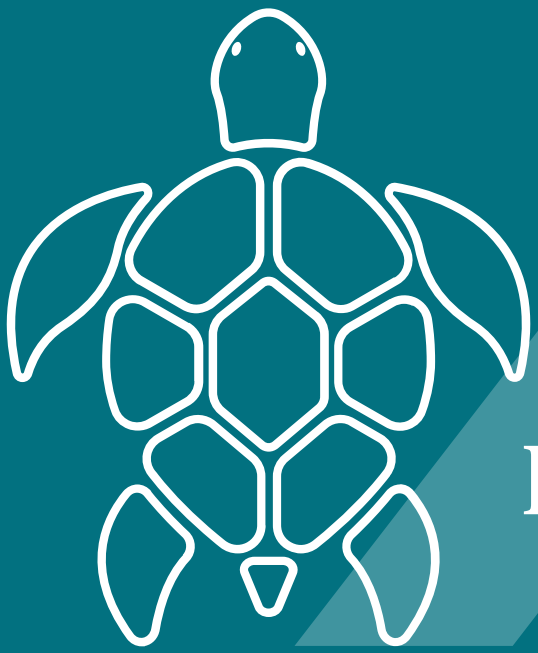
Investment Managers



AXA IM Listed Impact Equity

AXA WF ACT **Biodiversity Fund** Impact Report 2023

Sustainable investment labels help investors find products that have a specific sustainability goal.

This Product does not have a UK Sustainability Label. Our UK-domiciled funds follow the Financial Conduct Authority's (FCA's) Sustainability Disclosure Regulations, which limit the use of the terms 'impact' or 'sustainable' in their name and/ or product disclosures. Our non-UK domiciled funds are not subject to these rules and may use these terms based on the regulations in their own territory.

Contents

Introduction

Impact Investing

Impact investing has historically been associated with private markets, but in recent years the investment community has worked to develop listed equity strategies which aim to deliver positive, measurable social and environmental outcomes alongside a financial return. While private market impact investing has an important role to play at a local level, public companies can enact change on a global scale and often enable other companies across industries and geographies to deliver positive impact themselves, creating a domino effect.

Impact investing goes further than other forms of responsible and sustainable investing. It focuses on investing in companies that are generating positive and measurable change alongside financial returns. Investors don't have to choose between positive impact or the potential for strong financial returns - financial sustainability underpins both goals. Having an **intentional, disciplined**, and **credible approach** for **measuring real world change** as well as traditional financial analysis is therefore **essential to impact investing**.

Our Approach

Our approach to impact investing **seeks to align** with the **Global Impact Investing Network (GIIN's) guidance for pursuing impact in listed equities**.[1] Having been an active member of the GIIN's Working Group Advisory Committee, defining best practices of impact investing for listed equities, our definition of impact investing is based on the four key concepts it has defined to guide impact strategy design and implementation:

1 | Setting the strategy

Detailing what the strategy aims to achieve and how it aims to achieve this, through a Theory of Change. This starts by defining the specific challenges to be addressed along with targeted, measurable outcomes, then identifying the investable solutions which will achieve these outcomes and explaining how stewardship activities will contribute to enact real-world change.

2 | Portfolio design and selection

Following a replicable, consistent, and quantifiable methodology. Our methodology is based on quantitative UN SDG screening, a proprietary qualitative impact assessment framework designed by our dedicated Impact and ESG Research team, combined with structured financial analysis to identify companies that can generate outcomes aligned to the strategy's objectives and financial returns.

3 | Engagement

Driving investor contribution through long-term active ownership, engagement topics linked to the strategy's targeted outcomes, and advocating for transparency and impact KPI reporting.

4 | Use of impact performance data

Measuring progress in line with the Theory of Change by reporting and monitoring impact KPIs on both company and portfolio level.

AXA IM's listed impact equity impact strategies aim to generate positive measurable impact in two principal ways:

Asset contribution

Investing in listed companies which are making a net positive contribution to the strategy's targeted social and environmental outcomes, predominantly through the products and services they provide.

> *Asset contribution can be measured at a company and portfolio level using impact KPIs directly related to the strategy's targeted outcomes, such as 'number of people benefitting from healthcare solutions', or 'millions of acres covered by sustainable agriculture technology'.*

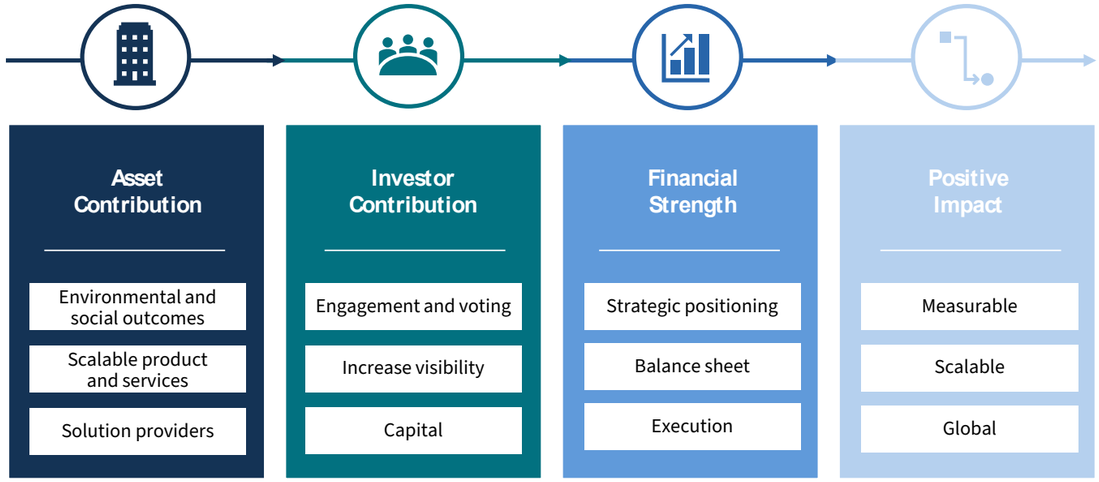
Investor contribution

Generating a positive contribution as a listed equity investor by using engagement and voting to encourage companies to increase their positive contribution to the strategy's targeted social and environmental outcomes, set impact targets, report impact KPIs and reduce negative externalities. In addition, where possible we aim to provide additional capital through follow-on offerings and IPOs, and improving visibility of companies through our reporting initiatives.

> *Investor contribution can be measured by, for example, '% of portfolio with an engagement target related to the strategy's targeted outcomes', or 'increase in the % of portfolio companies reporting impact KPIs'.*

Our Philosophy and Core Principles

We believe that in order to generate a long-term positive global impact, companies must be financially sound, well-managed, and have strong strategic positioning. Their Financial Strength allows them to leverage their superior R&D and execution capabilities to generate positive, scalable impact through innovative, commercially more viable solutions and broader distribution. In addition, these quality companies can generate strong financial returns over the long-term helping us to meet our dual objective.



