialized, higher-exposure roles. Our Code of Ethics training for 2020 will take place during "Ethics Month" during which we will emphasize the importance of ethics and compliance and our Ethics Helpline.

Ethical standards though our supply chain: We expect our business partners and suppliers to operate to the highest of ethical standards. Our Code of Ethics specifically applies to our supply base, and we communicate this expectation to new suppliers. In 2020, through the EcoVadis platform, we will start evaluating our suppliers across a wide range of topics including environment, labor, human rights, ethics and sustainable sourcing practices. Orbia is a member of EcoVadis and achieved a silver ranking in our last assessment, placing us in the 79th percentile in our industry.

Reporting ethics and compliance concerns: We operate a confidential whistleblowing mechanism for reporting suspected or possible violations of our Code of Ethics or any other violation of law and regulation. Orbia's Ethics Helpline allows anonymous reporting and is available 24/7 with operators who speak all the languages of the countries in which we do business. Anyone may report suspected or actual breaches of ethical conduct without fear of retaliation, as we have a clear non-retaliation policy. The availability of multiple channels to report concerns, including the Ethics Helpline, are reinforced throughout the year. In 2019, we received over 170 reported concerns, of which approximately 70% were HR-related. All reports were investigated thoroughly and follow-up action, disciplinary if necessary, was taken accordingly.



In a large and diverse business with a global presence such as Orbia's, ethics and compliance needs to be a way of life. This means having our culture of ethics built into everyday decision-making and that employees at all levels in our company understand the importance of upholding our highest ethical standards."

Andrea DeShazo,
Chief Compliance Officer



Empowering Our People

Orbia aims to provide an inspiring, energizing, inclusive workplace where everyone can come to work each day in the knowledge that they are contributing to advancing life around the world. As we move forward as Orbia, with a refreshed purpose and values, we are aiming to create a truly global culture where everyone finds their voice.

We support the personal and professional growth of our employees through learning and development opportunities and invest in safe and healthy workplaces and practices.

22,000+

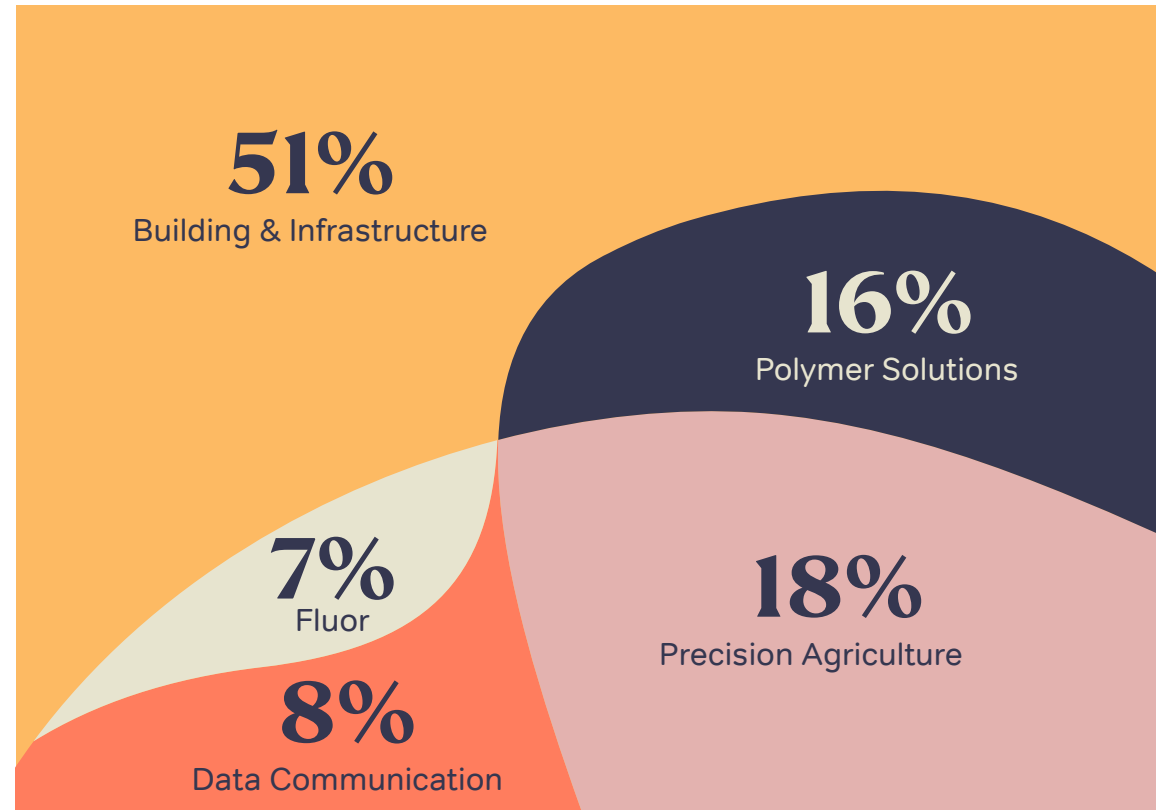
Orbia employees working in more than **40 countries**, representing more than **60 nationalities**



522,000+

training hours learning new leadership, professional and technical skills - that's 24 hours per employee in 2019

Employees by Business Group, 2019





Engagement, Development and Growth

We are convinced that employees who have the opportunity to develop their professional skills make a stronger contribution to our business and remain with the company over time. Our global employee engagement survey in 2018 indicated a level of 86% sustainable engagement (employees feel engaged, energized and enabled to do their job). During the past year, we have been reinforcing this positive position as we led the transition to the new purpose and values of Orbia across all our business groups and teams.

Engaging employees in sustainability: We have held webcasts, lectures and meetings over the past year, with (voluntary) attendance by thousands of employees to raise awareness and education about specific topics relevant to Orbia's sustainability aspirations. This armed our teams with knowledge of the global challenges we seek to address through our business, helping them understand how their work is connected to the solutions we develop.

Global leadership development: In 2019, more than 500 managers and senior leaders participated in four programs run by the **Harvard Business School**. We also launched a new "Future-fit Senior Leaders program" with **Stanford University**, customized for Orbia, with three cohorts of 35 participants from across our business groups and corporate roles. This program – part on campus (in the U.S. and Mexico) and part online – resulted in several projects that were presented to senior leaders for review and potential uptake as business initiatives in the future.

Career development: In 2019, another 12 young managers representing nine nationalities were selected for our unique proprietary career development program called **eXP (experience, exposure and education)**, offering participants two consecutive six-month job assignments, each in a different business, in a different country. eXP participants gain both job knowledge and skills with mentoring from senior leaders, and also have the opportunity to interact with several areas of our global organization, broadening their network and exploring new working and living environments. As they return to their roles, they bring new perspectives and experience that can be reapplied to help address challenges and create new solutions.

Participants from the 2019 eXP cohort:



Nathan Adlington, a reliability engineer in Illinois was assigned to develop a business intelligence system in Mexico City, and for his second assignment, to develop an innovation strategy in Colombia.



Lorena Castañeda Copello, a marketing manager from Lima, Peru, took an R&D assignment in the Czech Republic and then went on to Mexico to analyze water systems at the fluorine mine.



Michel Rossini De Souza, a quality specialist in Brazil, took a first assignment on pricing mechanisms in Israel and then went on to review operational efficiency in the U.S.





Advancing Women

Creative strengths: Our first Creative Difference survey, carried out with IDEO in 2018, helped us understand Orbia's strengths and blind spots when adapting to a rapidly changing market. The survey measured Orbia against [the six qualities of a creative company](#) and identified key opportunities in the areas of empowerment, risk tolerance and experimentation. During 2019, a smaller survey was taken, in order to identify follow-up actions and create alignment with the different business leaders.

Digital learning for all: Following the successful launch of our Digital Learning Platform in 2018, we added more training modules and engaged more employees in self-directed learning to advance their management and project skills. More than 6,000 managers and employees used the Digital Learning Platform in 2019.

Performance management: We maintain a digital platform to support target setting and performance management. In 2019, 100% of eligible managers and professional employees used the program as part of their annual performance review to identify further development needs.

We aim to maintain a diverse organization where all have the opportunity to progress. See our [Diversity and Inclusion Policy](#) for details of our approach. A particular focus is advancing women, and in 2019, the rate of women managers grew from 17% to 19%. Overall, 72% of women around the world are employed in management or professional roles at Orbia. We recognize the significant benefits of accelerating the rate of women's advancement in our business and are committed to doing so, as is noted in our ImpactMark.

Promoting women in STEM: In 2019, we held an innovative 3-day workshop in our Data Communication business in the U.S., with the aim of supporting gender equity in science, technology, engineering, and mathematics (STEM). The program was attended by more than 30 senior men and women in professional roles and explored challenges, barriers and opportunities for women in STEM in our business.



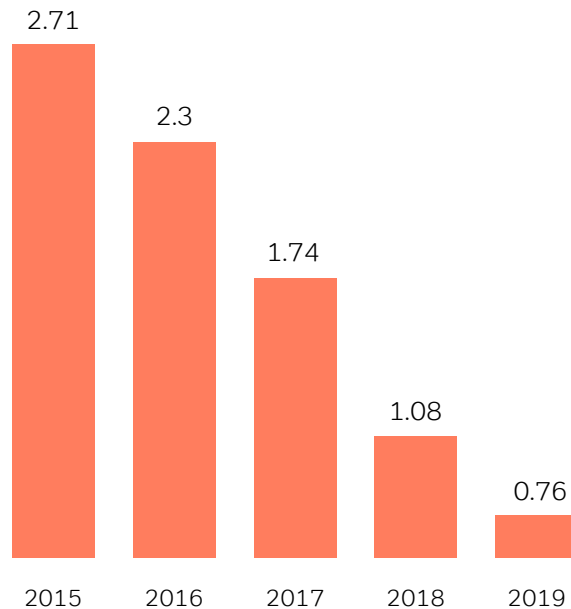


Improving Health and Safety

With so many talented people at the heart of Orbia, it is our absolute duty to keep them safe at work. It's a partnership. We provide the policies, standards, frameworks, equipment, tools and training to prescribe compliant and practical safety management and practices. In addition, we rely on every individual involved in our activities – both our direct employees and contractors and visitors at our sites – to be passionate about safety and do everything with safety in mind. This way, we build a safe working culture everywhere at Orbia with a vision of zero injuries.

72% reduction in employee TRIR over 5 years

(Total Recordable Injury Rate)



We are happy that employee injuries at our sites have consistently improved over the past 5 years, due to comprehensive implementation of safety risk assessments, reviews and corrective actions. **Our contractor TRIR has also shown a 30% improvement from 2018** and, at 0.48, is among the best in class showing that our contractor management process is working. But, of course, every injury is one too many, so we continue to reinforce our safety culture at every opportunity.

Across many of our chemicals operations, we implement the International Safety Rating System (ISRS) that is verified by Det Norske Veritas. For other operations we are implementing internationally recognized management systems to ensure a focus on continuous improvement. In 2019, 39 Orbia plants were also certified to international safety standards. Non-certified sites apply the same standard of care and will be preparing for certification in the coming years.

Regular safety processes and training at our sites around the world include:

- Comprehensive safety training including Life Saving Rules to prevent Serious Injury or Fatality (SIF)
- Contractor safety management training and management processes
- Visible Safety Leadership program: unplanned visits by safety advocates to the shop floor, to recognize good practices and raise awareness of effective safety habits
- Good Saves reporting: observations of near misses, unsafe conditions and unsafe acts
- Safe driving awareness

30 years injury free at Runcorn. In 2019, there was cause for celebration at our Koura site in Runcorn, UK - 30 years of continuous operation without a recordable injury. This is particularly noteworthy since this plant handles several hazardous chemicals such as chlorine and hydrochloric acid and operates 24/7 in a complex environment with high potential risk.



The one key thing that has sustained through these 360 months of safe working is our team's commitment to their own safety and the safety of others. At the same time, they have also guarded against complacency, learning from and dealing with hazards and risks before they caused harm."

Tipu Salahuddin, Downstream Operations Director, Koura Business Group





Advances in Process Safety

Koura UK is proud to have received the UK 2019 Chemical Industry Association's Special Responsible Care Award for Process Safety Leadership, reinforcing the strong culture and performance over the lifetime of the site.

We continue to engage our employees in process safety improvements to minimize risk in our manufacturing operations. As part of our ongoing implementation of our Process Safety Management (PSM) standard, which is aligned with recognized and generally accepted good engineering practices (RAGAGEP), in 2018, our 18 chemical operations were assessed for process safety risk. Throughout 2019, we took a systematic approach to resolving the risks and hazards identified. Our PSM audit team supports and monitors implementation progress at all sites and reported 60% completion of all safeguards in our PSM phase 1 schedule, with 100% expected in 2020.

