



orbia 

Sustainable Solutions

Our contribution to the
United Nations Sustainable
Development Goals

SUSTAINABLE
DEVELOPMENT  GOALS

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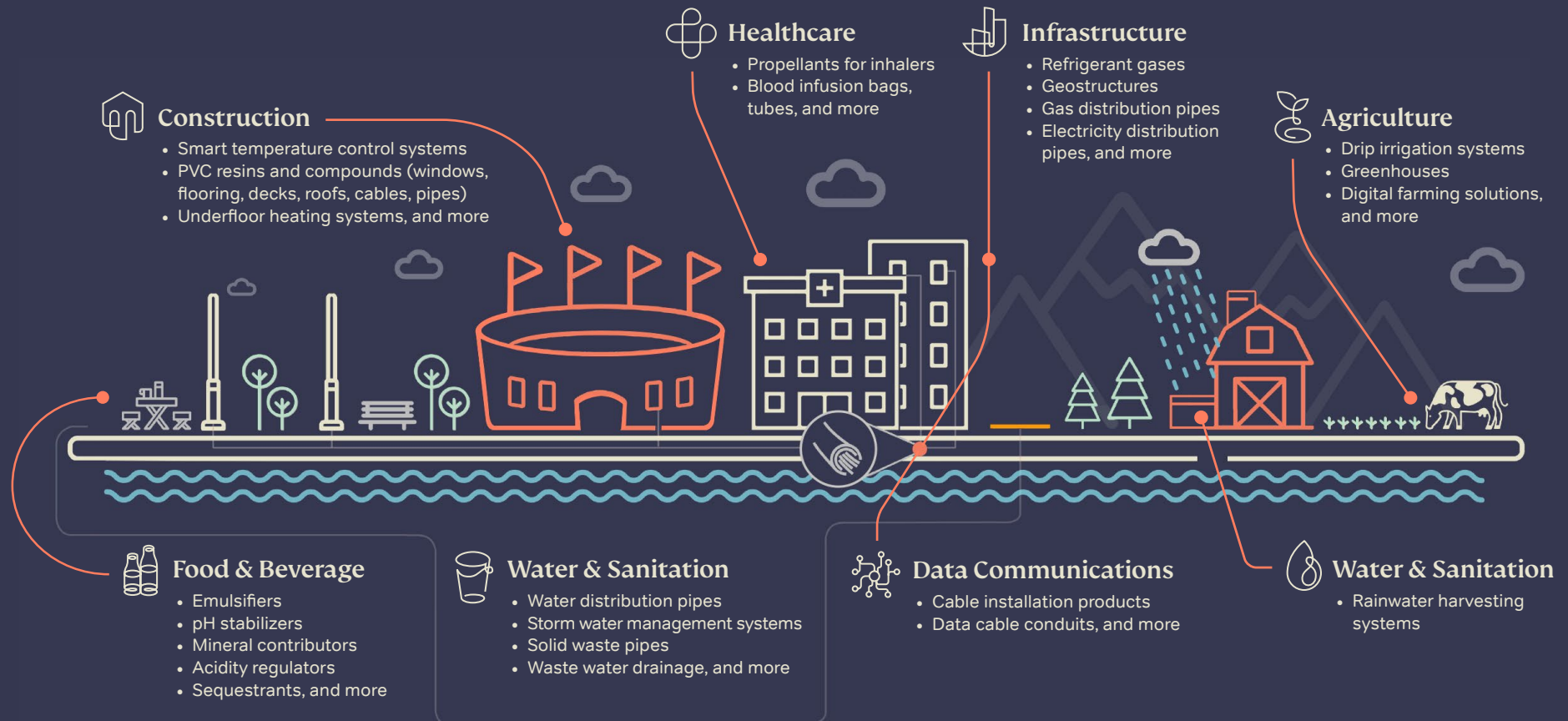


Background and Scope

Orbia is a community of companies bound together by a shared purpose: to advance life around the world.

Orbia's business groups (Vestolit, Alphagary, Wavin, Netafim, Dura-Line and Koura) 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 the provision of advanced materials, specialty products and innovative human-centered solutions.

As shown in the illustration below, our products and solutions support multiple industries including construction, infrastructure, agriculture, health, transportation, data communications, energy and petrochemicals. Many of these industries are essential for daily life and one of the ways in which we demonstrate our commitment to global impact is through the direct and indirect contribution to the United Nations Sustainable Development Goals (UN SDGs).





In order to assess how and to what extent our solutions contribute to the SDGs and their targets, we have carried out an initial identification and evaluation of the value delivered by Orbia's products and solutions, using existing methodologies and definitions as a basis.

This process allowed us to link our solution portfolio to the SDGs by identifying the revenues of our products that contribute either directly or indirectly to the goals. Our methodology was reviewed in collaboration with KPMG Mexico.