Our core investment principle are:

| Investing in solutions

Given the urgency to halt global warming, biodiversity loss and drive social progress, we believe that investing in companies that are providing scalable, innovative products and services which help companies operating in high impact sectors to achieve these outcomes has a wider, more powerful impact compared to investing in companies which are simply improving their own footprint or complying with best practices. We believe that the positive impact of solution providers is more significant and reaches beyond direct stakeholders and the locality of their operations.

| Seeking scalable, global impact

Compared to impact investment in private markets, which generates positive social or environmental change often on a local project-based level, we believe that leading listed companies can provide scalable and commercial solutions that have the potential to have a net positive impact on millions of people's lives, or improve the environmental outcome across millions of acres of land, enacting real world change on a global level.

| Engaging to drive real-world change

We aim to engage with atleast 50% of portfolio holdings. Our engagement topics are linked to our targeted social and environmental impact outcomes, and we follow-up with management to monitor improvements.

| Measuring and reporting progress

We take a disciplined and transparent approach to measuring real-world change and continuously work to increase the visibility of our impact portfolios, the companies we invest in and our own contribution towards the impact outcomes we are targeting, we can measure and report progress.

Our Impact Assessment Framework

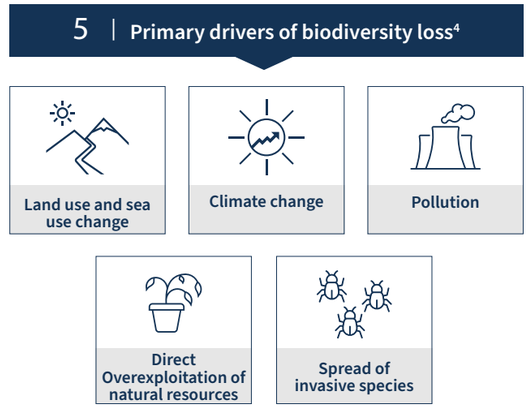
AXA IM's proprietary Impact Assessment Framework was developed by our dedicated AXA IM's ESG & Impact Research team using guidance from the GIIN and from the Impact Management Project/Impact Frontiers ("https://impactfrontiers.org/norms/"Impact Management Norms | Impact Frontiers). It focuses on how a company's products & services contribute to achieving the targeted outcome. For each company, the impact analysts develop a theory of change and identify a range of key performance indicators ("KPIs") which allows them to measure the asset contribution of companies, and the progression of such contributions over time.

Companies' asset contribution to the targeted environmental and social outcomes is assessed and rated based on five key impact pillars:

1. Intentionality	2. Materiality	3. Additionality	4. Negative Externalities	5. Measurability
• Strategic commitment to generate impact • Impact targets and strong sustainability policies • Executive compensation includes sustainability criteria	• Materiality of the issues being addressed • Materiality of the solutions provided by the company (scale, depth) • Share of revenues from these solutions in the revenue mix of the company	• Leading solutions through superior technology or reliability • Increased access through broader distribution • Affordable pricing	• Negative impact on environment or society • Controversies • Mitigating policies and actions	• Transparent measurement and reporting on impact and sustainability

Companies are classified into five categories and only companies rated in the best categories ("impact leaders", "impact contributors" or "SDG–aligned") are eligible for our impact strategy. Companies rated Neutral or Detractor are not eligible.

Theory of Change



Our extensive analysis of the literature and research on global environmental and social risks has identified biodiversity loss caused by humans as a key global challenge. The five primary drivers of biodiversity loss are land use and sea use change, climate change, pollution, direct overexploitation of natural resources and invasive species.[2] The biggest driver of biodiversity loss is how people use land and sea. This includes the conversion of land cover such as forests, wetlands, and other natural habitats for agricultural and urban uses. Since 1990, around 420 million hectares of forest have been lost through conversion to other land uses.[3] Ecosystems such as forests, peatlands and wetlands represent globally significant carbon stores. Their conservation, restoration and sustainability are critical to achieving the targets of the Paris Agreement. Climate change is altering ecosystem productivity, exacerbating the spread of invasive species and changing how species interact with each other and with their environment. Pollution, including from chemicals and waste, is a major driver of biodiversity and ecosystem change with devastating direct effects on freshwater and marine habitats. As a result of the persistent use of highly dangerous, non-selective insecticides, plant and insect populations are dwindling, with growing atmospheric deposits of nitrogen being one of the most serious threats to the integrity of biodiversity globally.[4] The recent IPBES report on the Sustainable Use of Wild Species reveals that direct overexploitation of plants and animals is not just threatening the survival of one million species around the world but the livelihoods of billions of people who rely on wild species for food, fuel and income.[5] Invasive alien species (IAS) are animals, plants, fungi and microorganisms that have entered and established themselves in the environment outside their natural habitat. The global economy, with increased transport of goods and travel, has facilitated the introduction of alien species over long distances and beyond natural boundaries with devastating impacts on native plant and animal life. IAS have contributed to nearly 40% of all animal extinctions since the 17th century.[6] These five drivers of biodiversity loss are fundamentally eroding the natural capital upon which our societies and economies depend – including our water, clean air, fertile soils and pollinators.[4] Nature is disappearing with the latest Living Planet Report revealing the scale of the global crisis. Between 1970 and 2020, the size of the wildlife population declined by 73% on average based on almost 35,000 population trends across 5,495 species of amphibians, birds, fish, mammals and reptiles. Freshwater species experienced the greatest declines, falling by 85%, followed by terrestrial (69%) and marine populations (56%) Regionally, the worst losses happened in Latin America (-95%).[7] When species populations fall below a certain level, it can cause ecosystems to weaken undermining the benefits that ecosystems provide to people. By contrast, the human population has doubled, the global economy has grown nearly fourfold and global trade has grown tenfold during the last 50 years.[8] However, more than half of global gross domestic product (GDP) is dependent on nature and its services, such as water, clean air, pollination, medical or biochemical resources, fertile soil and food, and the degradation of natural assets such as forests and soils pose a significant long-term threat to the global economy, society, and financial institutions. Further, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) Sustainable Use of Wild Species Assessment estimates that 70% of the world's poorest people are directly dependent on wild species, with one in five people relying directly on wild plants, algae and fungi for their food and income.[4] It is estimated that the nature-related economic cost related to biodiversity loss and ecosystem damage could be around $5 trillion.[9] To address the urgent need to halt biodiversity loss, governments have adopted the Kunming-Montreal Global Biodiversity Framework (GBF), the equivalent of the Paris Agreement for climate change, to protect and restore 30% of nature, reduce food waste and the use of harmful pesticides by 50% by 2030, and have a positive impact on biodiversity by 2050.[10] Biodiversity's increasing prominence alongside climate concerns is also driven by the adoption of the Taskforce on Nature-Related Financial Disclosures (TNFD) Recommendations. The newly launched TNFD framework enables companies to conduct a double-materiality assessment of impacts and dependencies, risks and opportunities related to nature. Increased nature related disclosures will help investors to better assess the macro-criticality of nature related risks for society and economies based on data driven insights.

Targeted Environmental Outcomes and Solutions

Based on our analysis, we have identified the protection of biodiversity as a key outcome for the AWF ACT Biodiversity strategy in line with the Global Biodiversity Framework. Additionally, we have identified three solutions that will contribute to the achievement of the targets of the GBF, namely to stop biodiversity loss by 2030 and have a net positive impact on biodiversity by 2050.