In 2019, we also established a new record on skill development at our chemical sites. More than 500 employees from different sites, countries and business units attended PSM training in 2019 – a 50% higher attendance rate than in 2018. As a strong safety culture is key for the effectiveness of our PSM program, face-to-face workshops were organized to enable sharing of experience and insight in a team approach.

We also introduced a new protocol to assess new projects using a PSM risk-based perspective that aligns our practices with the principles of our PSM standard. The protocol was applied and well accepted in several facilities.

- **Process Hazard Analysis:** In 2019, we commenced phase-in of new software across all sites to harmonize the criteria for Process Hazard Analysis (PHAs). PHA includes several related processes that analyze process hazards in detail. Around 15 superusers tested the system ahead of its rollout to more than 100 users across the business. As part of this initiative, we developed our first e-learning course dedicated to Management of Change (MOC) for deployment in 2020.
- **Improving hazardous materials transportation:** In 2019, Koura took the decision to invest in next-generation safer rail tank cars for the transportation of Hydrofluoric Acid (HF). The rail car design increases the safety of our operations and the protection of our employees and our neighbors. Although there has never been a safety incident with transportation of our HF from our Matamoros, Mexico plant to other factories in the U.S. and South America, we are very conscious of the highly corrosive nature of this chemical, and potential risks should

a spill occur. Following a comprehensive risk assessment in 2018, including consultations with our customers, we created a multi-year plan to transition our fleet of 216 rail cars to the newest models by 2027. The first 22 rail cars will arrive in 2020.

- **Working with safe materials:**

REACH: We comply with the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) requirements for all substances produced or imported in Europe for all relevant operations.

SAICM: We support and adhere to The Strategic Approach for International Chemicals Management (SAICM) of the United Nations Environmental Program (UNEP) which promotes the transparent exchange of data and information using a life-cycle approach.

Regulated substances: We use no regulated substances of Very High Concern (SVHC) as defined by REACH legislation, or by the European Restriction of Hazardous Substances, or substances of international concern (RoHS) in our Dura-Line, Koura, and Vestolit businesses.



Protecting the Environment

At Orbia, our purpose to advance life around the world means taking care of our shared environment. We are all too aware that, as a global nation, we are stretching planetary limits beyond those the planet can sustain. We are driven by our passion and determination to help secure a sustainable future for all, both through the innovative and environmentally beneficial products we manufacture to support our clients, and also through the efficiency efforts we undertake throughout our business.

Our commitment to protecting the environment includes helping mitigate climate change through prudent energy use and GHG emission reductions, careful management of water and waste, with a strong focus on recycling as part of a broader circular economy effort, and biodiversity protection.

Environmental Management: Our 128 manufacturing locations (some with multiple plants) around the world operate in line with all applicable environmental laws and regulation, Orbia's environment policy and our Environmental Management Systems. We maintain compliance with formal standards and certifications in 29 countries. In 2019, 70 plants were certified to ISO14001 or equivalent external standards, and we have committed to achieving 100% certified sites by 2025. We are constantly seeking continuous improvement. All our certified locations undergo periodic audits by external parties to maintain certification. In addition, some of our locations are also audited as part of supplier audit processes by our customers.

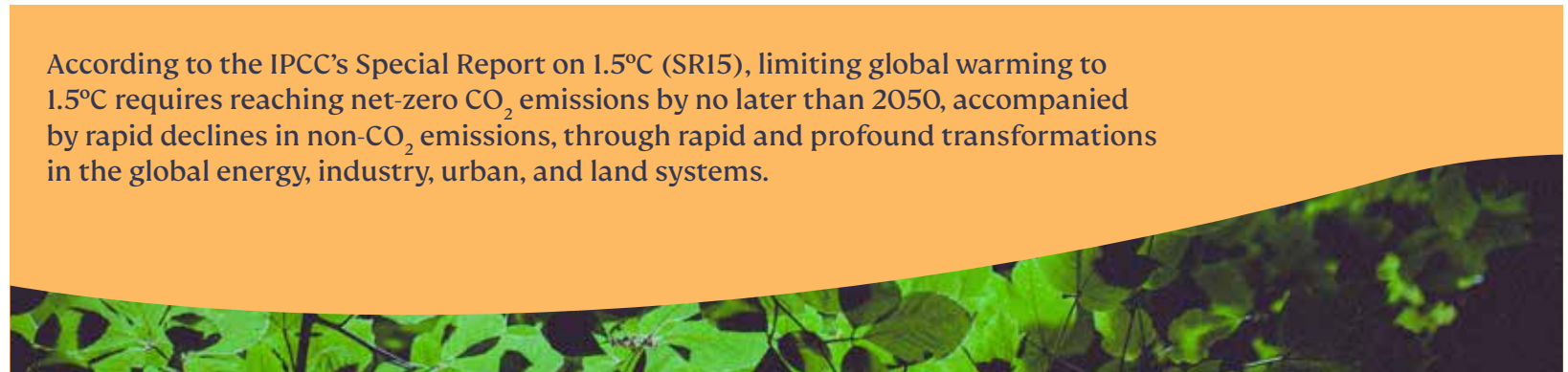
Bold Steps for Climate Change Mitigation

In 2019, we took a bold step in formally announcing our commitment to **setting science-based targets (SBTs) for GHG emissions reduction** that will support the global effort to stabilize climate in line with the 2015 Paris Agreement. We are preparing our targets with support from the World Resources Institute (WRI), using the criteria established by the Science Based Targets initiative (SBTi), which independently assesses corporate emissions reduction targets against current climate science. In this commitment, we align with some 800 industry leaders around the world who have publicly aligned with the Paris Agreement.

During 2019, we continued to analyze our operations and overall footprint, as well as our climate risks, to prepare ourselves for the rigorous scrutiny and approval of the SBTi.



According to the IPCC's Special Report on 1.5°C (SR15), limiting global warming to 1.5°C requires reaching net-zero CO₂ emissions by no later than 2050, accompanied by rapid declines in non-CO₂ emissions, through rapid and profound transformations in the global energy, industry, urban, and land systems.





Completing our first climate risk assessment

As part of our progress towards a low-carbon future, we completed in 2019 the essential step of assessing the material impacts of our climate risks, utilizing the framework established by the Task Force on Climate-related Financial Disclosures (TCFD). Our TCFD-aligned analysis covered 12 high priority sites from 3 of our business groups across 6 countries. They were selected during a screening process, which took into account prior work that had been completed within Orbia to assess preliminary climate risks at all our sites. In addition to data analysis, the Orbia team and our climate-risk consultants engaged with business leaders and staff at the selected sites to review threats from climate change and initiate discussion on mitigation opportunities. The key outcomes of this analysis confirmed that climate change is not a high-risk material threat for Orbia, although there are clearly areas in which we must take considered action to minimize medium and low-level risk. These possibilities include:

Physical risks: In general, the experts at ERM concluded that our high-priority sites are exposed to low to medium risks for hazards analyzed, including cyclones, floods, wildfires, extreme temperatures and water stress.

Market, technology and compliance (transition) risks: This analysis demonstrated that our high priority sites are exposed to medium to high risks related to the transition to a low carbon economy. These will likely include: pressure from our markets to use low-carbon materials, more extensive carbon pricing regulations across the world or increases in the cost of resources, notably electricity and water by 2030. Higher water stress scenarios, for example, could affect water costs for our operations. All these risks could have an effect on our supply chain and production processes, from a continuity and cost standpoint.

We are using the conclusion of this first TCFD-aligned assessment to developed specific risk mitigation plans across our business. Such plans will include reducing our carbon exposure, which goes hand in hand with our commitment to set SBTs. Additionally, we are also considering opportunities that our solutions for resilience can bring to address climate change, such as new low-emission propellants, storm water management solutions, and efficient construction systems, as described in the previous chapter:

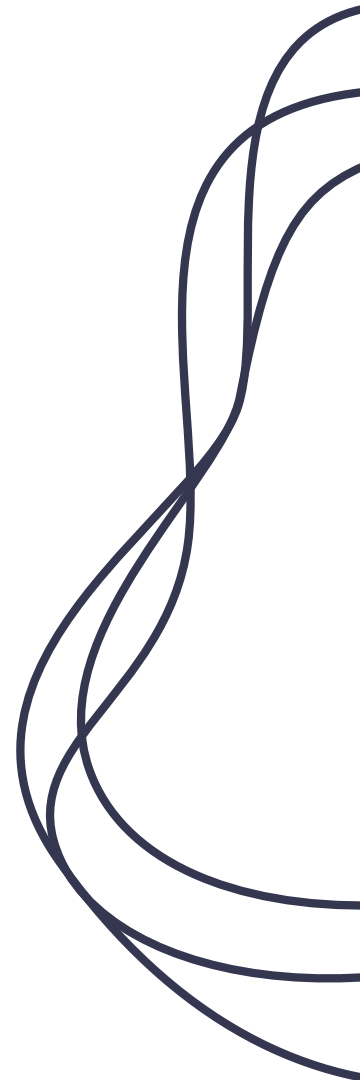
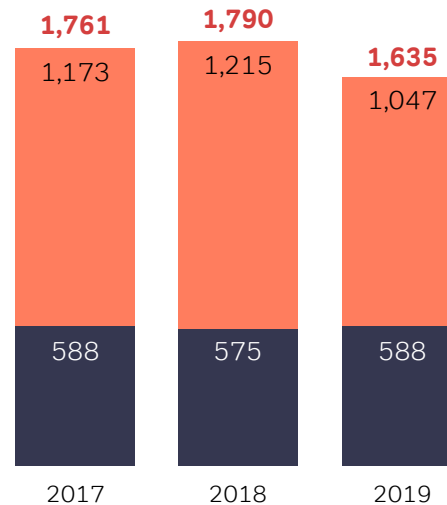
[Advancing Sustainable Solutions.](#)

Climate Performance in 2019

In 2019, our **absolute greenhouse gas emissions reduced by 9%** as a result of several factors relating to different production mix and volumes across our different business lines, new and ongoing energy efficiencies in our operations and the addition of renewable energy at some sites.

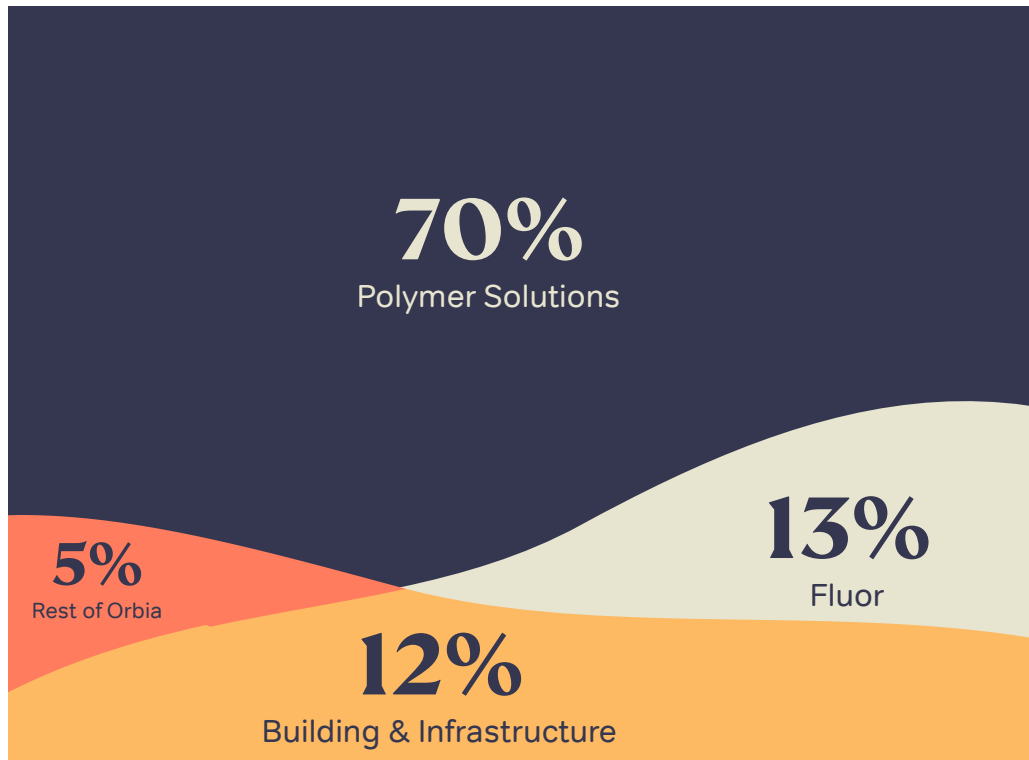
GHG Emissions, 1,000 tons CO₂e, 2017-2019