The scope of this first analysis includes:

- Direct and indirect contributions to the SDGs.
 - **Direct contribution:** when the benefit is generated directly by the product and does not undergo a significant transformation before usage. In addition, Orbia is able to assess its final impact and does not rely on measurement to be carried out by end users.
 - **Indirect contribution:** when the benefit is not generated directly by the product, and it undergoes a significant transformation prior to usage. In addition, Orbia is unable to assess its final impact and relies on measurement to be carried out by end users. Some Orbia products are supplies for essential healthcare, hygiene and sanitation, food security, and telecommunications applications.
- Applications of Orbia products and solution segments. Some of these products are manufactured using recycled raw materials. The portion of these products with recycled content was accounted for separately, to show this specific feature.
- Revenues generated by Orbia's products and solutions that contribute to selected SDGs.

Limitations and exclusions:

- Potential SDGs contributions were also identified and are shown in the environmental and social impact categories table.
- Potential impacts from other stages of product lifecycle¹ are excluded.
- Even if some products or solutions contribute only partially to a target, their contributions were included.

1. Other stages of product lifecycle include the manufacturing process and the final uses given to our solutions once they are sold to our customers.



Methodological Considerations

To define Orbia's products and solutions contribution to the SDGs, an internal analysis, supported with observations from KPMG Mexico, was carried out in accordance with internationally recognized initiatives and methodologies, including:

The UN SDGs and Targets

At the heart of the 2030 Agenda for Sustainable Development are the 17 SDGs, which are an urgent call for action by all countries—developed and developing—in a global partnership. They recognize that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth—all while tackling climate change and working to preserve our oceans and forests.

Business Reporting on the SDGs: An Analysis of Goals and Targets

Developed by the UN Global Compact, it is an inventory of possible qualitative and quantitative SDG indicators, for company-level reporting, based on internationally accepted business reporting frameworks and aligned to the 169 targets of the goals.

Overview of the process:

Initially, Orbia's products and solutions by business group were identified, along with their associated potential social and environmental impacts, from a high-level perspective. The potential impacts were categorized based on the 12 categories described in the next section and the UN SDGs and target definitions.

Further analysis was subsequently undertaken to adjust and validate the information obtained against generally accepted catalogs of impact metrics and the Business Reporting on the SDGs indicator inventory.

As a result, the direct and/or indirect contribution to the SDGs of Orbia's products and solutions was determined. In addition, a list of potential targets to which these products or solutions could contribute to, when used optimally, was suggested.

Key considerations for the evaluation of our contribution:

1. Contributions to Multiple SDGs

Orbia's products and solutions segments can contribute to more than one SDG. In these cases, revenue from the specific product/solution was accounted only once, allocated to the SDG that aligns the best with the application of that specific product/solution.

2. SDG Targets

In this first analysis, the process was focused on identifying contribution at goal and target level only. Given that measurement at indicator level is not always applicable for Orbia's products and solutions, measured impact on these indicators is not yet available at Orbia.

3. Direct and Indirect Contributions

Some of our products and solutions contribute directly through their application, some do so indirectly, and some do both. We have made that distinction in the [Our Contributions & 2020 Results](#) section.



Environmental and Social Impact Categories

In the following table, direct and indirect contribution to the SDGs—at a goal level—are grouped under key impact categories. Also, other potential impacts to which these products or solutions could contribute to, when used optimally, are included at target level.

Environmental Impact Categories

Categories	Definition	Direct SDG contributions	Indirect SDG contributions	Other potential contributions (target level)
Climate				
Low-Carbon Solutions	Products or services that result in fewer net carbon emissions than alternative products. It also considers processes or technologies that produce substantially lower amounts of greenhouse gas emissions than conventional methods.	12 RESPONSIBLE CONSUMPTION	7 AFFORDABLE AND CLEAN ENERGY 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	8.4
Alternative Energy	Products, services or projects supporting the development or delivery of renewable energy and alternative fuels.	-	7 AFFORDABLE AND CLEAN ENERGY	-
Energy Efficiency	Products, services or technologies that address the growing demand for energy while minimizing effects on the environment.	7 AFFORDABLE AND CLEAN ENERGY	7 AFFORDABLE AND CLEAN ENERGY 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	
Green Building	Products and solutions that make buildings more efficient, including energy, waste, water and indoor temperature management.	7 AFFORDABLE AND CLEAN ENERGY	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	-
Natural Resources				
Sustainable Water Management	Products, services, and projects that improve water management and address water scarcity and quality issues. This includes systems that minimize water use and loss; rainwater harvesting systems; sustainable agriculture practices; and solutions for resilience against water-related disasters.	2 ZERO HUNGER 6 CLEAN WATER AND SANITATION	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE 11 SUSTAINABLE CITIES AND COMMUNITIES 12 RESPONSIBLE CONSUMPTION 13 CLIMATE ACTION	6.5, 11.7
Resource Efficiency	Products, services, processes, and technologies that utilize the Earth's limited resources in a sustainable manner while minimizing impacts on the environment.	2 ZERO HUNGER 6 CLEAN WATER AND SANITATION 11 SUSTAINABLE CITIES AND COMMUNITIES 12 RESPONSIBLE CONSUMPTION	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE 11 SUSTAINABLE CITIES AND COMMUNITIES 13 CLIMATE ACTION	6.5, 8.4