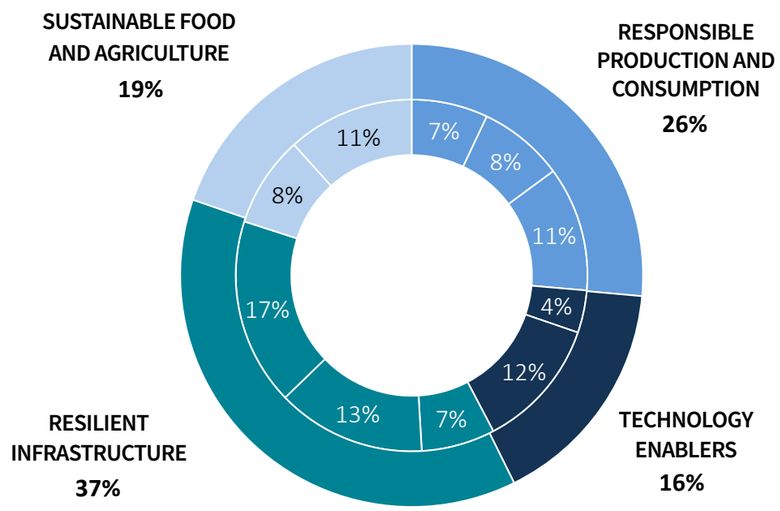
1. **Sustainable food and agriculture** - reducing the use of water, fertilisers, pesticides, and pollution while increasing food production helped by shifting consumption to meat and dairy alternatives.
2. **Responsible production and consumption** – increasing resource efficiency and reducing pollution through recycling, sustainable materials, and recirculation.
3. **Resilient infrastructure** – modernising aging water networks to reduce water consumption and pollution, and using the latest science and technology to build next generation sustainable infrastructure designed with biodiversity in mind.
4. **Technology enablers** – improving resource efficiency and increasing environmental considerations through intelligent technology such as sensors, software and semiconductors. Enabling companies to better monitor, assess and improve their business activities, contributing to sustainable practices and more responsible resource management.

Solutions that protect and preserve biodiversity in line with the Global Biodiversity Framework

Solutions	SUSTAINABLE FOOD AND AGRICULTURE	RESPONSIBLE PRODUCTION AND CONSUMPTION	RESILIENT INFRASTRUCTURE	TECHNOLOGY ENABLERS
	Agritech	Resource Efficiency	Consulting and Engineering	Software and Services
	Food Innovation	Sustainable Materials	Water Ecosystem	Semiconductors
		Recycling and Recirculation	Environmental Testing	
KPIs	Sustainably engaged acres	Waste materials collected and processed	People benefitting from water infrastructure services	R&D

Our strategy seeks to contribute to achieving the targets of the Global Biodiversity Network by investing in companies offering innovative, scalable solutions that protect and preserve biodiversity by enabling sustainable agriculture, responsible production and consumption, and the construction of resilient infrastructure, among others. We have connected our targeted impact outcome to the United Nations Sustainable Development Goals (SDG) focused on protecting and preserving biodiversity which are SDG 2 - Zero Hunger (2.4. Sustainable Agriculture), SDG 6 - Clean Water and Sanitation, SDG 12 - Responsible Production and Consumption, SDG - 14 Life below Water and SDG 15 - Life on Land. To measure, report and monitor progress in line with the Theory of Change, we have identified impact KPIs for each solution, in addition to company specific impact KPIs.

Portfolio Exposure to Solutions



Resource Efficiency Responsible Production	7%
Sustainable Materials	8%
Recycling and Recirculation	11%
Semiconductors	4%
Software and Services	12%
Consulting and Engineering	7%
Water Ecosystem	13%
Environmental Testing	17%
Food Innovation	8%
Agritech	11%

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Asset Contribution: Key Performance Indicators 2023

We use impact performance indicators to measure and report on the portfolio's contribution to our strategy's targeted impact outcomes. These 'impact KPIs' are directly related to the investee companies' product and services and include, for example, the volume of water treated, the surface covered by sustainable agriculture technology or the amount of re-used waste.

The KPIs listed below were calculated using portfolio holdings as of 31/12/2023 and using impact KPIs reported by investee companies for the full year 2023 and the full year 2022. They reflect the positive impact generated by the investee companies through their products and services. Their variety illustrates the diversification of the portfolio across companies operating in different sectors and geographies, and the different ways in which they contribute to reducing pressures on biodiversity.

We note that the newly launched TNFD framework and incoming EU CSRD regulations should improve the companies' reporting of material impact from a double materiality perspective, i.e. how a company affects society and the environment, as well as how deteriorating social and environmental factors impact a company's business model.

These numbers correspond to the impact generated in 2023 and 2022, by the companies held in the fund as of 31/12/2023.

SUSTAINABLE FOOD AND AGRICULTURE

	2023	2022
Hectares covered by sustainable agriculture technology (Thousands)	64,751	61,108
Hectares of land saved through crop protection solutions	151,038	161,431

RESPONSIBLE CONSUMPTION AND PRODUCTION

	2023	2022
Waste reused (million tonnes)	19.8	19.0
Waste materials collected and processed for reuse or recycling (million tonnes)	18.3	17.8
Water treated using company's solutions (million m^3)	3,100	3,383
Water savings enabled for clients (million m^3)	2,374	1,944
Avoided CO_2 emissions enabled for clients (thousand tons of CO_2)	49,258	43,973

RESILIENT INFRASTRUCTURE

	2023	2022
Water pipelines monitored through products (km)	150,000	110,000
People benefitting from water infrastructure services (million people)	17.8	16.4

Solution: Sustainable Food and Agriculture

Challenges to address

Since 1990, around 420 million hectares of forest have been lost through conversion to other land uses.[11] The global food system is the primary driver of biodiversity loss, with agriculture alone being the identified threat of more than 85% of the 28,000 species at risk of extinction and responsible for up to 90% of global deforestation.[2] It also uses 50% of all habitable land[12] and accounts for over 70% of all freshwater usage, with over half of this water being wasted due to leaky irrigation systems or inefficient applications.[13] Three quarters of habitable land is dedicated to the production of meat and dairy. However, those two commodities only supply 17% of global calories and 33% of global protein.[14] Cattle farming, and soybeans grown to feed cattle, occupy the biggest segment of potentially habitable land, highlighting it as one of the most pressing issues.