- GHG Emissions Scope 1
- GHG Emissions Scope 2
- Total Scope 1 and Scope 2

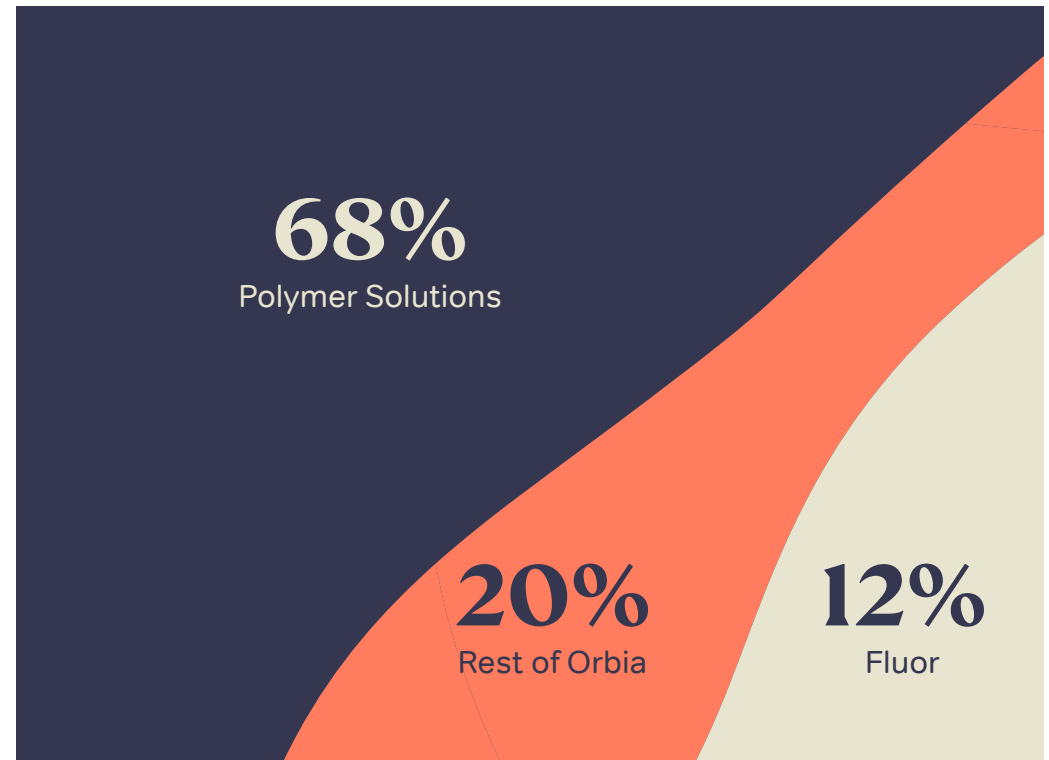




Share of Total Energy Consumption, 2019



Share of GHG Emissions, 2019



In 2019, we continued our focused efforts to reduce our greenhouse gas emissions, including examples as follows:

Increased energy efficiency in PVC resin production: At our Altamira plant in Mexico, we installed a new condenser to lower energy requirements for cooling in the production process. Rather than using energy intensive refrigeration units for cooling, we were able to use cooling tower water. This resulted in a 24% decrease in energy in the PVC production process.

From road to rail: Our Almaguay operation in Mexico started the process of reducing greenhouse gas emissions in transportation by more than 90%, by transferring domestic

shipments from road to rail transport. To date, more than 95% of shipments of vinyl products are transported by road from 8 dispatch points. Through 2020, all current road shipments – around 450 trips per year – will be consolidated and transferred to rail, enabling a saving of 1,200 tons of CO₂e per year while maintaining customer service.

Ongoing efficiencies: Ongoing initiatives at different sites, including for example, replacement of light fittings with LED lamps, equipment replacement with energy-efficient alternatives and sustainable car fleet policies.





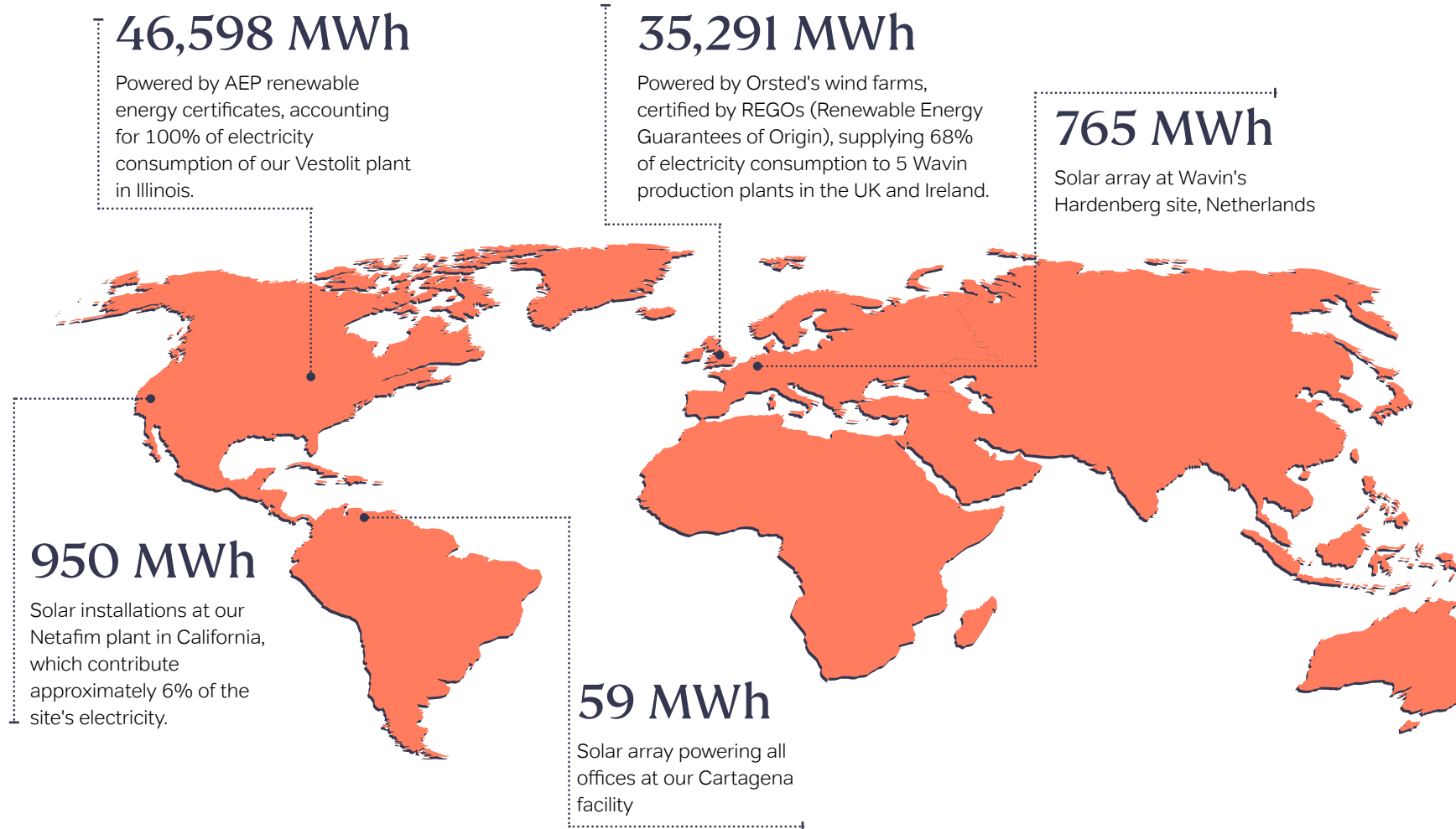
Focus on Renewables

We are consistently seeking to reduce our carbon footprint through opportunities to power our operations with renewable energy. In 2019, we sourced almost **83,663 MWh** of renewable electricity across our global operations (**3%* of total electricity consumption**), saving close to 29,000 tons of CO₂e annually, enough to power more than almost 3,400 homes for a year. We sourced our renewable energy as shown in the chart to the right:

*We are committed to increase the share of renewables going forward, as we establish contractual instruments that allow us to claim the amount of renewable electricity used.

In 2020, we are advancing new solar energy projects, notably a rooftop installation at our Dura-Line Hyderabad plant, and a remote solar installation at our Dura-Line Neemrana plant. Together, these initiatives will provide almost 2,500 KWp, or around 20-25% of electricity consumption at these sites annually. These installations are expected to be complete early in 2020.

Renewable Electricity Powering Orbia, 2019



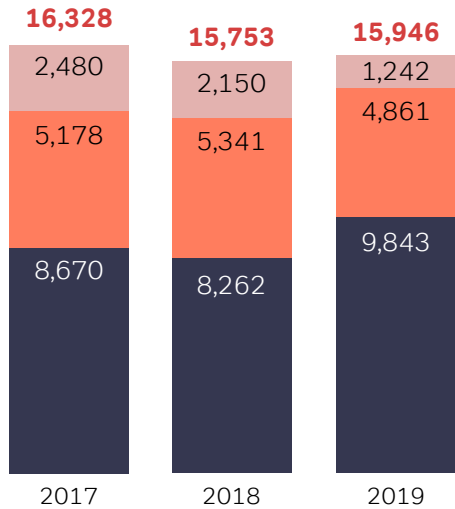


Reducing Water Stress

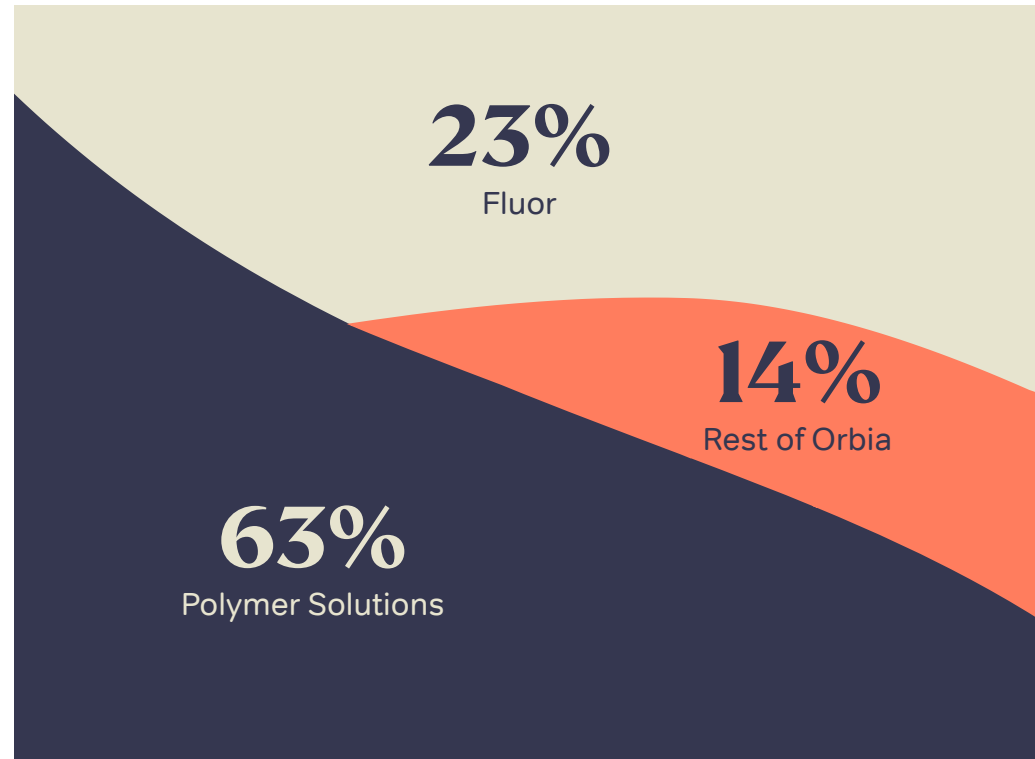
We aim to achieve the lowest possible water consumption at our sites. All our manufacturing plants have been applying water efficiency plans wherever possible, and most of our extrusion plants (Wavin, Dura-Line and Netafim) maintain closed loop systems that minimize water withdrawal.

Water Withdrawal, 1,000 m³, 2017-2019

- Surface Water
- Groundwater
- Municipal Water
- Total Water Withdrawal



Share of Total Water Withdrawal, 2019





We are particularly conscious of water use in our operations in areas of high water-stress. Based on the World Resources Institute (WRI) Aqueduct Version 3.0 tool, 47 of our plants are in areas of high or extremely high water-stress, in 16 countries.

Business Group	Number of sites in water-stressed areas	% of total sites in water-stressed areas
Polymer Solutions	9	11%
Building & Infrastructure	14	11%
Data Communication	5	4%
Fluor	5	5%
Precision Agriculture	13	10%
Total Orbia	47	37%*

*This total includes 6 sites which have zero or little production.

In order to address our impacts in these areas, and in line with our commitment with the UN CEO Water Mandate, we will start working on establishing context-based water targets. We will also start establishing water management plans for sites in areas of high water-stress, using a risk-based approach.

Reducing water in our mining process: Through integration of all of our beneficiation plants in Mine Las Cuevas, during 2019, we were able to reduce the usage of clean water by approximately 300 m3 per day, by disconnecting our boiler systems, while saving energy and generating fewer emissions.