Social Impact Categories

Categories	Definition	Direct SDG contributions	Indirect SDG contributions	Other Potential contributions (target level)
Health & Well-Being				
Major Disease Treatments	Drugs and healthcare equipment used to treat the world's major diseases (including asthma).	-		-
Healthcare	Products which support the maintenance and improvement of health via prevention, treatment, recovery, or cure of diseases or impairments.	-		-
Access to Drinking Water	Products, services, and projects which proactively support the access to improved drinking water sources for an increasing percentage of the population.			1.4
Sanitation: Infrastructure	Products and services that support the safe management and treatment of waste, reducing health hazards.			-
Sanitation: Hygiene	Products and services used for basic sanitation including soaps, water purifiers, detergents, as well as other products and services that ensure wastewater is sufficiently treated and/or safely reused to reduce the spread, severity, and impact of diseases and malnutrition.	-		3.9
Empowerment				
Connectivity	Includes initiatives that connect and empower communities with data connectivity.			1.4



Our Contribution | 2020 Results

Our findings of this first assessment show that 66% of Orbia's revenue in 2020 contributed either directly or indirectly to advancing the UN SDGs. 55% of 2020 revenue was a direct contribution to the SDGs.

These results demonstrate that sustainability is at the core of our business strategy and highlights our commitment to apply our innovative and technological expertise to address the world's most pressing challenges through our products and solutions.



Orbia's Contribution and Key Solutions by Category



Alternative Energy, Efficiency, Low Carbon & Green Building Solutions

- Vestolit's rigid foam is a component of wind turbine blades.
- Koura is developing advanced fluorine materials to improve lithium-ion battery performance, a key enabling technology in the transition to cleaner sources of energy.
- Koura's new low GWP propellants and refrigerants, have competitive carbon footprint compared to alternative technologies.
- Wavin's Indoor Climate Solutions increase energy efficiency by 34%.
- Vestolit's PVC used in applications for higher thermal control in green buildings.



Sustainable Water Management

- Netafim's precision irrigation solutions save up to 50% water compared to other methods, and adoption of these technologies promote sustainable and resilient agricultural practices.
- Wavin's urban stormwater management solutions reduce the risk of flooding and water damage, while enabling better management of water, making cities more resilient.



Connectivity

- Dura-Line provides a wide range of connectivity infrastructure.
- Vestolit and Alphagary produce materials for Datacom cables.



Resource Efficiency

- Several ranges of products are made with recycled or bio-based raw materials.
 - Alphagary stabilizers enable the integration of recycled feedstocks.
 - PlasticRoad is a road made from post-consumer recycled plastic, a temporary water storage and drainage—all rolled into one climate-adaptive and circular structure.



Major Disease Treatment & Healthcare

- Koura's medical propellants are used for the treatment of asthma.
- Vestolit & Alphagary resins and compounds are used for essential medical applications.



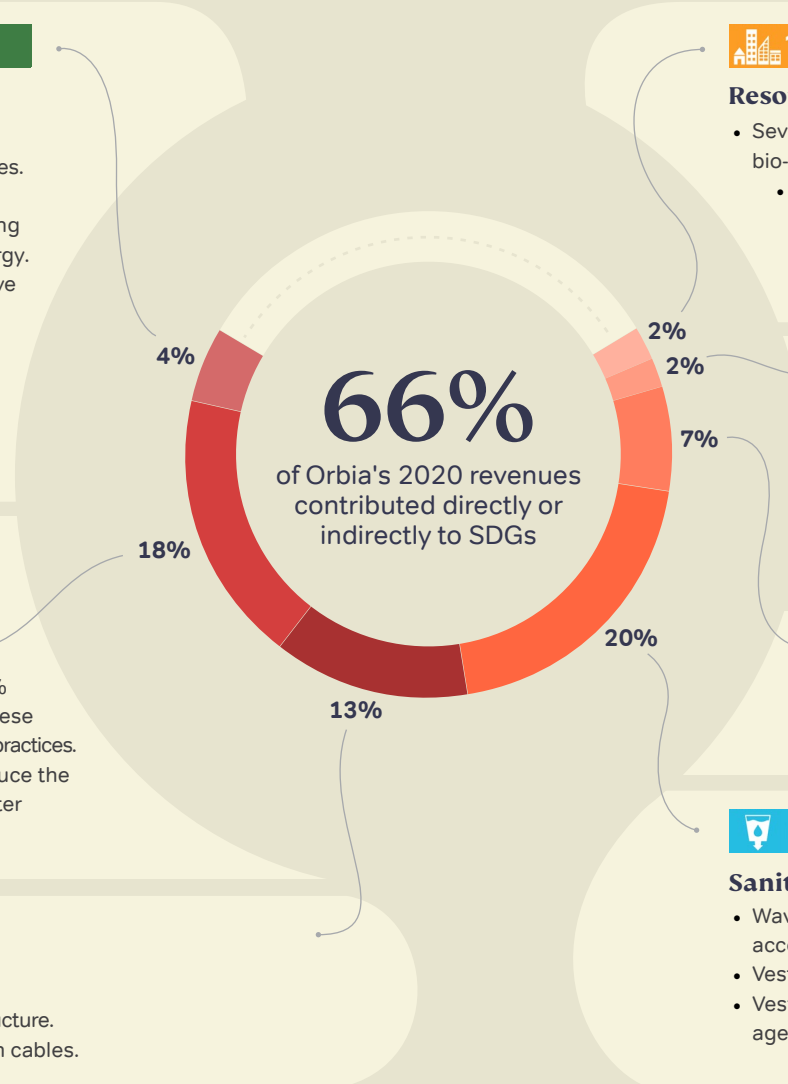
Access to Drinking Water

- Wavin pipes provide access to clean drinking water.