The sector is also a major source of water pollution from livestock effluents, fertiliser, and pesticide run-off, and contributes to 30% of global CO_2 emissions.[15]

The continuous use of pesticides can deplete insect and microorganism populations, generating pesticide-resistant pests and adversely affecting predator-prey relationships. Beyond the immediate risks associated with chemical exposure, long-term ramifications such as bioaccumulation in organisms, disruptions of aquatic ecosystems, and degradation of soil quality further accentuate the need for a more careful use of pesticide and fertiliser. For example, neonicotinoids, which are among the world's most widely used insecticides, can affect the sperm count of male honeybees and reduce the number of queen bees.[16] While the value of agricultural crop production has increased by about 300% since 1970, land degradation has reduced the productivity of the global land surface by 23%, and up to US$577 billion in annual global crops are at risk from pollinator loss.[4]

With global food demand expected to increase by 50% by 2050,[17] it is essential that the entire food system becomes more sustainable by addressing food waste and consumption habits. Currently, one-fifth of food produced for human consumption is lost or wasted globally, costing the global economy around US$1 trillion with 60% being wasted at household level.[18] In addition, food loss and waste generate up to 10% of global greenhouse gas emissions – almost five times that of the aviation sector.[19] Effective food conservation is vital in tackling this issue, yet most current conservation solutions, such as plastic packaging and refrigeration, focus on preservation without addressing their environmental costs. In 2022, the total greenhouse gas emissions from food refrigeration cold chains were estimated to be 1.32 gigatons of CO_2 equivalent[20] with food waste being higher in hotter countries due to high temperatures affecting storage, processing, and transportation.[21] Single-use plastic packaging, while useful in extending food shelf life, significantly contributes to pollution and harms biodiversity. Additionally, a 2019 study[22] showed that within the EU, food waste per person had doubled between 2004 and 2014 despite a 50% increase in plastic food packaging.

Changes or contributions that will come from solutions provided by companies

Precision agriculture to reduce the use of water, fertiliser and pesticides while increasing crop yield to meet increasing demand for food. New ingredients and sustainable food packaging to prolong shelf life, reducing the need for food refrigeration cold chains and the use of single plastic packaging. Alternative protein sources to reduce the consumption of meat and dairy.

KPIs:

Million acres covered by sustainable agriculture technology during the year.

Solution: Agritech

Case Study: Deere & Co

Pollution from chemicals and wastewater is one of the key drivers of global biodiversity loss. Although fertiliser, pesticide, herbicides, and water are essential for increasing crop yield, the use of Agritech can limit the impact on biodiversity through precision agriculture which reduces the use of chemicals, chemical runoffs, airborne drift and water consumption.

Inputs

83,000 Employees
US$2.2bn spent in R&D and US$1.5bn in CAPEX in 2023, c. 40% of CAPEX and R&D spend is dedicated to smart/precision agriculture technologies.

Activities

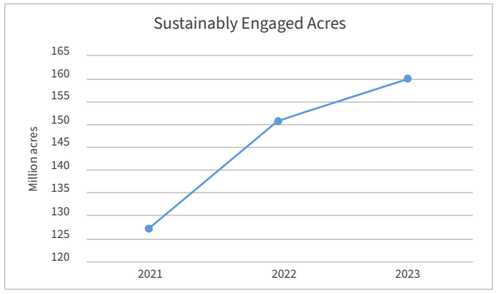
Deere & Co specialises in the manufacturing of agricultural and forestry equipment and is a leader in Agritech solutions. Its production and precision agriculture divisions provide crop farmers with tractors, combines, seeding, tillage, and precision agriculture solutions based on connected, smart machines that deliver both economic value and sustainability benefits.

Outputs

We estimate that a large part of activities contribute materially to sustainable agriculture. Deere enables farmers, as well as forestry and construction customers, to optimise their operations and increase their productivity whilst reducing the use of fertilisers and pesticides and minimising the number of passes. Connected machines enable farmers to more effectively certify their production, monetise sustainable practices, and participate in sustainability programs such as the US Cotton Trust Protocol and carbon markets. Deere offers “smart” features which leverage data, machine learning and computer vision, such as See & Spray which photographically identifies weeds and sprays pesticides directly onto the plant, this reduces pesticide use by up to two thirds. Other examples include ExactShot, which reduces fertiliser inputs by up to 60%, and SmartApply, that reduces crop protection and water input by up to 50%, chemical runoffs by 93%, and airborne drift by 87%, enabling farmers to reduce pollution and water usage whilst increasing yields.

Impact KPI

As of FY23, there were 650,000 connected Deere machines in use covering a total of 388 million engaged acres during the year. See & Spray was used on 1m acres, saving over 30m liters of pesticides. Deere estimates these solutions enabled farmers to reduce their carbon footprint by 9% in 2022 from 2021.



Source: Company reports

Impact

Reducing the use of pesticides and water whilst increasing the crop yield and productivity for farmers. Deere & Co’s innovative solutions make farming more resource-efficient and technology-enabled, helping to better protect biodiversity.

Portfolio Weight: 3.0%

Solution: Food Innovation

Case study: SIG Group

Globally, around 13% of all food produced is lost between harvest and retail, while an estimated 19% is wasted by households, restaurants and retail.[23] Through innovative packaging solutions which extend the shelf life of products, food waste across the length of the food chain can be significantly reduced. This is done by altering the compounds of the packaging which inhibit the growth of microorganisms, stopping food from spoiling. SIG provides biodegradable fibre-based aseptic cartons that extend the shelf life of liquid foods without the need for refrigeration, significantly reducing environmental impact and food waste.

Inputs

9,000 Employees
R&D costs of EUR 71m, amounting to 2.2% of revenues in 2023.

Activities

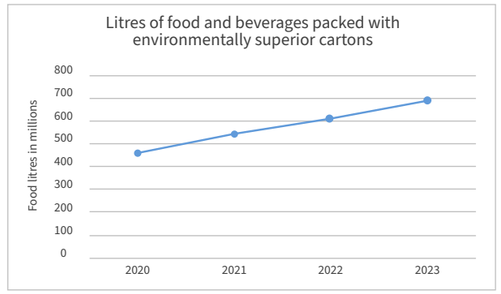
SIG provides aseptic packaging solutions for nutritious liquid food and beverages. SIG’s packaging protects products over extended periods of time, usually 12 months or more, without the need for refrigeration or preservatives. Around 57% of the group’s sales are packaging solutions for white milk and other liquid dairy products. A significant portion (75-80%) of SIG’s standard aseptic carton packs is derived from renewable resources, with the company setting an industry precedent with the first-ever 100% Forest Stewardship Council-certified paperboard. More than 99% of the aseptic carton packs sold carry the Forest Stewardship Council (FSC) label.

Outputs

A recent lifecycle assessment revealed that SIG’s aseptic cartons have a 28-70% lower carbon footprint compared to alternative forms of packaging such as plastic, glass bottles and aluminium cans. We note ongoing efforts to enhance these reductions. SIG was the first to eliminate the aluminium foil layer from its “SIG Terra” aseptic carton packaging offering, leading to a noteworthy reduction of up to 58% in CO_2 emissions per pack. SIG also introduced the first aseptic carton with 100% polymers linked to recycled plastics and forest-based polymers. Overall, SIG estimates that its aseptic and chilled beverage cartons helped customers deliver 28.3 billion litres of food and beverages to consumers around the world in 2023.

Impact KPI

In 2023, the company’s environmentally superior “SIG Terra” cartons helped its customers to deliver 15.5 billion litres of nutritious food products around the world.