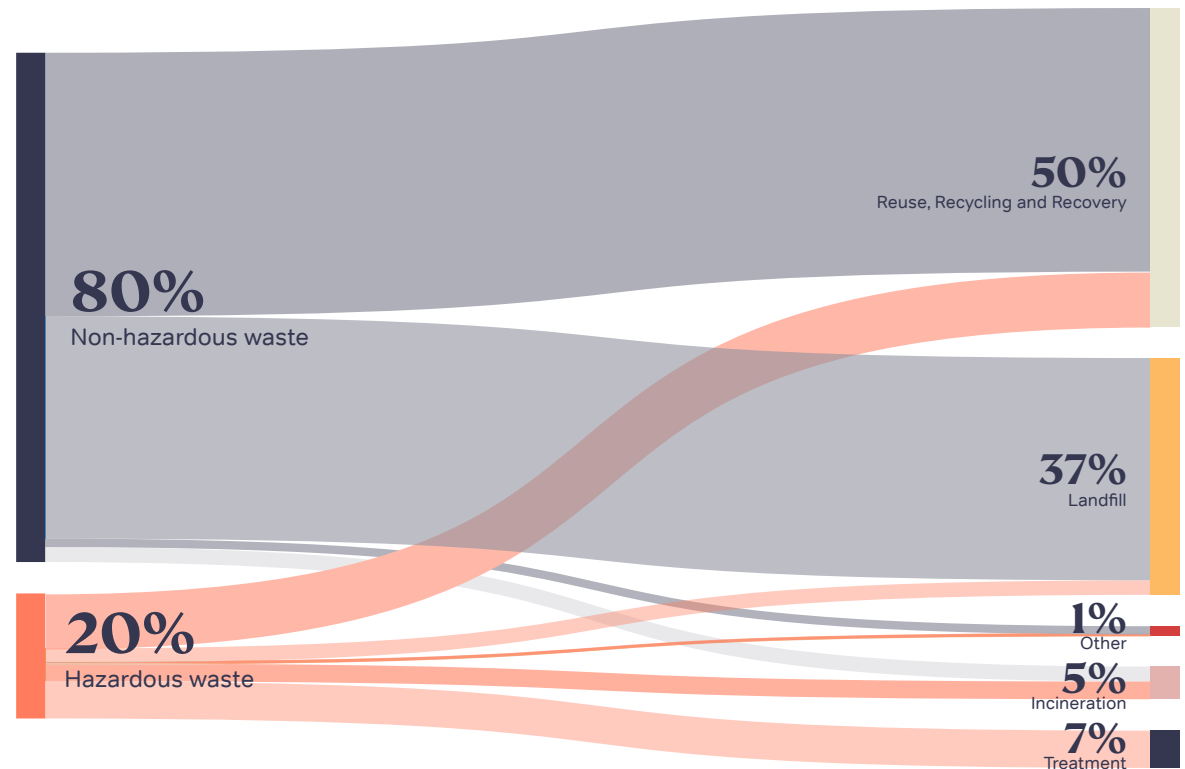
Saving water in India: In India, in 2019, we installed Sewage Treatment Plants (STPs), at each of our Dura-Line factories to treat wastewater. The output of the STPs is recycled for irrigation, saving around 15% of water each year at our three Dura-Line plants in the country.

Reducing, Recycling and Reusing Waste

We aim to prevent all waste at source and maximize waste diversion from landfill through reuse, recycling, composting and other means, and we have committed to zero waste to landfill by 2025. Each of our plants have waste management programs in place and improvement targets. In 2019, our total waste amounted to 69,355 tons.

Waste by Disposal Type, 2019

- Non-hazardous waste
- Hazardous waste

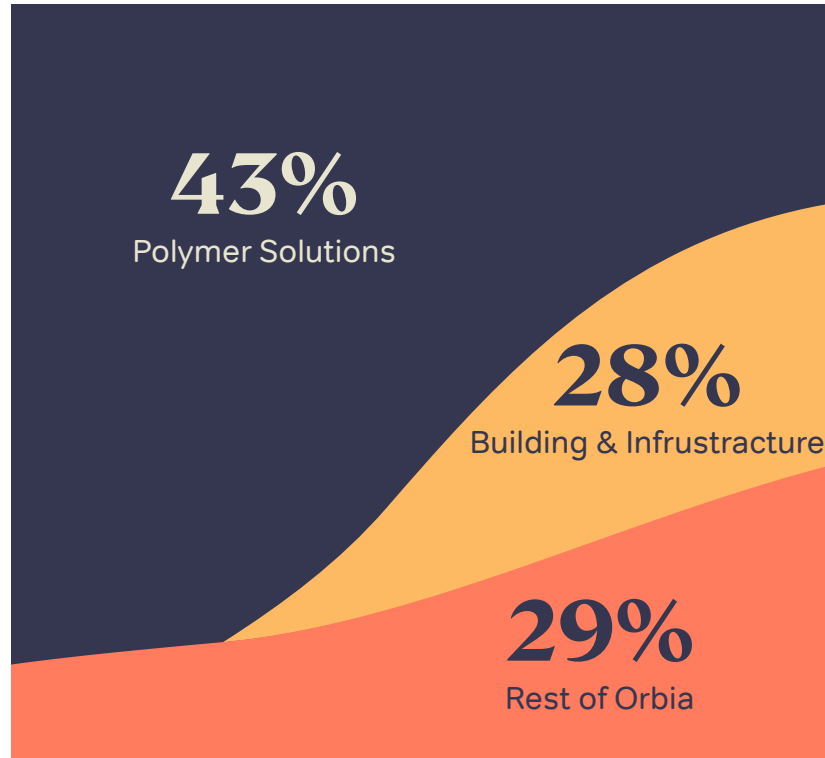




Reducing waste to landfill: In 2019, our operations made progress towards our aspiration of sending zero waste to landfill in 5 years' time. For example:

- Mihara, which manufactures Koura refrigerants in Japan, diverted more than 80% of its waste that is normally sent to landfill. The plant was able to identify a waste management company that can recycle calcium fluoride waste resulting from the hydrogen fluoride wastewater treatment process.
- At our Dura-Line factory in Utah in the U.S., we have pursued a systematic approach to waste reduction, following detailed analysis of all waste streams, and systematically pursuing solutions for each. Overall, in 2019, Dura-Line in Utah achieved a 75% recycling rate, 33% higher than the overall average recycling rate for our Dura-Line operations globally.
- Our Koura Hydrofluoric Acid manufacturing plant in Matamoros, Mexico was able to reduce 60% of its hazardous waste sent to confinement by investing in recovering the efficiency of the purification column that removes arsenic during the manufacturing process, which leads to minimize the AIF3 sludge contaminated with arsenic.

Share of Total Waste, 2019





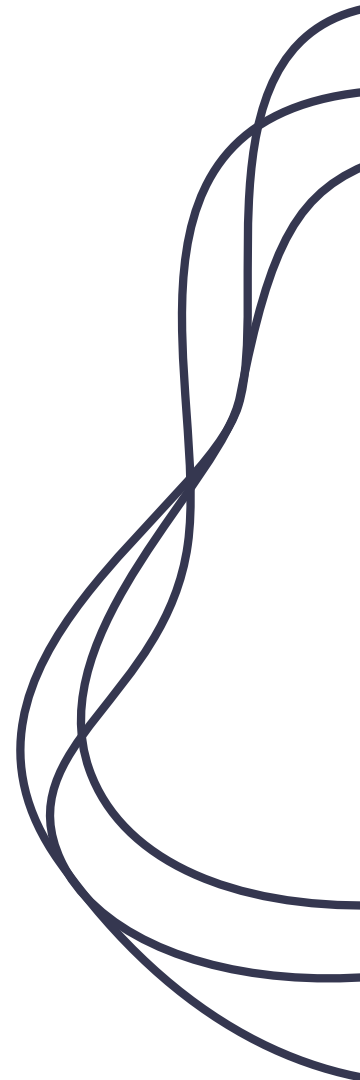
Lifecycle assessments (LCAs): We created a Lifecycle Taskforce that advances LCAs using the ISO14040/44 "Life cycle assessment Principles and Framework" to help us define criteria for LCA-based analysis of the environmental impacts of our products at the customer or end-user phase. It is also a response to customers who are increasingly seeking LCAs as part of their own environmental value chain management. Working with external partners to complete LCAs, in 2019, we launched new analyses in four areas: use of driplines in a corn plantation (Netafim), aluminum fluoride used in the aluminum industry (Koura), polyethylene conduit for data communications (Dura-Line), and recycled PVC pipe for wastewater transportation (Wavin). This activity builds on existing LCA experience in previous years, including our LCA for specialty polyvinyl chloride (PVC) resin, and actions taken to improve the overall environmental impact of this product. Koura also completed a cradle-to-grave LCA on Zephex 152a, demonstrating an equivalent carbon footprint compared to the best propellant-free technologies.

Recyclability by design: We promote recyclability as a core element in our design criteria for all new **Wavin** products with a **goal to increase recycled content of all products to 25% (from 6-11% in different regions) and recyclability to 90% by 2025**. We are also working to help change legislation towards increased usage of recycled plastics in markets that are currently overly restrictive. For example, we are actively supporting usage of recycled plastics in Europe for several non-pressure applications (sewage, rainwater and telecom applications) and hope to see more flexible laws across all applications by 2021. Already in 2019, European legislation for recycling in infiltration units for stormwater management was introduced, enabling the use of 100% recycled material. As a result, we are now launching our **New Aquacell Infiltration Unit using 100% recycled polypropylene**. At the same time, we are developing new test methods to qualify recycled material for our applications, and actively participate in consortia enabling the development of these new methods.

Similarly, at **Dura-Line in Canada**, we are increasing our rate of reground plastics into our production, and correspondingly reducing the volume of postindustrial pelletized plastic that is externally sourced. This is now possible through the addition of a new extrusion line that we added in 2019. Not only does this enable us to maintain our recycled content (**29% in 2019**), it saves the energy required to pelletize plastics for reuse and contributes to a reduction in carbon emissions.

Recycling driplines in California: In 2019, we vastly expanded our recycling facilities in California to accommodate the return of higher volumes of used driplines from customers around the region. This was a response to the need of local farmers, who were pleased to gain the benefit of a single-season thin-wall dripline (our new Streamline X ReGen) for optimum performance and reduced labor and maintenance costs, but also required a system for recycling used driplines. Netafim USA first pioneered the process of utilizing recycled content in the manufacturing of driplines for mining and landscaping market sectors and established a recycling facility in 2007. Significant investments in research and testing have allowed us to perfect a proprietary process for integration of recycled content in driplines without sacrificing performance and quality standards.

In March 2019, we introduced the first agriculture dripline containing recycled content with the launch of Streamline X ReGen. At the same time, the California Department of Resources Recycling and Recovery (CalRecycle), in its aim to increase circularity in the State, awarded Netafim USA a grant of \$2.01 million for investing in recycling capacity. Using this grant, we procured new state-of-the-art equipment for washing, grinding, processing and pelletizing returned driplines. The new installation is almost complete and on track to **quadruple our recycling capacity from around 3,000 tons per year to 12,000**. We believe this is the first completely closed-loop business model in our industry.





Other recycling initiatives around the world: We maintain several additional initiatives around the world to drive recycling. Some examples in 2019 include:

- **Colombia:** Vestolit and Wavin's PVC post-consumer waste recycling program includes suspension, emulsion and copolymers resins, all of which can be used for new PVC applications. In 2019, approximately 100 tons were collected in a single city in Colombia, demonstrating the potential of expanding such a program to more cities and countries. That's exactly what we intend to do in the coming years - to at least 5 more countries in the region.



- **Japan:** In 2019, we maintained our innovative recycling facility to help reduce the global warming impact of older generation refrigerants. We increased our volumes of refrigerant recovered from 479 tons in 2018, to 634 in 2019. We estimate this avoids the emission of more than 1.2 million tons of CO₂ equivalent per year.
- **Europe:** As endorsers of the [VinylPlus® voluntary commitment](#) to sustainable development of the European PVC industry, we are committed to helping drive the more efficient use and control of PVC throughout its lifecycle. Since the year 2000, our Vestolit operations in Germany have been a founding member of VinylPlus, supporting cross-industry recycling efforts in a range of ways, including through collaboration with other companies, to drive the use of recycled PVC, in line with the ambitious goals set by VinylPlus. In 2018, more than 700,000 tons of PVC were recycled, including cables, pipes, and window profiles, among other products. The initiative has recycled 5 million tons of PVC since 2000.
- **U.S.:** Dura-Line's Reel Return Program enables the return and recycling of conduit-carrying metal reels from customers in the U.S. In 2019, Dura-Line collected 97,334 metal reels from customers, enabling 19 million lbs. of metal reels to be recycled or repurposed.