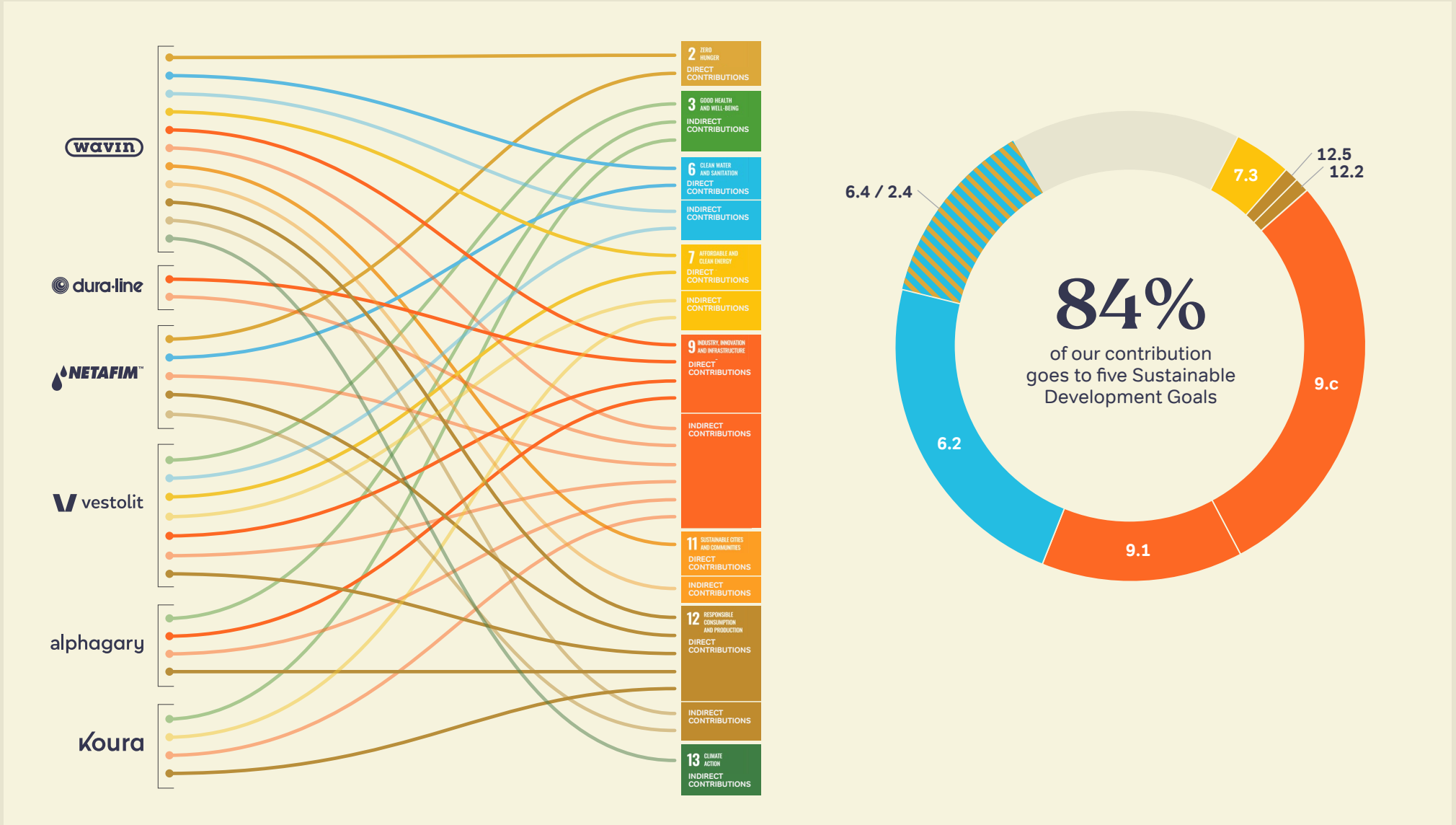
Sanitation: Infrastructure & Hygiene Solutions

- Wavin water pipes for housing and Infrastructure provide access to better sanitation.
- Vestolit's rigid resin used for aqueducts and sanitary systems.
- Vestolit's hypochlorite, caustic soda (used in soaps, cleaning agents and bleach), and chlorine used for water treatment.