Source: Company reports

Impact

SIG provides biodegradable fibre-based aseptic cartons that extend the shelf life of liquid foods without the need for refrigeration, significantly reducing pollution and food waste.

Portfolio weight: 2.2%

Food Innovation	Company Description
Symrise AG, Germany, Chemicals Portfolio Weight: 2.4%	Symrise is a global leader in fragrances, flavours, and ingredients. Symrise puts great emphasis on sustainable sourcing and green chemistry. Indeed, it works with suppliers to promote regenerative agricultural practices (it employs over 70 agronomists that help farmers with soil analysis, water use, and fertilisation), with the aim of improving their yield, reducing their environmental impact, and ensuring long-term partnerships for the supply of high-quality raw materials. It focuses on natural feedstock (95% of its strategic biomaterial sourcing) and will not be launching any new projects based on artificial feedstock. It applies green chemistry principles for several of its processes, including its flagship product, synthetic menthol (with a carbon footprint only 10% of that of natural menthol), and announced that all new processes would follow these principles.
DSM-Firmenich AG, Switzerland, Chemicals Portfolio Weight: 2.7%	DSM-Firmenich is a leader in the fields of ingredients, flavours, fragrances, and nutrition solutions for human and animal consumption. Several of its solutions contribute to reducing agriculture's impact on biodiversity, such as ingredients to produce plant-based proteins, solutions to reduce the environmental impact of animal farming (by improving feed efficiency and reducing enteric methane emissions), and an algae-based alternative to fish oil used in salmon-farming which helps reduce pressure on marine resources (each tonne produced replaces 60 tonnes of wild-caught fish). Operationally, DSM-Firmenich demonstrates a commitment to minimising its impact on biodiversity: it aims to maximise resource efficiency (notably by using upcycled feedstocks), targets a certified deforestation-free tier 1 supply chain by 2030 (71% of suppliers certified as of 2023), and in 2023 it piloted the initial steps of the Science Based Targets for Nature (SBTN) guidance.
Agritech	
Valmont Industries, Inc. United States, Construction and Engineering Portfolio Weight: 2.7%	Valmont Industries provides technological solutions for infrastructure and agricultural markets that help conserve resources resource efficiency and improve resilience. Valmont's irrigation systems improve water use efficiency for farmers, helping customers save approximately 379 million cubic meters of water annually. Similarly, the company's solutions for enhancing solar energy generation, as well as electrical transmission, substations, and distribution, support energy efficiency and its clients' decarbonisation goals. Valmont contributes to the generation of more than 6 GW of renewable power each year.
Croda International Plc, United Kingdom, Chemicals Portfolio Weight: 2.1%	Croda develops ingredients based on Smart Science for Crop Care among others. The group is an innovation leader in bio-based chemicals used in impactful applications. For instance, Croda develops solutions contributing to more sustainable agriculture, including crop protection solutions such as bio-stimulants, seed coatings, seed adjuvants, and biopesticides. Bio-stimulants reduce the need for fertiliser, enhance plant growth, and resistance to water and abiotic stresses. In 2023, Croda's crop science solutions helped save over 150,000 hectares of land by increasing yields and were notably used in pilot reforestation projects. In 2023, 69% of the land saved was in Asia and Latin America, areas that are particularly pressured for food productivity.
Genus Plc, United Kingdom, Biotechnology Portfolio Weight: 1.8%	Genus is a world-leading animal genetics company, supplying high-quality breeding animals, semen and embryos with desirable characteristics to animal farmers. Its solutions enable pork, beef, and dairy farmers to improve their resource efficiency by producing more animal proteins with fewer resources. Indeed, by providing animals with better feed efficiency and higher resistance to diseases, Genus contributes to reducing land use for feed production and to avoiding livestock losses. Genus estimates that each year, the improved feed efficiency, milk production and health robustness enabled by its solutions help avoid 429k tCO_2e in its porcine business, 70.8k tCO_2e in its beef business, and 851k tCO_2e in its dairy business
AGCO Corporation, United States, Machinery Portfolio Weight: 1.7%	AGCO is a global manufacturer and distributor of agricultural equipment, such as tractors, combines, self-propelled sprayers, forage, seeding and tilling equipment, grain storage solutions, and protein production systems. Its products generally help improve farmers' productivity, reduce their inputs, and contribute to food security. It leverages digital solutions and puts emphasis on the connectivity of its machines to enable farmers to collect and use large amounts of data to improve farming efficiency and sustainability. In 2023, 85% of the retailed production agriculture fleet was connected. In research trials and field-based studies, its precision solutions demonstrated a 20-30% reduction in inputs needed to maximise yields. We also note an attention to circularity, illustrated by its "retrofit-first" approach to products introduction and its remanufacturing program.

Solution: Responsible Production and Consumption

Challenges to address

Our global society is using nature 1.7 times faster than our planet's biocapacity can regenerate per annum, an unsustainable level that harms biodiversity, and exacerbates climate change.[24]

Packaging, especially polymers, is a major source of pollution in oceans and on land, making the impact of plastic on ecosystems one of the most critical issues threatening biodiversity. According to an OECD report in 2022, only 9% of the 460 million tonnes of plastic produced globally each year were recycled, with the majority of waste ending up in landfills or incineration sites.[25] Around one million metric tonnes of that plastic also finds its way into our oceans, a quantity that has increased tenfold since 1980 and now accounts for 85% of all marine waste.[26] This is increasingly detrimental to marine ecosystems as the chemical composition of plastic makes it exceptionally durable, taking the average plastic bottle 450 years to degrade.[27] During this time, the plastic breaks down into secondary microplastics and releases additives and toxins into the water, which disrupts the carbon cycle, contributes to climate change and accounts for the deaths of more than one million marine animals each year.

Poor waste management, and in particular inadequate landfill operations, leads to water, soil and air pollution and is a significant source of GHG emissions. Indeed, according to the US Environmental Protection Agency (EPA), landfills are responsible for 15% of methane emissions in the US, with methane accounting for over 12% of US GHG emissions from human activities.[28] Only 32% of municipal solid waste is recycled and/or composted in the US,[29] compared to other developed economies such as the EU which has a recycling rate of nearly 50%.[30] Landfill operators often capture landfill gases, which are produced from decomposing waste and contain a high content of methane with a high global warming potential. They do this to prevent methane leakage by either burning it off (flaring) or utilising it for energy production, such as generating electricity, thermal energy, or producing renewable natural gas (RNG).

When it comes to improving the efficiency of fresh water uses, a key input for a wide range of industrial processes, corporates have a key role to play given the size of the expected water deficit which is predicted to be 56% by 2030 in a business-as-usual scenario, according to the Water Resources Institute.[31]

Changes or contributions that will come from investee companies

With natural resource consumption projected to increase 60% by 2060 compared to 2020 levels,[25] there is an urgent need to separate environmental degradation from economic growth by producing more with less pressures on biodiversity. Recycling aims to reduce the amount of primary extraction of materials, which is energy and land use intensive.

Innovative waste management equipment and treatment solutions help to reduce the use of scarce resources, enabling more circular economies. Developing sustainable materials such as bio based, biodegradable or long-lasting alternatives (e.g., aluminium, glass, bio-composite concrete, rammed earth, wood, or glass,) reduce the need for primary resource extraction.