Protecting Biodiversity

At our fluorspar mining operation in San Luis Potosi, Mexico, we maintain a strategy to protect biodiversity, including restoration of the natural habitats, relocation of species, reforestation and compensation for adverse effects based on the findings of environmental impact studies.

We work closely with the National Forestry Commission of Mexico (CONAFOR) and provide shared funding for a program on payments for environmental services, for the conservation of Sierra de Alvarez, where common land rural owners (Ejido) from Santa Catarina will benefit from this private-public association. This includes support for a broad range of initiatives, including firewall protection, provision of cameras for monitoring of animal species and equipment for radio communication and forest firefighting and road maintenance.





Helping Communities Thrive

At Orbia, we fulfill our purpose through our solutions for resilience that address the world's pressing social and environmental challenges.

At the same time, we believe in sharing our prosperity with the people and communities that are connected to our business, so that they can thrive. All our business operations maintain programs for local impact, whether through engagement and support for social enterprises, or through philanthropy and employee volunteering in local communities.

We work both at a corporate level to help fund multi-year strategic community projects that align with areas of our core business expertise and disaster relief, and at local level, engaging directly with communities to help address a broad range of local challenges. This section presents a small selection of the multiple activities that we engage in and contribute to each day in our communities.

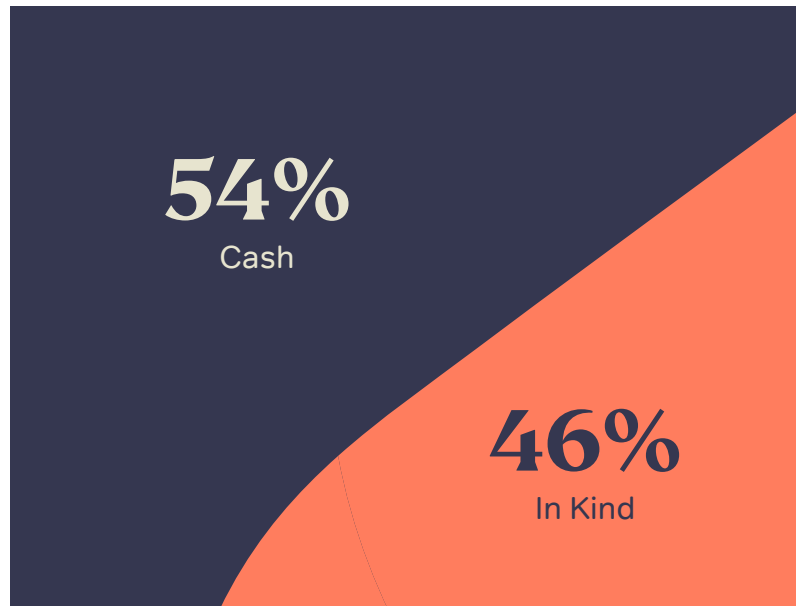
Community Investment 2019

Our total community investment in 2019 amounted to **\$2.89 million**, compared to \$3.71 million in 2018 (which included a one-time donation to the [Reconstruyendo Mexico Fund](#) of \$1.2 million, following devastation of the 2017 earthquakes).

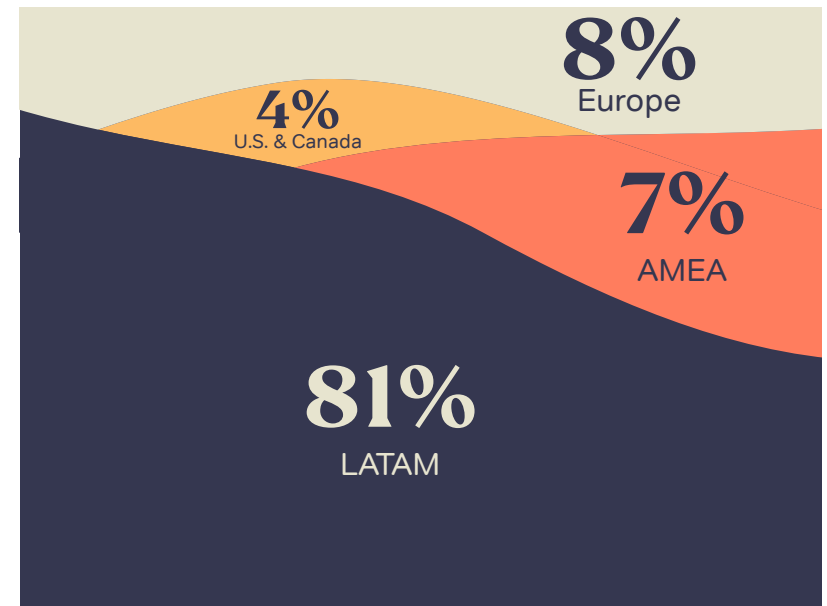
In 2019, our employees volunteered more than 17,000 hours, with an estimated impact on more than 840,000 people in our communities in 27 countries.



Community Investment by Type, 2019



Community Investment by Region, 2019





Providing Critical Support when Disaster Strikes

We aim to be there when it counts, to use our resources and scale to provide relevant and immediate local assistance in times of emergency.

Reconstructing Mexico: Our contribution to the Reconstruyendo Mexico fund with the Fundacion Kaluz continues to play a significant role in the multi-year work required to remediate the damage caused by the earthquakes of 2017 and rebuild communities. The focus of the work in 2019 has been **improving educational outcomes** at the rebuilt schools as well as delivery of 7 additional schools and 1 community center. This follows work in the first two years that aimed to provide immediate emergency relief and to rebuild resilience, schools and communities. The initiative also led to the development of a platform housing the most reliable **reconstruction map** in Mexico (<http://reconstruccion.mejoratuescuela.org>). This map was selected to participate in the Paris Peace Forum in 2019. For more information, see: <https://fondodereconstruccion.mx/en/>

Supporting Venezuelan refugees: Between July 2017 and January 2018, the number of Venezuelan refugees in Colombia increased to more than 800,000 people. Wavin, Koura and Vestolit and their employees have been supporting the provision of humanitarian assistance to meet basic needs such as food, shelter, health care and safety for these refugees through the NGO CADENA. In 2019, a team of volunteers from CADENA International, CADENA Colombia and colleagues from Orbia traveled to the Venezuelan – Colombian Border to work with the local shelter leaders to identify the best way to support displaced locals.





Advancing Access to Water and Hygiene

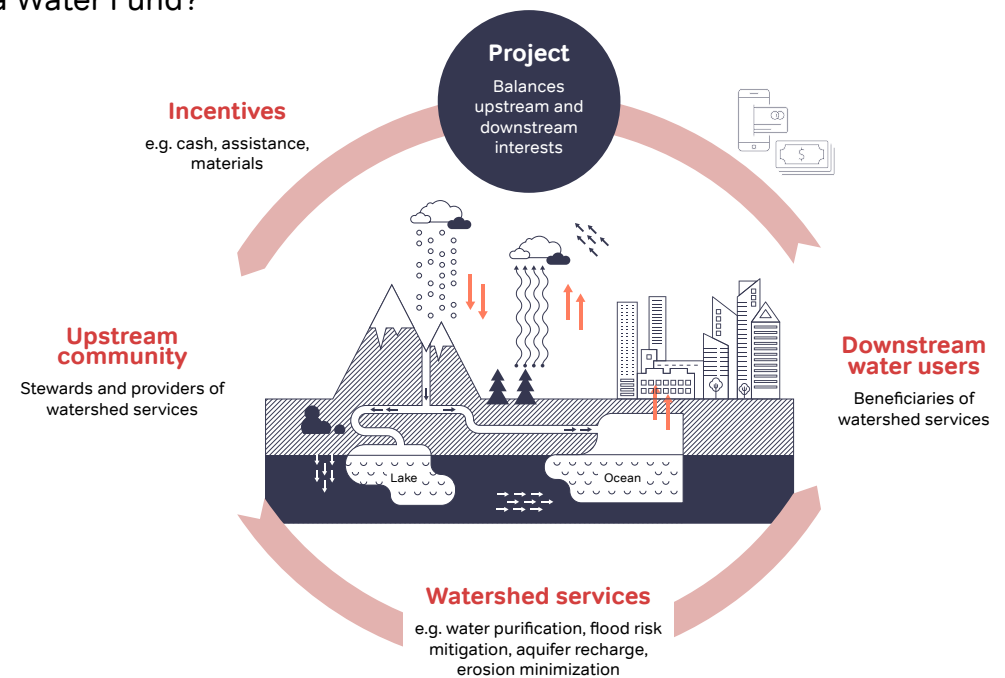
Using our expertise and products, we support our communities through promoting water conservation, potable water systems and sanitation in a wide variety of ways. Examples from 2019 include:

- **Providing access to water** through rainwater collection and irrigation systems. For example, in Colombia in 2018 and 2019, Wavin installed 23 systems for schools and community gardens. Overall, since 2013, we have provided around 70 rainwater storage infrastructure systems in Central America. Additionally, we also improve access to water in remote communities through the donation of water purifiers for schools in India, water storage tanks to WaterAid in Colombia to support indigenous communities and the provision of diverse water services and infrastructure for communities near our Koura mine in Mexico.
- **Improving sanitation and hygiene** In India, our Dura-Line operations have supported a school in Hyderabad, constructing toilets for the pupils and funding cleaning services, installing large capacity water tanks and training pupils on hygiene and cleanliness.
- **Advancing awareness and capacity building for sanitation** and solutions for water infrastructure challenges through our Wavin-led plumber training program in South America and Turkey. In 2019, more than 12,700 plumbers participated in the training program, supported by Orbia volunteers and our investment of more than \$363,000.
- **Investing in water security** through our support for the Water Funds in Latin America. Since 2012, Orbia has partnered with the Latin American Water Funds Partnership, contributing funding, resources and expertise, amounting to an investment of more than \$450,000 to date. Orbia has supported six of the 24 Water Funds in Ecuador, Peru, Colombia and Mexico. In 2019, among the many examples of progress, Guayaquil's **FONDAGUA** in Ecuador installed an irrigation system in a model farm to teach agricultural best practices to local farmers, while in Lima, Peru, **AquaFondo** supported installation of a micro-reservoir to serve 200 families and improvement of water infrastructure systems for almost 1,000 people. In addition, **Agua Capital**, Mexico City's Water Fund, chaired by Juan Pablo Del Valle (Chairman of Orbia), further

consolidated as a collaborative platform bringing together key stakeholders to ensure water security for the city. During 2019, it welcomed Procter & Gamble and Grupo Bimbo as new members, now comprising 10 global companies and organizations (including Orbia). Agua Capital co-organized the **2019 Water Funds Summit in Mexico**, together with the Latin American Water Funds Partnership (Inter-American Development Bank, FEMSA Foundation, the Global Environment Facility, The Nature Conservancy, and the International Climate Initiative). The summit gathered over 300 experts from around the world and water authorities from Mexico and Latin America. Orbia's Chairman, Juan Pablo del Valle was part of the opening panel and our water experts participated in diverse discussion panels. The Fund is a key driver of the City's water agenda through different convening initiatives.

New field projects include developing a **water district to mitigate flooding risks and enable the efficient use of water** in the south of the city. For more info: <http://aguacapital.org>

What is a Water Fund?





Water Challenge in Colombia 2019

We launched our fifth Wavin water challenge in Colombia, inviting young innovators to propose ideas to advance sustainable solutions in water, sanitation and hygiene. Four winning teams received funding from Wavin and practical assistance over three months to develop their ideas, out of a total of 79 proposals, of which 10 were shortlisted.

Healthy Gardens for Healthy Communities

Around the world, we advance **food security** through supporting community gardens where we provide equipment, seeds, drip irrigation systems and training in schools and local communities. In 2019, Netafim and Wavin have supported more than **70 initiatives** in Israel, Brazil, Colombia and the U.S. At Netafim in Israel, for example, community gardening programs were delivered by our employee volunteers, reaching more than **1,300 children with garden kits**, teaching them how to plant and grow herbs and vegetables. In 25 Arab villages in Israel, Netafim also provided “green walls” and all the equipment necessary to teach sustainability awareness and growing fruit, vegetables and herbs in vertical spaces.



Housing for Better Living



Helping people thrive means enabling access to a decent standard of housing. Among our several initiatives that support housing solutions for underserved populations, examples from 2019 include:

Partnering to help people live better in Brazil: More than 11 million favela-dwellers live in housing that is in poor condition and lacking basic sanitation. **Moradigna**, a family-owned social enterprise, has a mission to transform lives in the favelas by offering an **all-inclusive renovation package that meets decent living standards and building and sanitation regulations**. Clients are offered a zero-interest loan for repayment over a long period, making better living conditions accessible to these low-income communities. Wavin partners with Moradigna by providing a monthly donation of products for use in housing renovations, including PVC pipes and connections for cold water and sewage, water tanks and other plumbing and construction accessories. Also, Wavin's engineers provide training for Moradigna's plumbers and fitters. In 4 years, with our support, Moradigna has transformed the lives of 2,000 people with renovation of 600 houses.