Orbia's Contribution by Business Group





Top Contributions

Contributions by Revenue

	<p>Precision Irrigation Netafim's precision irrigation solutions allow farmers to use less water and produce more food.</p>			<p>15.1% of total revenue</p>
	<p>Water Pipes for Housing & Infrastructure Wavin offers a wide array of water piping systems that provide and transport clean water directly to end users.</p>			<p>13.4% of total revenue</p>
	<p>Fiber Optic Conduit Dura-Line 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.</p>			<p>10.5% of total revenue</p>

Products or segments that contribute to the highest number of SDG targets

	<p>Streamline X EZ ReGen™ Netafim is the only drip irrigation manufacturer committed to a comprehensive recycling program so it's easier than ever to recycle used dripline at the end of the season. Where available, Netafim collects products and reintroduces them in our manufacturing processes to be reused. Through take-back programs, over the past two years, 18,000 tons of plastic waste have been recycled across the U.S., France, Australia, and Israel.</p>	<p>2.4</p>	<p>6.4</p>	<p>12.2, 12.5</p>
	<p>Foul Water, Soil & Waste and Stormwater Management Solutions Water management is an essential part of a well-designed city, as it gives access to water to its residents and allows for a safe management, disposal and recovery of waste- and stormwater. In addition, products from the Foul Water, Soil & Waste and Stormwater segments use recycled materials. As examples, the new Tegra Gully and AquaCell Eco are made of 100% recycled PP. Wavin has also applied Recycore Technology to its new multi-layer, solid-core pipes, made with over 50% recycled content.</p>	<p>6.2</p>	<p>12.2, 12.5</p>	
	<p>PlasticRoad PlasticRoad is a prefabricated, modular, hollow bicycle path built from 100% recycled plastic. Its benefits include:</p> <ul style="list-style-type: none"> • Faster and more efficient construction and maintenance compared to traditional road structures due to prefabrication, light-weight and modular design. • The ability to store 300L per m², and to move and infiltrate water to prevent flooding during heavy rainfall. • A significantly lower carbon footprint compared to conventional road paving, resulting in emission reductions of up to 72%. 	<p>11.2</p>	<p>12.2, 12.5</p>	



Examples of Orbia's Contributions by Category

This section includes a selection of examples by impact category and is not an exhaustive list of products and solutions that contribute to selected SDGs.

*SDG icons in each example represent direct contributions.



Sustainable Water Management | Sustainable Agriculture



Community Irrigation for More Farmers in India

In 2020, Netafim's proven Community Irrigation model in India expanded to an additional 35,000 farmers in Karnataka, India, bringing our total reach since 2017 to more than 97,000 farmers across 202 villages. We expect initiatives to deliver up to 100% higher yields across a broad range of planned crops while reducing water requirements for irrigation by 40% compared to current farming practice.

Accumulated	2018	2019	2020	Main crops:	
Projects	1	5	8	Cotton	Onions
Villages	28	136	202	Corn	Bean
Farmers	7,000	62,000	97,000	Peanut	Chili
Hectares	12,000	56,000	106,000	Sunflower	Rice
Value	\$60 million	\$160 million	\$245 million	Flowers	Vegetables

Local Food Cultivation with Greenhouses

In early 2021, Netafim acquired Gakon Horticultural Projects, a leading Dutch turnkey greenhouse solutions provider. With Gakon's specialist expertise in all aspects of greenhouse project execution and Netafim's established leadership in advanced irrigation technologies, local food cultivation can now become a reality around the world.

Sustainable Rice at Scale

Success of the commercial-scale drip irrigation in Turkey, India, Brazil and Italy demonstrates that we can transform rice production worldwide to deliver improved yields, 70% water savings, fertilizer reduction, >90% reduction of methane emissions and arsenic uptake into rice grains. With rice being the predominant source of nourishment each day for more than 1.6 billion people around the world, transforming rice production can substantially help deliver Sustainable Development Goal 2: Zero Hunger.

Direct Contributions

- **Target 2.4** By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality.
- **Target 6.4** By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity.

Indirect Contributions

- **Target 9.4** By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities.
- **Target 12.2** By 2030, achieve the sustainable management and efficient use of natural resources.



Sustainable Water Management | Urban Resilience

wavin

6 CLEAN WATER AND SANITATION

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Managing Stormwater for Resilient Cities

The city of Bogotá, with over 8 million inhabitants, urgently needed a system to separate rainwater from wastewater. Rainwater that is channeled to a wastewater plant is both a waste of city resources and also prevents sustainable use of rainwater for irrigation. The solution: Wavin's patented Tegra gullies throughout the city filter out debris and contaminants and channel rainwater for storage and reuse, rather than treatment. Similarly, we are using innovative trenchless diagnostic and rehabilitation technologies to continue upgrading 8 kilometers of the city's sewer network, avoiding the need for excavation of roads and other disruption during installation. These improvements serve more than 150,000 people in 15 neighborhoods and will enable Bogotá to manage water efficiently for the benefit of its population for many years to come.

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.

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.



Installing the Tegra 1000 cone.