KPIs:

Waste materials collected and processed for reuse during the year, in million tonnes.

Solution: Resource Efficiency

Case Study: **Ecolab**

Large companies play a big role in reducing water consumption and pollution. The Water Resilience Coalition, an initiative linked to the UNGC's CEO Water Mandate and of which Ecolab is a founding member, estimates that 150 companies can directly impact c. 33% of global water use[32]. Innovative capital equipment and treatment solutions that enable water savings and treatments for industrial companies key levers to enable a more efficient use of this precious resource.

Inputs

48,000 employees,
US$775m of CAPEX and US$192m of R&D spend in 2023.

Activities

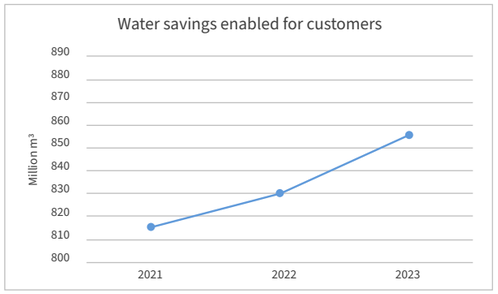
Ecolab is the global leader in water, hygiene, and infection prevention solutions. It provides cleaning and sanitising solutions to various sectors and its products and technologies are used in water treatment, pollution control, and energy conservation. Through its Global Industrial segment in particular, Ecolab provides solutions for water treatment to improve the water efficiency of industrial processes, as well as cleaning and sanitising solutions to customers in the food and beverage, transportation, chemicals, power generation, refining, pulp and paper, mining, and commercial laundry industries. Since its 2021 acquisition of Purolite, Ecolab also offers water PFAS remediation solutions.

Outputs

Ecolab has developed a method to measure the value it creates for customers, the eROI (exponential return on investment), which considers financial benefits from improved performance and operational efficiency, as well as sustainability benefits. The eROI methodology was reviewed by an independent third-party. It also determined that 66% of its 2023 sales can be considered "clean", meaning that they are imputable to water-saving technologies, wastewater treatment technology, or to products certified by third parties (e.g. Green Seal, EU Ecolabel, EPA Safer Choice amongst others) as having clear environmental or social benefits relative to the mainstream alternative.

Impact KPI

Ecolab's water treatment and water saving solutions have enabled its customers to reduce their demand for newly withdrawn water by 855 million m^3 in 2023. We also note its solutions helped customers conserve 47tn BTUs of energy and avoid 3.8m tCO_2e and 29k tonnes of waste.



Source: Company reports

Impact

Ecolab's solutions enable more responsible production processes by lowering the use of fresh water and pollution. Ecolab estimates that the water savings enabled by its solutions represent the annual drinking water needs of close to 800 million people. Its solutions were also used to provide safe food to 1.4 billion people, preventing over 8 million foodborne illnesses and cleaning 60 billion hands, reducing the risk of over 2.1 million infections.

Portfolio Weight: 3.7%

Solution: Sustainable Materials

Case study: **Ball Corp**

While approximately 9% of all plastic ever produced has been recycled,[33] around 32% of globally produced aluminum is made from recycled materials. Aluminum boasts one of the most developed recycling value chains, with a global recycling efficiency rate of about 69% and 76% in Europe. Recycling aluminum significantly decreases the energy required for production compared to primary aluminum manufacturing, reducing energy consumption by up to 95% and consequently lowering GHG emissions.[34] These elements contribute to making recycled aluminium packaging a superior alternative to plastic packaging, as aluminium-based cans are far less likely to end up in landfills or to pollute natural environments.

Inputs

21,000 Employees,
US$55m spent in R&D in 2023, US$1bn CAPEX spent in 2023.

Activities

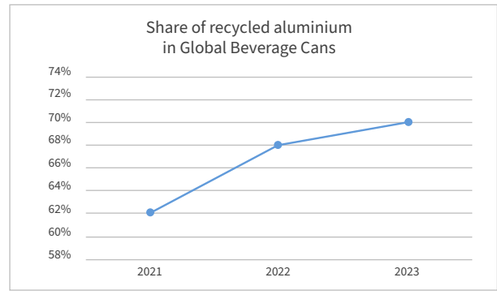
Ball is one of the largest aluminium beverage container producers, with a global operational and commercial footprint. The company manufactures beverage can containers made from aluminium, as well as containers for other consumer products. Ball relies on a large share of recycled aluminium to manufacture its products. As a large player in the industry, Ball contributes to the aluminium recycling value chain and works on public advocacy to encourage governments and industrials to embrace more circular business models and increase recycling rates of aluminium. Finally, Ball is progressively developing and marketing reusable and refillable solutions.

Outputs

In 2023, Ball shipped 106.5 billion aluminium beverage and liquid packaging solutions to customers worldwide. In total, 86% of Ball's revenues came from the sale of products manufactured using recycled material and being recyclable themselves. Finally, 100% of Ball's beverage cans sold contained no intentionally added BPA and PFAS coatings. In 2023, 40% of Ball's global beverage can production came from Ball's lightweighted StarCan range, which reduces a can's weight by up to 8% and its carbon footprint in a similar proportion compared to other beverage cans of the same size.

Impact KPI

Ball's lightweighting initiatives through the StarCan offering in 2023 contributed to removing 6,300 metric tonnes of aluminium from cans. This helped the company avoid 33,265 tonnes of greenhouse gas emissions. This is the first year for which Ball was able to report this indicator. Furthermore, Ball's target to increase the recycled content of its products to 85% by 2030 is considered as a positive KPI because it contributes to reducing the lifecycle emissions from its products. In 2023, 70% of the aluminium used for its Global Beverage Packaging business came from recycled sources, an increase of two percentage points compared to 2022, and eight percentage points since 2021.



Source: Company reports

Impact

Ball contributes to greater circularity in the aluminium value chain, notably by actively working to increase its products' recycled material content, following ambitious targets, deploying partnerships and procurement strategies favouring circular aluminium, and through public advocacy programmes supporting circularity. This reduces the need for primary resource extraction and hence the negative impact on biodiversity.

Portfolio Weight: 2.9%

Solution: Recycling Recirculation

Case Study: Republic Services

Only 32% of municipal solid waste is recycled and/or composted in the US,[29] compared to other developed economies such as the European Union which has a recycling rate of nearly 50%.[30] Poor waste management, and in particular inadequate operations of landfills, leads to water, soils and air pollution and is a significant source of GHG emissions. Offering waste

Inputs

42,000 Employees
US$1.6bn in CAPEX in 2023.

Activities

Republic Services is one of the leading providers of essential waste management services and other environmental services in the US and operates 73 landfill gas reuse projects, 206 landfills, 71 recycling centres, 6 active hazardous waste landfills, 9 active energy waste landfills, 3 treatment, recovery and disposal facilities, 20 treatment, storage and disposal facilities, 6 saltwater disposal wells and 7 deep injection wells to recycle, treat and dispose hazardous waste from petrochemical and industrial customers (it recovers oil and metal bearing catalysts for resale to third parties). The company is responsible for 128 closed landfills.