Affordable eco-housing in Colombia: We are pioneering an alliance to deliver affordable, durable and recycled homes to help meet the housing deficit in Colombia, a critical goal of the national government. In partnership with Habitat for Humanity and construction and building materials companies, our solution, called **Tambo, is a family unit home, made of prefabricated PVC panels which incorporate 30% recycled materials and deliver a housing unit which itself is 90% recyclable** – and is even equipped with its own rainwater collection system. Our Tambo housing solution is the first in Colombia to have gained CASA Colombia (LEED-equivalent) certification by Colombia's Sustainable Construction Council. The houses will support those who live in large city peripheries and adjacent rural communities. As a start, the partnership, led by Vestolit with support from Wavin, has donated two Tambo houses for two of Colombia's main National Parks, and plans are underway to construct a school using the same design guidelines.

Eco-house advantages:

- **Fast construction:** a house can be erected in two days
- **No construction waste:** no concrete, bricks or other materials required
- **Low ongoing energy costs** due to PVC natural insulation properties
- **Low maintenance costs** over a long lifetime
- **Water efficiency** with installed water collection
- **Easy cleaning** – PVC walls are durable and washable



Reforestation to Mitigate Climate Change

Our Polymer Solutions, Building & Infrastructure and Precision Agriculture groups support multiple reforestation campaigns across several regions in Mexico, Guatemala, Israel and more. In 2019, our efforts supported the planting of more than 1,500 trees. Our teams around the world are also regularly involved in beach cleanups and protection of local animal life in a range of areas.

Empowering Women and Children Through Education

We aim to provide our communities with opportunities that improve education for young people, and advance women in technical professions. Across the world, we make a difference in several ways, including:

- **Schoolchildren in India:** For the past three years, we have adopted government schools close to our Dura-Line factories in Hyderabad, Neemrana and Goa, attended by more than 750 pupils. Over the years, we have contributed to facilitating education by providing infrastructure, stationery, study materials and other equipment to support a positive learning environment, as well as conducting health camps, annual picnic and cultural events. In 2019, we donated a fully equipped computer lab with 15 computers to support the schoolchildren in their studies. Our program is called Sugam which means “empowering education” in Hindi.
- **Schools and students in Mexico:** Through our mine in San Luis Potosi, Mexico, Koura launched a science program for rural communities. The mine organized different events including a mobile planetarium, along with experts who taught science to school pupils. In Koura’s Matamoros plant we organized an ecological camp, with environmental awareness and reforestation activities, in collaboration with local authorities and universities.



- **Youth through agriculture in Israel:** Netafim provides long-term support for Nitzan Farm, an ecological rehabilitation area that is cultivated and tended by hundreds of young volunteers. In 2019, Netafim provided equipment for the planting of 120 fruit trees and supported the establishment of a greenhouse.
- **Women in Israel:** This past year, we started a new program called **"Women to Women"**, in which women from Netafim volunteer as mentors for women from low-income communities to help them understand and prepare themselves for career opportunities. Each mentoring relationship lasts six months and in the first year, 12 mentorship pairs successfully connected. Additionally, Netafim supports the **Desert Stars** youth project that empowers Bedouin female leaders and improves lives in their community in the Negev desert.
- **Young STEM innovators in Germany:** Our Vestolit team hosted The Youth Research (Jugend Forscht) Competition and worked with over 100 young innovators (ages 15-21) who presented 50 projects spanning fields including STEM work environments, biology, chemistry, the geo- and space sciences, mathematics, physics and technology.



Appendix



About this Report



This is Orbia's 11th annual Sustainability Report covering the role we play in society as a global business and our impacts on people, and the environment. Data in this report relates to the 2019 calendar year. Our last report was published in 2019 covering 2018 performance. The scope of information in this report is all global business under Orbia's operational control. All monetary figures in this report are expressed in USD unless otherwise specified.

Environmental data disclosed in this report includes manufacturing sites (not offices, warehouses, distribution centers or other sites). The number of manufacturing sites covered in 2019 is 128, a lower number than in 2018 due to reclassification of some plants as part of larger sites and some plant closures. This figure includes all sites where we have operational control and excludes joint ventures where we have 50% or less ownership.

Safety data disclosed includes all facilities including manufacturing sites, offices, warehouses, distributions centers, and R&D labs.

Environmental and Safety data covers sites that were active and operational during the reporting year, from their date of acquisition or up to their date of disposal.

This report has been prepared in accordance with the Global Reporting Initiative (GRI) Standards: Core option. The selection of content for this report was informed by a set of material topics developed through a process described in this report, in the section entitled: Orbia's 2019 Materiality Assessment. The report also serves as our annual Communication on progress for the UN Global Compact and the CEO Water Mandate, and tables showing our disclosures against these important initiatives are provided in the following pages. In addition, for the first time, we have aligned our reporting with the Sustainability Accounting Standards Board (SASB) 2018 Standard for Chemicals, and a table of our SASB disclosures is also included in the Appendix.

Our Sustainability Report was assured by an independent third party, and the assurance statement can be found in the following pages of this report.

We welcome your feedback, queries and suggestions. Please contact us:

sustainability@orbia.com

Thanks go to all our colleagues who have supported our sustainability activities and programs in the past year, as well as to **Orbia's**

Sustainability Team:

Cristina Gil

Vice President, Sustainability

Naty Barak

Director, Sustainability

Nisrene Haddad

Director, Environmental Responsibility

Cecilia Valdes

Manager, Sustainability

Angelica Anzola

Manager, Environment

Mary Lynch

Specialist, Corporate Responsibility and Communications

Candelaria Maldonado

Engineer, Sustainability

Miguel Mancera

Specialist, Sustainability data



UN Global Compact Commitment

Orbia endorses the Universal Declaration of Human Rights adopted by the United Nations and condemns all forms of human rights abuse, as stated in our [Human Rights Policy](#). Orbia became a signatory to the UNGC at the participant tier level in 2018, committing to uphold and promote UNGC principles within our spheres of influence. This is our second Communication on Progress and we will report annually.

UN Global Compact Principles	Our Position
1 Businesses should support and respect the protection of internationally proclaimed human rights.	At Orbia, we acknowledge, respect and uphold human rights. Our Code of Ethics binds all employees around the world to the highest ethical standards and we reinforce ethical practices with communication, training and immediate attention to ethical issues as they arise. We maintain a Human Rights policy confirming our support for the Universal Declaration of Human Rights and other universally accepted standards. We drive similar standards throughout our supply chain.
2 Businesses should make sure that they are not complicit in human rights abuses.	
3 Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining.	We respect the rights of employees to freedom of association and collective bargaining. We aim to maintain a collaborative, open and positive relationship with employees and address issues relating to their rights in a positive manner. We drive similar standards throughout our supply chain.
4 Businesses should support the elimination of all forms of forced and compulsory labor.	We do not engage in any practice which could be construed as forced labor. All Orbia employees are legally employed and join our business of their own free will. We drive similar standards throughout our supply chain.
5 Businesses should support the effective abolition of child labor.	We respect and support the rights of all children, and we are committed to preventing harm and actively safeguarding their interests. We do not employ children in any part of our business. We drive similar standards throughout our supply chain.
6 Businesses should support the elimination of discrimination in respect of employment and occupation.	We maintain a policy of equal opportunity and enjoy a high level of diversity among our workforce around the world. A key Orbia value is embracing diversity. Recruitment and human resources policies are designed to nurture inclusive practices for new and current employees in all matters relating to their employment with Orbia. See also our Diversity and Inclusion Policy .
7 Businesses should support a precautionary approach to environmental challenges.	Many of Orbia's products are designed to minimize environmental impacts, and provide benefits to our consumers, and to support sustainable construction, smart cities, sustainable agriculture, water conservation and waste reduction. Such products form part of our customers' own greenhouse gas emission reduction programs as they enable carbon-efficient operations. In our own operations, we work to reduce our toxic emissions, drive down our carbon and water footprints and act as environmental stewards in all that we do.
8 Businesses should undertake initiatives to promote greater environmental responsibility.	
9 Businesses should encourage the development and diffusion of environmentally friendly technologies.	
10 Businesses should work against corruption in all its forms, including extortion and bribery.	We are committed to behaving with integrity and acting against all forms of corruption. Our Code of Ethics and our Integrity and Anticorruption Handbook guide our actions binding all employees to uphold these policies.





UN CEO Water Mandate

The CEO Water Mandate is a special initiative of the UN Secretary-General and the UN Global Compact, providing a multi-stakeholder platform to advance corporate water sustainability policies and practices. Orbia became a signatory to the CEO Water Mandate in 2018, confirming our commitment to sustainable water management and practices. This is our first progress report to the CEO Water Mandate, as part of our GRI-based sustainability disclosure.

Water Mandate Principles		Our progress
Element 1	Direct operations	See section: Reducing water stress .
Element 2	Supply chain and watershed management	We are beginning the process of analyzing our supply chain impacts and assessing our suppliers. From 2020, we plan to include water performance as part of our EcoVadis-based screening of suppliers and take a risk-based approach to managing performance.
Element 3	Collective action	See section on our support for Water Funds in Latin America and other initiatives. Advancing access to water and hygiene .
Element 4	Public policy	We do not make political contributions. We support public policy on water through our engagement with industry associations and support for Water Funds. See section: Advancing access to water and hygiene .
Element 5	Community engagement	See section: Advancing access to water and hygiene .
Element 6	Transparency	We report on our water consumption and other water impacts in line with GRI Standards and SASB standards.

GRI Content Index

GRI Standard 102: General Disclosures 2016		Page
102-1	Name of the organization	4
102-2	Activities, products, and services	4
102-3	Location of headquarters	4
102-4	Location of operations	4
102-5	Ownership and legal form	4
102-6	Markets served	4
102-7	Scale of the organization	4
102-8	Information on employees	GRI Content Index, page 68
102-9	Supply chain	4
102-10	Significant changes	In 2019, Orbia changed its name and business structure, but the report boundaries are the same as in 2018.
102-11	Precautionary Principle	48
102-12	External initiatives	65-66
102-13	Membership of associations	GRI Content Index, page 69
102-14	Statement from senior manager	9
102-16	Values, principles, standards	5
102-18	Governance structure	41
102-40	List of stakeholder groups	GRI Content Index, page 70
102-41	Collective bargaining agreements	GRI Content Index, page 69
102-42	Identifying and selecting stakeholders	GRI Content Index, page 70
102-43	Stakeholder engagement	GRI Content Index, page 70
102-44	Key topics and concerns raised	GRI Content Index, page 70
GRI Standard 102: General Disclosures 2016		Page
102-45	Entities included	64
102-46	Report content and topic Boundaries	64
102-47	List of material topics	20
102-48	Restatements of information	None
102-49	Changes in reporting	None
102-50	Reporting period	64
102-51	Date of most recent report	64
102-52	Reporting cycle	64
102-53	Contact point	64
102-54	Reporting in accordance with GRI Standards	64
102-55	GRI content index	GRI Content Index, page 66
102-56	External assurance	79



GRI Content Index

Material Topic	Standard	Item	Description	DMA	Disclosure	Omissions
Solutions for resilience	Non-GRI topic					Advancing Sustainable Solutions, pp23-39
Innovation	Non-GRI topic					Innovation Investment, p167
Circular economy	Non-GRI topic					Reusing, Reducing and Recycling Waste p53
Quality and safety of products	GRI 416: Customer Health and Safety 2016	416-1	Assessment of the health and safety impacts of products	47	100% of our products are assessed	
		416-2	Incidents of non-compliance concerning the health and safety impacts of products	47	None	
Greenhouse gas emissions	GRI 302: Energy 2016	302-1	Energy consumption within the organization	48	GRI Content Index, p 71	
		302-3	Energy intensity	48	GRI Content Index, p 71	
	GRI 305: Emissions 2016	305-1	Direct (Scope 1) GHG emissions	48	GRI Content Index, p 72	
		305-2	Energy indirect (Scope 2) GHG emissions	48	GRI Content Index, p 72	
		305-4	GHG emissions intensity	48	GRI Content Index, p 72	
		305-7	Nitrogen oxides (NOx), sulfur oxides (SOx), and other air emissions	48	GRI Content Index, p 73	
Water use and discharge	GRI 303: Water 2016	303-1	Water withdrawal by source	48	GRI Content Index, p 72	
		306-1	Water discharge by quality and destination	48	GRI Content Index, p 73	
Waste management*	GRI 306: Effluents and Waste 2016	306-2	Waste by type and disposal method	48	GRI Content Index, p 74	
		306-3	Significant spills	48	None	
		306-5	Water bodies affected by water discharges and/or runoff	48	None	
Employee development, engagement and retention	GRI 404: Training and Education 2016	404-1	Average hours of training per year per employee	43	GRI Content Index, p 74	
		404-2	Programs for upgrading employee skills and transition assistance programs	43	43	
Diversity and Equal Opportunities*	GRI 405: Diversity and Equal Opportunity 2016	405-1	Diversity of governance bodies and employees	45	GRI Content Index, p 75	
Health and Safety	GRI 403: Occupational Health and Safety 2016	403-1	Workers representation in formal joint management-worker health and safety committees	46	100% of employees are represented by Health and Safety Committees or equivalent	
		403-2	Types of injury and rates of injury	46	GRI Content Index, p 76	Breakdown by gender not available
Investments in local communities	GRI 413: Local Communities 2016	413-1	Operations with local community engagement	57	77%	
	GRI 203: Indirect economic impacts 2016	203-1	Infrastructure investments	57	57	
Ethical Behavior and Compliance*	GRI 205: Anti-corruption 2016	205-2	Communication and training about anti-corruption policies and procedures	42	42	Partial disclosure
	GRI 307: Environmental Compliance 2016	307-1	Non-compliance with environmental laws and regulations	42	None	
	GRI 419: Socioeconomic Compliance 2016	419-1	Non-compliance with laws and regulations in the social and economic area	42	None	

* Other material topics, not in the top ten most material topics.