Direct Contributions

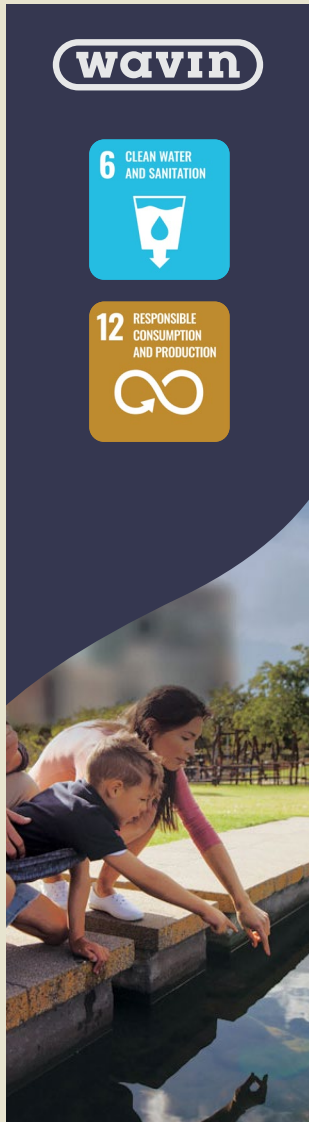
- **Target 6.2** By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations.
- **Target 12.2** By 2030, achieve the sustainable management and efficient use of natural resources.
- **Target 12.5** By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse.

Indirect Contributions

- **Target 9.4** By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities.
- **Target 11.5** By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations.
- **Target 13.1** Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries.



Sustainable Water Management | Urban Resilience



TreeTanks for Greener Cities

Trees provide shade, absorb carbon dioxide, release oxygen and fresh air, and provide a cooling effect. To support trees to grow in urban environments while greening up and cooling cityscapes, Wavin developed the TreeTank. As shown here, in the city of Hasselt in Belgium, it provides trees in urban areas a greater chance to survive and secures trees to grow faster by providing unhindered root growth in urban spaces. Other benefits include preventing the tree roots from damaging road surfaces. And since the ground is not compacted this also allows the ground to capture more rainwater.

A New Partnership for Sustainable Living

In early 2021, we announced a new partnership with the [Resilient Cities Network \(R-Cities\)](#), the world's leading city-led network. Through our brands Wavin, Netafim and Dura-Line, we will work with R-Cities members to develop innovative solutions to ongoing challenges such as transportation infrastructure, water supply, urban food systems, and connectivity that can enhance urban quality of life. These initiatives will aid progress towards three Sustainable Development Goals: 6, 9 and 11.



Wavin TreeTank



Access to Water and Sanitation



Resilient Housing

At Orbia, we believe that everyone should be able to live with dignity in a place they can call home. In 2020, we maintained our partnership with Moradigna, a family-owned social enterprise whose mission is to transform lives in the São Paulo (Brazil) favelas by offering an all-inclusive renovation package that meets decent living standards and building and sanitation regulations. In 2020, two training sessions (including one specifically for women) were held for Moradigna's plumbers and fitters, with the help of Wavin employees. Overall, in 2020, Moradigna renovated 143 homes in low socioeconomic communities in São Paulo, benefiting 576 people, bringing the total number of beneficiaries to date to more than 2,500 people.

Making Handwashing Accessible



Our support for UNICEF's campaign enabled almost 300,000 people to benefit from hygiene facilities through:

2,753
public handwashing station installations

4,300
household handwashing station installations

2
community water networks repaired

3
health care facilities' water systems repaired

We supported UNICEF's global response to the COVID-19 pandemic to expand efforts to keep children and their families safe from infection. Our donation of \$450,000 and \$55,000 in essential supplies, including water tanks and pipes manufactured by Orbia, helped address the urgent needs of nearly 300,000 people in schools, health centers, childcare facilities and other public venues. This was achieved through the installation of handwashing stations across Brazil, Colombia, Ecuador, Guatemala, India, Mexico, Peru and South Africa.

Direct Contributions

- **Target 6.2** By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations.



Energy Efficiency



Indoor Climate Solutions for Low Carbon Living

We leverage the expertise of our brand, Wavin, to offer innovative solutions for temperature control and ventilation that reduce the carbon footprint of residential buildings. In 2020, we transformed the 104 apartments of The Natural Park residential complex in Sanliurfa, Turkey with the installation of our new Sentio Indoor Climate Control system in combination with solar-powered heat pumps. Sentio delivers heating and cooling via underfloor pipes, avoiding the need for air conditioning or other heating installations. Residents can control apartment temperatures using an app, saving up to 21% of energy by using zone control, up to 20% by using underfloor heating instead of radiators and up to 34% in cooling versus air-conditioning. In 2020, we extended the capabilities of the Sentio Indoor Climate Control System to include a Smart Radiator Thermostat, enabling each room in the home to be individually scheduled to achieve a specific temperature at each moment of the day, using the Sentio app that controls the underfloor heating system.



The Natural Park, Sanliurfa, Turkey

Direct Contributions

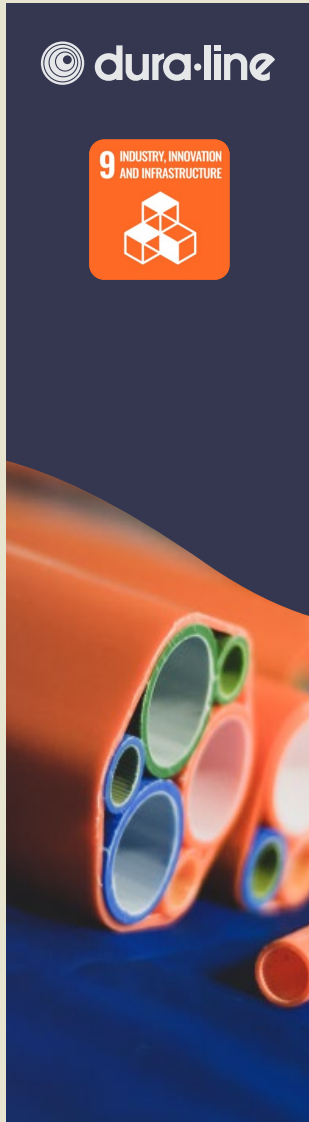
- **Target 7.3** By 2030, double the global rate of improvement in energy efficiency.