Outputs

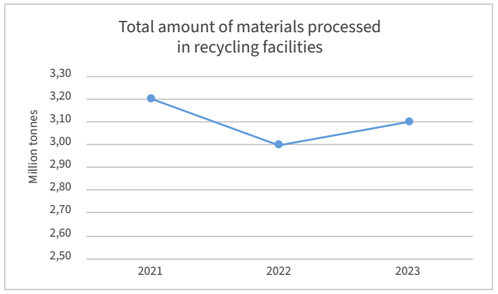
Its collection business accounted for 69% of revenues and served over 13m customers through 364 collection stations and an average of 5m pick-ups per day in 2023. During the 2017-23 period, it invested over US$500m in recycling infrastructure and technologies, such as optical sorters, automation, AI-powered scanners, and a network of “Polymer Centers”, the first integrated plastics recycling facilities in the US, which enable the production of food-grade drop-in substitutes for virgin plastics.

Its automated AI operated scanners achieved a 99% success rate at identifying aluminum and were 30% faster than human sorters.

Republic expects that its 4 currently planned centres will produce c. 50k tons of recycled plastic annually. In 2023, it also beneficially reused 20.3bn m³ of landfill gas.

Impact KPI

Waste management services that increase recycling rates and reduce pollution. In 2023, Republic processed 3.1m tons of waste materials for recycling.



Note: volume of materials processed for recycling was lower in 2022 and 2023 than in 2021, in part due to renovations and developments at several recycling facilities.

Source: Company reports

Impact

Halting biodiversity loss by protecting and preserving natural resources through recycling and waste processing, adequate landfill management, and the beneficial reuse of landfill gas.

Portfolio Weight: 3.9 %

Sustainable Materials	
Verallia SAS, France, Containers and Packaging Portfolio Weight: 2.5%	Verallia is a global leading producer of glass packaging for beverage and food products. It is the largest glass packaging manufacturer in Europe and the third largest globally. Annually, the company produces around 17 billion glass bottles and jars. Verallia is transforming its activities to embrace a more circular operating model and value chain, and to reduce the environmental footprint of its manufacturing capabilities. Manufacturing glass from melting virgin raw materials requires very large amounts of energy and heat. Nevertheless, Verallia has set up ambitious long-term targets and delivered on multiple strategies to make its products more environmentally friendly. Verallia notably relies on an increasing share of cullet (waste glass pieces that come from glass collection) to decarbonise its products, as melting waste glass requires less energy compared to producing virgin glass. In 2023, Verallia used 54.1% of external cullet. The company aims to reach 59% of cullet use by 2025.
Recycling & Recirculation	
Waste Management, Inc. United States, Commercial Services and Supplies Portfolio Weight: 1.9%	Waste Management (WM) is a leading North American provider of environmental solutions, from waste collection to transfer, disposal, and, when applicable, recycling and recovery. It provides collection services to residential, commercial, and industrial customers, operates over 260 landfills, and is the leading processer of post-consumer waste in the US and Canada, operating over 100 recycling facilities, 42 of which are single-streamed. It was the first major waste management company in North America to focus on single stream recycling, which makes recycling easier for consumers and can be credited for increasing recycled volumes. WM has adopted practices that help mitigate the impact of landfills on biodiversity and the environment, such as recovering landfill gas for energy production, covering landfills to minimise leachate and methane emissions, and capping closed landfills.
TOMRA Systems ASA, Norway, Machinery Portfolio Weight: 1.6%	Tomra provides sensor-based waste collection, sorting, recycling, and material recovery equipment for companies involved in the recycling, food and mining industries. Via its Reverse Vending Machines (RVM), Tomra directly contributes to the formalisation of Deposit Return Schemes, and enables consumers and companies to divert plastic, aluminium, and glass packaging from waste streams. By progressively installing more of its RVMs, the group contributes to the acceleration of material and packaging circularity. Tomra’s total installed base of RVMs captures over 45 billion beverage containers annually. Via its technologies, the group permitted the avoidance of over 22.8 million tonnes of carbon emissions in 2023. The group’s efforts in deploying its solutions to new markets and simultaneously enriching product capacities, means that it is well positioned to remain a strategic actor of the circular economy.

Darling Ingredients Inc, United States, Food Products Portfolio Weight: 1.5%	Darling Ingredients makes positive contributions through the recycling of waste products from animal agriculture and food industries into useful products, ultimately reducing the volume of waste that ends up in landfills, and contributes to useful end applications, such as renewable diesel, animal feed, fertilizer and ingredients for pharmaceutical products. Darling's renewable diesel emits 80% less lifecycle carbon emissions than petroleum diesel while being 100% compatible with existing engines and infrastructure. In 2023, Darling Ingredients processed more than 15 million metric tonnes of raw material derived from waste streams.
Daiseki Co., Ltd. Japan, Commercial Services and Supplies Portfolio Weight: 1.2%	Daiseki is the largest industrial waste management company in Japan, offering industrial waste treatment and recycling services. With a network of bases across Japan, Daiseki serves over 10,000 companies and manages over 2 million tons of industrial waste, helping to reduce its customers' environmental footprint. Waste collected by Daiseki is recycled and turned into new production inputs such as raw materials or fuel. Finally, Daiseki also engages in recovery activities in cases of environmental pollution incidents.
Kadant Inc. United States, Machinery Portfolio Weight: 3.1%	Kadant's solutions and equipment are used in an array of industries. Kadant's positive contribution especially comes from its solutions that enable sustainable industrial processes, helping to increase production and material efficiencies, and its products and services that are used for the treatment and recycling of waste materials. Kadant's strategy is to growth across the recycling value chain through the delivery of robust, quality equipment, and the company constantly markets new and innovative products, to stay ahead of the competition. Kadant's leading market share across the recycling equipment industry, is a testament to the company's strategic contribution to the sector.
Mercari, Inc. Japan, Broadline Retail Portfolio Weight: 0.9%	Mercari is a Japanese company operating a customer-to-customer marketplace platform in Japan (where it has 23.5m monthly active users as of December 2023) and the US (where it has 5.1m monthly active users). It is the leading player in Japan with c.$6.7B worth of transactions on its platform over 2023. Mercari contributes to reducing product waste and encouraging sustainable consumption patterns, by enabling the circulation of used products. For example, it estimates that 43k tonnes of apparel waste were avoided in Japan thanks to transactions on its platform in the 12 months to June 2023 (c. 9% of the total of annual apparel waste volume in the country).