GRI Data Tables

GRI 102-8 Information on employees

Employees by region and gender	2018				2019			
	Women	Men	Undeclared	Total	Women	Men	Undeclared	Total
U.S. & CANADA	242	1,459	48	1,749	266	1,488	55	1,809
LATAM	1,860	8,910	5	10,775	1,871	8,896	7	10,774
EUROPE	1,202	4,918	117	6,237	1,246	5,044	25	6,315
AMEA	385	2,749	5	3,139	446	2,748	31	3,225
TOTAL	3,689	18,036	175	21,900	3,829	18,176	118	22,123

Employees by contract	2018				2019			
	Women	Men	Undeclared	Total	Women	Men	Undeclared	Total
Full time	3,468	17,834	173	21,475	3,599	17,985	118	21,702
Part time	221	202	2	425	230	191	0	421
Permanent	3,591	17,653	174	21,418	3,634	17,654	118	21,406
Temporary	98	383	1	482	195	522	0	717

Non-payroll workers	U.S. & CANADA	LATAM	EUROPE	AMEA	TOTAL
2018	82	636	607	799	2,124
2019	97	1,141	273	1,138	2,649
% in 2019	5%	11%	4%	35%	12%



GRI 102-13 Membership of associations

The following are key global or regional associations we are members of or significantly support. There are several additional memberships we maintain on a country by country basis.

Business Group	Name of the Organization	Country
Fluor	Global Forum for Advanced Climate Technologies (FACT)	U.S.
Fluor	Asociacion Nacional de la Industria Química AC (ANIQ)	Mexico
Building & Infrastructure	British Plastics Federation (BPF)	UK
Building & Infrastructure	Asociación Mexicana de Industrias Plásticas A.C. (Mexican Association of Plastic Industries A.C.) (AMITUP)	Mexico
Precision Agriculture	Irrigation Association	U.S.
Precision Agriculture	Israel Export Institute	Israel
Precision Agriculture	Sustainable Agriculture Initiative (SAI) Platform	Global
Data Communication	Fiber to the Home - Council Europe (FTTH)	Czech Republic
Data Communication	Plastic Pipe Institute (PPI)	U.S.
Polymer Solutions	The Vinyl Institute (VI)	U.S.
Polymer Solutions	European Council of Vinyl Manufacturers (ECVM) VinylPlus	Europe

GRI 102-41 Collective bargaining agreements

Employees with collective bargaining agreements	U.S. & CANADA	LATAM	EUROPE	AMEA	TOTAL
2018	21	4,083	1,896	186	6,186
2019	21	7,689	4,588	128	12,426
% in 2019	1%	71%	73%	4%	56%



GRI 102-40 List of stakeholder groups

GRI 102-42 Identifying and selecting stakeholders

GRI 102-43 Stakeholder engagement

GRI 102-44 Key topics and concerns raised

Stakeholders are individuals or groups who are affected by and influence our business operations. We engage with representatives of a wide group of stakeholders in order to gain insight that will help us minimize risk to our business, understand and benefit from opportunities and address stakeholder concerns and expectations.

Our ongoing consultations with stakeholders have influenced the development of our sustainability strategy and priority sustainability issues. We conducted specific engagement to define our material topics in 2019.

Who	What	What	How
Customers	Thousands of customers around the world in different business sectors.	Customer service, quality and compliance, competitive pricing, overall value chain efficiency.	<ul style="list-style-type: none"> • Client meetings • Industry meetings and conferences • Joint projects including workshops, training and education programs, and field trials.
Employees	More than 22,000 direct employees in our businesses around the world.	Professional development, fair compensation and benefits, a safe and healthy workplace, and meaningful work.	<ul style="list-style-type: none"> • Satisfaction surveys • Performance reviews • Internal communications
Investors	Current shareholders and institutional investors, investment analysts and stock exchange.	Return on investment through constant and sustainable growth, robust governance, transparency.	<ul style="list-style-type: none"> • Annual financial and sustainability reporting • Investor meetings and roadshows • Notifications through the Mexican Stock Exchange and the National Securities Commission
Communities, NGOs and academia	Local communities close to our factories and broader national, regional and global NGOs with interests relating to economic development, social or environmental needs.	Contribution and partnership to deliver long-term value that benefits communities and societies in general, engagement to understand community needs and responsiveness, and upholding human rights.	<ul style="list-style-type: none"> • Partnerships in programs for local impact • Meetings with NGOs, community leaders and local governments to understand needs and identify common interests • Academic forums on innovation and sustainable development • Engagement with Research Centers
Suppliers and Distributors	A wide range of thousands of suppliers across all our business sectors in tens of countries.	Long-term commercial partnerships, fair dealing, opportunities for diverse suppliers, fair negotiations.	<ul style="list-style-type: none"> • Supplier evaluation systems • Supplier meetings • Conferences and tradeshows • Joint projects
Regulators	National governments, regional councils and local municipalities in all the countries in which we operate.	Trusting relationships based on compliant and ethical conduct and respect for Human Rights, transparency and timely reporting, collaboration to advance public policy.	<ul style="list-style-type: none"> • Public-private partnerships for social benefit • Industrial guilds and associations • Discussion forums on sector and social policies • Government reviews and audits • Reporting on corporate performance



GRI 302-1 Energy consumption within the organization

Direct energy (Scope1)	Units	2015	2016	2017	2018	2019	Change in 2019
Natural gas	MWh	2,709,492	2,526,510	2,450,339	2,112,939	2,519,303	19%
Gasoline	MWh	9,911	7,821	12,394	12,874	10,324	-20%
Diesel	MWh	55,243	60,467	78,805	78,895	98,929	25%
LPG	MWh	119,105	113,434	112,891	123,464	117,155	-5%
Bio LPG and Bio Diesel	MWh	-	-	-	-	696	
Butane	MWh	-	-	-	11,710	10,620	-9%
Propane	MWh	-	-	-	1,567	2,404	53%
Coal	MWh	-	192,298	198,269	183,184	169,816	-7%
Renewable electricity generated	MWh					1,773	
Scope 1 (fuel and gas)	MWh	2,893,751	2,900,530	2,852,698	2,524,633	2,931,020	16%
Purchased electricity (grid)	MWh	2,680,079	2,445,311	2,457,173	2,668,162*	2,580,558	-5%
Renewable electricity purchased	MWh	-	-	-	55,737	81,890	47%
Scope 2 (electricity)	MWh	2,680,079	2,445,311	2,457,173	2,723,899	2,662,448	-2.3%
Total energy consumption	MWh	5,573,830	5,345,841	5,309,871	5,248,532	5,593,468	5%

Notes

We do not include any purchased heating, cooling or steam. However, we plan to integrate this in the future. Renewable energy generated is from solar arrays at three sites (Cartagena, Colombia, Fresno, U.S, and Hardenberg, Netherlands).

Precision agriculture business group data was included for the first time in 2018.

A dash means data was not available. It does not indicate zero consumption.

Heating powers of fuels were updated to more recent values in 2019.

* Renewable electricity data was not reported separately in 2018. This value was included in conventional purchased electricity.

GRI 302-3 Energy intensity

Energy intensity	Units	2017	2018	2019
Scope 1 (fuel and gas mix)	MWh / ton	0.64*	0.54*	0.36
Scope 2 (purchased electricity)	MWh / ton	0.55*	0.58*	0.32
Total energy intensity	MWh / ton	1.19	1.12	0.68

Notes:

In 2019, we moved to a new methodology for calculating intensities, as requested by key stakeholders. Figures for 2019 show intensities on the basis of tons CO₂e per ton of product manufactured (including production of intermediate materials). In prior years, intensities were calculated mainly on the basis of tons sold. Therefore, in 2019, intensity figures are not directly comparable to prior years, although they are a closer reflection of our actual impact.

*MWh/ton sold



GRI 303-1 Water withdrawal by source

Water withdrawal	Units	2017	2018	2019	Change in 2019
Surface water	1,000 m ³	8,670	8,262	9,843	19%
Groundwater	1,000 m ³	5,178	5,341	4,861	-9%
Municipal Water	1,000 m ³	2,480	2,150	1,242	-42%
Total water withdrawal	1,000 m³	16,328	15,753	15,946	1%
Water withdrawal intensity	1,000 m³/ton	3.66*	3.35*	1.93	-42%

Notes:

In 2019, water withdrawal allocations by source from 2 important sites was reclassified from groundwater and municipal water to surface water, due to an improvement in standardization of definitions, therefore resulting in significant variations by source.

See note to calculation of intensities in GRI 302-3.

*m³/ton sold

GRI 305-1 Direct (Scope 1) GHG emissions

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

Greenhouse gas emissions	Units	2017	2018	2019	Change in 2019
GHG emissions Scope 1	Tons CO ₂ e	587,487	575,204	588,002	2%
GHG emissions Scope 2	Tons CO ₂ e	1,173,202	1,215,035	1,046,742	-14%
Total Scope 1 and Scope 2	Tons CO₂e	1,760,689	1,790,239	1,634,744	-9%

GHG emissions - market vs location based (2019)	Units	Market based	Location Based
GHG emissions Scope 2	Tons CO ₂ e	1,046,742	1,119,078
GHG emissions intensity Scope 2	Tons CO ₂ e/ton	0.127	0.136

Notes:

Scope 2 emissions are market based in 2019 and 2018, but location based in all prior years.

For our Scope 2 market-based inventory, we are making efforts to increase emission factors sourced directly from suppliers, where not possible we still use national energy grid factors by country (2019 edition).

Scope 1 emission factors for fuels and gases use DEFRA 2019 and EPA 2018 emission factors.

CO₂e refers to greenhouse gases carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O) expressed as having the equivalent global warming impact as carbon dioxide.

GRI 305-4 GHG emissions intensity

GHG emissions intensity Units	Units	2017	2018	2019
Scope 1	Tons CO ₂ e/ton	0.13*	0.12*	0.07
Scope 2	Tons CO ₂ e/ton	0.26*	0.26*	0.13
Total Scope 1 and Scope 2	Tons CO₂e/ton	0.39*	0.38*	0.20

Notes:

See note to calculation of intensities in GRI 302-3

*CO₂e/ton sold



GRI 305-7 Nitrogen oxides (NOx), sulfur oxides (SOx), and other air emissions

NOx, SOx, and other significant air emissions	Units	2017	2018	2019	Change in 2019
NOx	Tons	779	689	753	9%
SOx	Tons	1,257	1,355	1,181	-12.9%
VOC	Tons	83	108	92	-14.4%
Total other air emissions	Tons	2,119	2,152	2,027	-5.8%

Notes:

80% of our SOx emissions are generated at our Fluor site in Matamoros (Mexico) and our Polymer Solutions plant in Henry, Illinois. Emissions reduced significantly in 2019 due to a planned maintenance one-month shutdown at Matamoros and lower overall energy requirements at our Illinois site. VOCs data does not include our Vestolit facility in Marl, Germany

GRI 306-1 Water discharge by quality and destination

Water discharge	Units	2018	2019	Change in 2019
Wastewater to sewer	1,000 m ³	2,277	2,481	9%
Wastewater to nature (surface)	1,000 m ³	8,257	9,408	14%
Wastewater to nature (underground)	1,000 m ³	6	14	126%
Total water discharge	1,000 m³	10,540	11,902	13%

Water discharge quality	Units	2018	2019	Change in 2019
Total Suspended Solids (TSS)	Tons	117	131	12%
Chemical Oxygen Demand (COD)	Tons	384	378	-1%
Biochemical Oxygen Demand (BOD)	Tons	116	87	-25%
Total Organic Carbon (TOC)	Tons	136	120	-12%
Total solids	Tons	753	716	-5%

Water balance	Units	2018	2019	Change in 2019
Water withdrawn	1,000 m ³	15,753	15,946	1%
Water discharged	1,000 m ³	10,540	11,902	13%
Water consumed	1,000 m ³	5,213	4,044	-22%