Indirect Contributions

- **Target 9.4** By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities.



Connectivity



Bridging the Urban-Rural Digital Divide

Chariton Valley, a Missouri communications provider, wished to expand broadband internet to local underserved areas, especially rural areas that had no or poor access. Dura-Line's FuturePath 7-Way and 4-Way conduits enabled a standardized connectivity infrastructure. Using our FuturePath conduits, Chariton Valley was able to rapidly and efficiently connect thousands of individuals in the region.

Mass Transit Expansion in Seattle



In October 2020, we were proud to have received the Platinum Innovator Award from Cabling Installation & Maintenance for our work on the Seattle Sound Transit Authority Railway system. The Northgate Extension of Sound Transit in Seattle is a light-rail tunnel section comprising under- and overground routes with expected daily use by more than 40,000 passengers.

To assure the safety of all, a robust communication and security infrastructure system is needed to process data from security cameras and train tracking systems. However, routine operations in the transit tunnels are challenging due to poor ventilation that traps toxic exhaust gases. Taking this into account, our Low Smoke Zero Halogen (LSZH) conduits, that have low friction potential and greater air-jetting distances for cable installation at speed, were installed over more than 6,700 meters. The LSZH solution supports clean air for passengers and for those working in the tunnels, including, for example, firefighters during an emergency situation, while providing Sound Transit with an optimal connectivity infrastructure.

Direct Contributions

- **Target 9.c** Significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020.

Indirect Contributions

- **Target 9.1** Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all.



Resource Efficiency | Circularity



At Orbia, new products are designed with circularity in mind whenever possible, and environmental criteria are considered when selecting raw materials. For example, Wavin, Dura-Line and Netafim continue to target increased use of recycled raw materials in manufacturing of drip lines, pipes and conduits.

PlasticRoad: The Low-Carbon Way to Get Places

Wavin's award-winning PlasticRoad is the world's first bicycle path made of 90% post-consumer recycled plastic and is poised for commercialization, with production coming onstream in the Netherlands in 2021. In 2020, following two years of trials and a million users on foot and on bicycles, we concluded a further pilot of PlasticRoad in Mexico City's Chapultepec Forest, made from 1,000 kilograms of recycled plastic waste, the equivalent of half a million plastic bottle caps. Beyond initial testing as a bicycle path, PlasticRoad has proven able to handle heavier transport loads, and has potential to replace asphalt in certain conditions. Further, PlasticRoad is engineered to store water during extreme rainfall and incorporates sensor technology for climate monitoring. Its faster installation delivers up to 80% fewer greenhouse gas emissions during the construction phase compared to traditional road construction.



PlasticRoad pilot program, Chapultepec Forest, Mexico City, Mexico

Direct Contributions

- **Target 6.2** By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations.
- **Target 11.2** By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons.
- **Target 12.5** By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse.



Resource Efficiency | Circularity



Circularity Enabling Stabilizers



Through our Alphagary brand, we are constantly developing our range of stabilizers that enhance the capabilities of PVC to incorporate recycled materials. For example, our VINASTAB® range includes calcium-based stabilizers that bring PVC to life for a variety of applications, including healthcare masks and tubing, irrigation systems, electric vehicle charging systems, rainwater harvesting and flood protection products, as well as purpose-designed formulations that support the use of recycled PVC in a variety of applications. We expect that VINASTAB will help grow the market for recycled plastics and advance a circular economy.

Specifically, Alphagary designed VINASTAB stabilizers in collaboration with Wavin, to help bring more stability and consistency to the extrusion process of Wavin's Recycore products that use recycled PVC. To support the growth of these essential additives, in 2020, Alphagary injected \$6 million into the expansion of our UK facility that delivers VINASTAB products. Our purpose-built facility is designed with closed loop additive and transfer systems, high automation, low energy consumption and zero waste capabilities.

Direct Contributions

- **Target 12.2** By 2030, achieve the sustainable management and efficient use of natural resources.
- **Target 12.5** By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse.



Resource Efficiency | Circularity



Advancing Battery Circularity



Koura, Orbia's business focused on the development, manufacture and supply of fluoroproducts and technologies, is engaged in several initiatives with [Battery Resourcers](#) to develop and deploy technologies to recycle battery materials and enable gains in efficiency and sustainability.

In October 2021, Orbia Ventures and Koura led a \$70 million mid-round funding investment to support Battery Resourcers in expanding its global operations in commercial lithium-ion battery recycling. Koura is executing on a comprehensive energy materials strategy with an emphasis on electrolyte salts, binders and high-performance electrolyte additives and solvents from its new [Koflyte](#) line. In addition, Koura is working with Battery Resourcers to integrate recycled materials into the battery supply chains in North America and Europe and is supporting Battery Resourcers' commercialization efforts in those markets.