GRI 306-2 Waste by type and disposal method

Non-hazardous waste	Units	2018	2019	Change in 2019
Landfill (includes controlled cells)	Tons	25,259	24,485	-3%
Reuse (includes composting)	Tons	7,825	6,064	-22%
Recycling	Tons	17,766	29,073	18%
Recovery (including energy recovery)	Tons	1,833	2,001	9%
Incineration	Tons	1,724	1,654	-4%
Other			926	-
Total non-hazardous waste	Tons	54,407	56,104	3%

Hazardous waste	Units	2018	2019	Change in 2019
Landfill (includes confinement)	Tons	2,544	1,599	-37%
Reuse	Tons	319	303	-5%
Recycling	Tons	314	2,122	576%
Recovery (including energy recovery)	Tons	5,936	3,634	-39%
Incineration	Tons	2,334	1,284	-45%
Treatment	Tons	979	4,250	334%
Other			59	-
Total hazardous waste	Tons	12,426	13,251	7%
Total Waste	Tons	66,833	69,355	4%

GRI 404-1 Average hours of training per year per employee

Employee training by category (hours)	2018	2019
Managers and professional employees professionals	196,063	211,826
Other employees	277,696	310,416
All training hours	473,759	522,243
Average hours per employee per year	21.63	23.61

Note:

2% of total training hours are estimated



GRI 405-1 Diversity of governance bodies and employees

Employees by level and age	Age	2018	2019
Managers	<age 30	112	94
	age 30-50	1,442	1,548
	>age 50	675	732
Professional employees	<age 30	1,860	1,636
	age 30-50	4,925	4,702
	>age 50	1,632	1,449
Other employees	<age 30	2,520	2,649
	age 30-50	6,126	6,271
	>age 50	2,608	2,617
All employees	<age 30	4,492	4,379
	age 30-50	12,493	12,521
	>age 50	4,915	4,798
All employees by age as a percentage of total employees	<age 30	21%	20%
	age 30-50	57%	58%
	>age 50	22%	22%

Employees by level and gender	Level	2018	2019
Women	Managers	388	452
	Professional employees	2,294	2,301
	Other employees	1,007	1,076
Men	Managers	1,841	1,922
	Professional employees	6,123	5,486
	Other employees	10,247	10,461
% of women by level	Managers	17%	19%
	Professional employees	27%	30%
	Other employees	9%	9%
	All employees	17%	18%



GRI 403-2 Injury rates

All Orbia 2019	Employees	Contractors	Total
Injuries (TRIR)	0.76	0.48	0.71
Lost day rate (severity)	6.67	5.14	6.62
Lost Time Injury Rate (LTIR)	0.36	0.20	0.33

Injury rates by region (TRIR)		
Employees	2018	2019
U.S. & CANADA	2.05	2.03
LATAM	0.89	0.52
EUROPE	1.17	0.76
AMEA	0.90	0.85
TOTAL	1.08	0.76

Lost time injury rates by region (LTIR)		
Employees	2018	2019
U.S. & CANADA	0.54	0.37
LATAM	0.34	0.26
EUROPE	0.34	0.28
AMEA	0.59	0.77
TOTAL	0.37	0.36

Lost day rates by region (severity)		
Employees	2018	2019
U.S. & CANADA	17.08	6.24
LATAM	15.89	4.90
EUROPE	16.77	5.78
AMEA	17.73	14.09
TOTAL	16.44	6.67

Total fatalities by region		
Employees	2018	2019
U.S. & CANADA	0	0
LATAM	0	0
EUROPE	1	0
AMEA	0	0
TOTAL	1	0

Injury rates by region (TRIR)		
Contractors	2018	2019
U.S. & CANADA	1.81	0.0
LATAM	0.25	0.4
EUROPE	1.61	2.1
AMEA	1.01	0.0
TOTAL	0.69	0.48

Lost time injury rates by region (LTIR)		
Contractors	2018	2019
U.S. & CANADA	0.00	0.00
LATAM	0.19	0.19
EUROPE	0.65	0.65
AMEA	0.00	0.00
TOTAL	0.20	0.20

Lost day rates by region (severity)		
Contractors	2018	2019
U.S. & CANADA	0.00	0.0
LATAM	0.71	3.6
EUROPE	9.82	23.4
AMEA	14.13	0.0
TOTAL	5.01	5.14

Total fatalities by region		
Contractors	2018	2019
U.S. & CANADA	0	0
LATAM	0	1
EUROPE	0	0
AMEA	0	0
TOTAL	0	1

Notes:

- Regrettably, we experienced a single contractor fatality at our site in Altamira, Mexico in 2019. During cleaning operations after the work was completed, the person was crushed by the machinery and died in hospital. We regret this loss and have fully investigated and taken measures to prevent recurrence.
- Safety rates are calculated per 200,000 hours.
- Employee LTIR rates in 2018 exclude Netafim



SASB Index: Chemicals Sustainability Accounting Standard

INDUSTRY STANDARD | VERSION 2018-10

Topic	Accounting Metric	Category	Code	Location
Greenhouse Gas Emissions	Gross global Scope 1 emissions, percentage covered under emissions-limiting regulations	Quantitative	RT-CH-110a.1	GRI 305. Operations covered under emissions regulations not currently calculated.
	Discussion of long-term and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets and an analysis of performance against those targets	Discussion and Analysis	RT-CH-110a.2	See section: Bold steps for climate mitigation
Air Quality	Air emissions of the following pollutants: (1) NOX (excluding N2O), (2) SOX, (3) volatile organic compounds (VOCs) and (4) hazardous air pollutants (HAPs)	Quantitative	RT-CH-120a.1	GRI 305-7
Energy Management	(1) Total energy consumed, (2) percentage grid electricity, (3) percentage renewable, (4) total self-generated energy	Quantitative	RT-CH-130a.1	GRI 302
Water Management	(1) Total water withdrawn, (2) total water consumed, percentage of each in regions with high or extremely high baseline water stress	Quantitative	RT-CH-140a.1	GRI 303-1 See section Reducing water stress for details of consumption in water stress areas.
	Number of incidents of non-compliance associated with water quality permits, standards and regulations	Quantitative	RT-CH-140a.2	Not currently disclosed.
	Description of water management risks and discussion of strategies and practices to mitigate those risks	Discussion and Analysis	RT-CH-140a.3	See section: Reducing water stress.
Hazardous Waste Management	Amount of hazardous waste generated, percentage recycled	Quantitative	RT-CH-150a.1	GRI 306-2
Community Relations	Discussion of engagement processes to manage risks and opportunities associated with community interests	Discussion and Analysis	RT-CH-210a.1	GRI 102-44
Workforce Health & Safety	(1) Total recordable incident rate (TRIR) and (2) fatality rate for (a) direct employees and (b) contract employees	Quantitative	RT-CH-320a.1	GRI 403-2
	Description of efforts to assess, monitor and reduce exposure of employees and contract workers to long-term (chronic) health risks	Discussion and Analysis	RT-CH-320a.2	See section: Improving health and safety.
Product Design for Use-phase Efficiency	Revenue from products designed for use-phase resource efficiency	Quantitative	RT-CH-410a.1	Not currently disclosed.



Topic	Accounting Metric	Category	Code	Location
Safety & Environmental Stewardship of Chemicals	(1) Percentage of products that contain Globally Harmonized System of Classification and Labeling of Chemicals (GHS) Category 1 and 2 Health and Environmental Hazardous Substances, (2) percentage of such products that have undergone a hazard assessment	Quantitative	RT-CH-410b.1	Not currently disclosed.
	Discussion of strategy to (1) manage chemicals of concern and (2) develop alternatives with reduced human and/or environmental impact	Discussion and Analysis	RT-CH-410b.2	See section: Working with safe materials: In Improving health and safety.
Genetically Modified Organisms	Percentage of products by revenue that contain genetically modified organisms (GMOs)	Quantitative	RT-CH-410c.1	None
Management of the Legal & Regulatory Environment	Discussion of corporate positions related to government regulations and/or policy proposals that address environmental and social factors affecting the industry	Discussion and Analysis	RT-CH-530a.1	Not currently disclosed.
Operational Safety, Emergency Preparedness & Response	Process safety incidents count (PSIC), process safety total incident rate (PSTIR) and process safety incident severity rate (PSISR)	Quantitative	RT-CH-540a.1	See section: Advances in process safety. Partially reported.
	Number of transport incidents	Quantitative	RT-CH-540a.2	Not currently disclosed.



Assurance Statement



Deloitte Asesoría en Riesgos, S.C.
 Av. Paseo de la Reforma No. 505, Piso 28
 Colonia Cuauhtémoc
 06500 Ciudad de México,
 México
 Tel: + 52 (55) 5090 6000
 Fax: + 52 (55) 5090 6001
 www.deloitte.com/mx

Independent assurance report on the 2019 Annual Report to Orbia Advance Corporation, S.A.B. de C.V., to the Management of Orbia.

Responsibilities of Orbia and independent reviewer

The Management of Orbia is responsible for the elaboration of the 2019 Sustainability Report (SR) for the period from January 1st to December 31st, 2019, as well as ensuring its content, definition, adaptation and maintenance of the management systems and internal control from which the information is obtained, and which is also free of material misstatement due to fraud or error. Our responsibility is to issue an independent report based on the procedures applied during our review.

This report has been prepared exclusively in the interest of Orbia in accordance with the terms of our agreement letter dated January 30th, 2020, therefore we do not assume any responsibility to third parties and is not intended to be nor should it be used by someone other than the Management of Orbia.

Scope of our work

The scope of our assurance was limited which is substantially lower than a reasonable assurance scope, therefore the assurance provided is also lower. This report in no case can be understood as an audit report.

We conducted the 2019 SR review under the following conditions and/or criteria:

- a) The review of the GRI Standards disclosures in accordance with the reporting requirements as specified in the GRI Content Index of the 2019 SR.
- b) The data consistency between the information included in the 2019 SR with supporting evidence provided by the Management.

We have complied with the independence and ethics requirements of the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants (IESBA Code) based on integrity, objectivity, professional competence and due care, confidentiality and professional behavior principles.

Assurance standards and procedures

We have performed our work in accordance with the International Auditing Standard ISAE 3000 Revised Assurance Engagements other than Audits or Reviews of Historical Financial Information issued by the International Auditing and Assurance Standards Boards (IAASB) of International Federation of Accountants (IFAC).

Our review work included the formulation of questions to the Management as well as various departments of Orbia that have participated in the elaboration of the 2019 SR and the application of certain analytical and sample screening tests procedures described below:

- a) Meetings with staff of Orbia to learn the principles, systems and applied management approaches.
- b) Four site visits: Netafim USA, Netafim Reynosa, Duraline Elyria and Quimir Lechería to review, analyze and discuss information on site.
- c) Analysis of the process to collect, validate and consolidate the data presented in the 2019 SR.
- d) Analysis of scope, relevance and integrity of the information included in the 2019 SR in terms of the understanding of Orbia and of the requirements that stakeholders have identified as material issues.
- e) Selected sample review from the evidence that supports the information included in the 2019 SR.
- f) Quality assurance by an independent partner of the project to verify consistency between this report and the proposal, as well as work process quality and deliverables.

The following table details the revised contents according to the GRI Sustainability Reporting Standards Guideline:

302-1	302-3	303-1	305-1	305-2
305-7 ¹	305-7 ¹	305-7 ¹	306-1	306-2
403-2	403-9 ²	403-9 ²	403-10	404-1
405-1	413-1 ³	413-1 ³	Total production	

- ¹ Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions were reviewed individually.
- ² Work related injuries and the number and rate of fatalities as a result of work related injuries were reviewed individually.
- ³ Total community investment and volunteering hours were reviewed individually.

These indicators were selected for the independent review in accordance with the following criteria:

- a) Materiality of Orbia referred in the 2019 SR.
- b) Information provided during the meetings and site visits with the interviewed staff.
- c) Review of the evidence provided by Orbia staff of this project.

Conclusion

Based on our work described in this report, the performed procedures and the evidence obtained, nothing comes to our attention that could make us believe that the indicators and disclosures reviewed in the 2019 SR contain significant errors or have not been prepared in accordance with the reporting requirements established in the GRI Standards. For those GRI Standards disclosures and indicators of the Disclosure Sector where Orbia did not report in quantitative terms (numeric) the independent reviewer reviewed the qualitative information, which includes procedures, policies, evidence of the activities performed, among others.

Action alternatives

Deloitte has provided Orbia a report with the most significant action alternatives for future reporting, which do not modify the conclusions expressed in this independent review report.

Rocio Canal G
 Deloitte Asesoría en Riesgos, S.C.

Deloitte Touche Tohmatsu Limited affiliated Firm

Rocio Canal Garrido
 Partner of Deloitte Asesoría en Riesgos, S.C.
 April 17th, 2020



orbis