Analysts predict at least 145 million active electric vehicles (EVs) on the road by 2030 and governments worldwide are implementing adoption incentives and lithium-ion battery recycling mandates for EVs reaching end-of-life. With this investment round, Battery Resourcers will bring two additional commercial-scale processing facilities online in 2022 to meet surging demand for battery recycling and sustainably-sourced materials.

Indirect Contributions

- **Target 12.5** By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse.



Low Carbon Solutions



Greening Propellants

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 2019, Koura introduced Zephex® 152a (1,1-difluoroethane), a new propellant gas that will deliver more than 90% reduction in Global Warming Potential (GWP) 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, 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 million 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. Additionally, the successful progress of Zephex 152a, has empowered us to announce our delisting of a high GWP medical propellant, Zephex® 227ea, from 2021.

Direct Contributions

- **Target 12.4** By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment.

Indirect Contributions

- **Target 3.4** By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being.
- **Target 9.4** By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities.



Low Carbon Solutions



Climate-Friendlier Refrigerants

Refrigerants are essential materials for many supply chains and are used in multiple industries for cooling applications including air-conditioning, food production, transportation, healthcare and many more manufacturing uses. Globally, refrigerants will represent an estimated \$30 billion market by 2025². However, increasingly, current refrigerant solutions have been recognized as a contributory factor to global warming. Our brand Koura has leveraged its expertise in fluorinated products and researched and developed new technologies to create a new class of refrigerant that achieves both high performance and significantly lower global warming potential (GWP) than current materials. For example, one of our new offerings from our portfolio of development products, Klea[®] 473A, for use in ultra-low temperature refrigeration applications such as bio-medical storage, has a GWP of 1,830 which is 85% lower than a comparable refrigerant, R-23, which has a GWP of 14,800. Additionally, Klea 473A offers Cooling Supply Chains Without Warming the Planet improved cooling capacity and energy efficiency compared to R-23. These development products will progressively bring new sustainable, low GWP and high energy efficiency solutions to a broad range of refrigeration applications from food preservation and building climate control, to bio-medical storage solutions.

2. Source: <https://www.marketsandmarkets.com/Market-Reports/refrigerant-market-1082.html>

Direct Contributions

- **Target 12.4** By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment.

Indirect Contributions

- **Target 7.3** By 2030, double the global rate of improvement in energy efficiency.
- **Target 9.4** By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities.



Low Carbon Solutions



Exploring Options for Fossil-free Resin

In the last year, Vestolit is leveraging its expertise to reduce the carbon footprint of our portfolio to develop a PVC that is free from fossil fuels with a potential of more than 40% reduction in Global Warming Potential (GWP) versus current products.

Our innovation team is actively working on three technologies to transform the carbon footprint of PVC:

- **Carbon Capture**
PVC manufactured using a process that captures carbon dioxide that would otherwise be emitted into the atmosphere, for example, industrial gas emissions from suitable industries. Our challenge in scaling this option will be to source feedstock at scale and establish appropriate infrastructure for raw material transportation.
- **Circular**
PVC manufactured using carbon derived from post-consumer mixed plastic waste. Our challenge is to source sufficient volumes due to low technical maturity.
- **Bio**
PVC manufactured using carbon sourced from plants. Our challenge will be to source suitable bio feedstocks without disrupting food supply chains.

In all three cases, we are actively working with our customers to advance this industry transformation. This is dependent upon several factors, including our ability to source raw materials that meet our strict criteria for sustainability, quality, and consistency. We hope to bring some of these new specialty products to market during 2021.

Direct Contributions

- **Target 12.2** By 2030, achieve the sustainable management and efficient use of natural resources.
- **Target 12.5** By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse.



Next Steps

At Orbia, we are aware that this analysis is only the first step towards better measurement and communication of our products' and solutions' contributions to sustainable development.

In future editions of this analysis, we aim to integrate additional impact measurement lenses. These additions are likely to consider lifecycle assessment (LCA) results for a wider range of Orbia's products in order to measure the impacts generated in the different stages of their lifecycle, including both possible positive and negative impacts on the environment, health and society.

We have already identified relevant SDG indicators for certain of our products and solutions and plan to measure our contribution to these, when possible, to go beyond generated revenue. In order to measure our impact in a more comprehensive manner, we will follow the five dimensions of impact proposed by the [Impact Management Project](#).



Other References

- [UN SDG Goal and Indicator definitions](#)
- [Business Reporting on the SDGs: An Analysis of The Goals and Targets](#)
- [IRIS+ system for measuring, managing, and optimizing impact \(by the GIIIN\)](#)
- [Impact Management Project](#)
- [Carbon Disclosure Project \(CDP\): Guidance for question C4.5a](#)
- [SASB Chemical Standards: RT-CH-410a.1. Revenue from products designed for use-phase resource efficiency.](#)
- [S&P Corporate Sustainability Assessment \(CSA\) definitions for: Resource Efficiency Benefits of Products & Low Carbon Products](#)



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