Solution: Resilient Infrastructure

Challenges to address

Most of the water on Earth is saline (i.e. seas and oceans), with freshwater making up just 3%.[35] Freshwaters are also hotspots for biodiversity covering less than 1% of Earth's surface yet are home to at least 10% of Earth's species.[36] Rising global populations, urbanisation, and climate change are increasing water scarcity and insecurity, especially in low-income countries. It is estimated that 80% of wastewater is released untreated, degrading the quality of existing water supplies.[37] From water pipes to reservoirs, pump stations, sewage pipes and treatment plants, we rely on a network of pipes to deliver and treat our water. Unfortunately, many of these pipes are now reaching the end of their useful life, having been installed in the early to mid-20th century, or even in the late 1800s in some cases. The average US water-network pipe, for example, is 45 years old with some cast-iron pipes more than a century old. As pipes age and start to break, they begin to leak, leading to significant water loss.[38] This issue of leaking pipework is one of the biggest challenges faced by all water utilities. In the UK, it is estimated that a staggering 3 billion litres of water are lost each day due to these leaks.[39] This figure is inevitably magnified when we consider leaks in the US, where over 148,000 municipal water systems distribute 39 billion gallons of water each day and where 2.1 trillion gallons of water are lost due to breakdowns across the water infrastructure each year.[38]

Infrastructure covers a vast range of developments that contribute negatively towards biodiversity through the loss of natural habitats, when forests are cleared, and wetlands are drained for urban expansion wildlife is displaced and animals are forced to migrate. This impacts population densities and can disrupt breeding grounds. While cities only occupy around 2% of the world's land mass, they contribute to about 80% of the world's GDP and are responsible for approximately 75% of global carbon emissions.[40] Urbanisation causes pollution, decreases air and water quality from increased traffic emissions, buildings and road runoff, construction site contaminants, and streetlights disrupt nocturnal animals. Infrastructure leads to the alternation of natural landscapes, such as land-levelling for industrial zones, mountain blasting for motorways, alteration of the fluvial geomorphology of rivers, all of which causing far-reaching losses of habitats and natural environments for wildlife.

Companies and regulators face numerous challenges in accurately assessing the environmental impact of human activities and infrastructure on ecosystems and biodiversity. Determining this impact requires comprehensive data collection, precise analysis, and ongoing monitoring, which is further complicated by varying environmental conditions, the cumulative effects of different activities, and evolving biodiversity metrics. With growing regulatory demands, such as the EU's Corporate Sustainability Reporting Directive (CSRD), the need for advanced testing, inspection, certification, and assurance capabilities are increasing, as they ensure compliance with rigorous environmental standards, validate sustainability claims, and enable companies to measure and manage their footprint responsibly.

Changes or contributions that will come from investee companies

Engineering and consulting services play a key role in designing and constructing resilient sustainable infrastructure by integrating biodiversity and natural capital from initial conception and approvals, through detailed design to construction, development, and ongoing operations, as well as site closure, rehabilitation, and ongoing management. There are many types of mitigation measures, such as regenerating mangroves, protecting or restoring free flowing rivers, removing obsolete dams or building fish ladders, all of which enable urban development to continue while lessening the pressures on biodiversity. By designing green infrastructure such as parks, green roofs, and wildlife corridors, and incorporating sustainable building practices, engineers and consultants can help create urban environments that can support high levels of biodiversity, maintain ecological connectivity, and support increased wellbeing thanks to greater air purification, temperature regulation and noise reduction. Finally, studies have shown that enriched biodiversity in urban areas is associated with increased mental health but also enhanced social cohesion and crime reduction.

Ecology consultants provide environmental assurance, testing, inspection, and certification solutions to help corporations comply with environmental standards, to validate sustainability claims, and to measure and manage their biodiversity footprint.

KPIs:

People benefitting from water infrastructure services (million people).

Solution: Water Ecosystems

Case Study: Xylem

Global population and climate change are increasing water scarcity and insecurity, especially in low-income countries. In developed countries, the global volume of non-revenue water (water that has been produced and lost before it reached the customer) has been estimated to be 346 million cubic metres per day, amounting to 30% of water system input volumes across the world.[41] In addition, water utilities produce GHG emissions indirectly through energy use and chemicals, and directly through gases that have a high global warming potential such as nitrous oxide and methane.

Inputs

17,300 Employees
US$232m spent in R&D in 2023, US$10bn CAPEX planned for 2023-27.

Activities

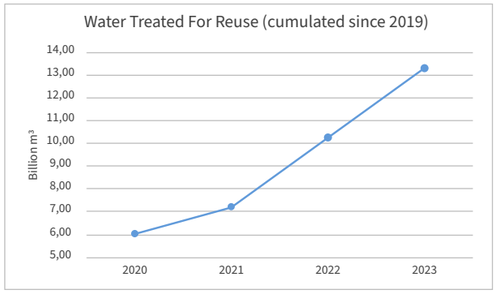
Xylem is a leading global water technology company with a portfolio of products and services which provide solutions for the modernisation of water infrastructure and the management of scarce water resources, including water recycling, supporting emerging water technologies or providing environmental analysis technologies that facilitate water and contaminant monitoring. Xylem aims to “accelerate localisation and expand coverage” in emerging countries and underserved regions to enhance access to clean water and facilitate wastewater management.

Outputs

Xylem’s solutions help to save water and prevent pollution through wastewater treatment and leakage prevention, reducing the pollution of waterways, and building resilience to climate change by enabling the optimised management of scarce water resources reducing sewer overflow caused by extreme weather events.

Impact KPI

In 2023, Xylem treated 3.11 billion m³ of water for reuse, prevented 1.9bn m³ of polluted water from flooding communities or entering waterways, reduced 800 million m³ of non-revenue water and helped avoid 1.15mt CO_2 emissions.



Source: Company reports

Impact

Protecting and preserving biodiversity through resilient infrastructure saving scarce freshwater resources and reducing the contamination of ground water, lakes, rivers, and oceans. Providing underserved regions with drinking and wastewater solutions is also generating social impact.

Portfolio Weight: 4.5%.

Solution: Consulting and Engineering

Case Study: Arcadis NV

Urban expansion often leads to the fragmentation of natural habitats, pollution, and biodiversity loss. Ageing infrastructure, increasing regulations to reduce water leakages and lead or copper contamination, combined with emerging regulations on PFAS (forever chemicals) are forcing companies to improve the resilience and biodiversity footprint of their infrastructure. Modern infrastructure consulting and engineering companies can help organisations to integrate biodiversity into their strategy, and offer solutions for climate change adaptation of infrastructure and cities, or for the reduction of PFAS decontaminations.

Inputs

36,000 employees

Activities

Arcadis provides engineering, architecture, and design consultancy services to a diverse range of clients, both from an industrial and geographical perspective. ‘Resilience’ is the Business Area providing consulting, engineering, and planning services to clients seeking assistance on environmental services. This encompasses public and private customers, which the company helps in addressing challenges in climate, energy, water, and the environment. Notable market drivers of this Business Area include the escalating impacts of climate-induced weather conditions, the energy crisis affecting energy supply and supply chains, emerging and evolving regulation, the need to modernise ageing infrastructure (notably to prevent water losses and prevent lead or copper contamination for water utilities), increased regulatory focus on public health and emerging regulations on PFAS (forever chemicals). Within this Business Area, Arcadis also offers services for climate change adaptation and environmental restoration. Since 2021, the group also advises European clients on flood recovery and climate adaptation.

Outputs

In 2023, Arcadis identified 80% of revenues as contributing to the SDGs (of which 24% to SDG 11, 23% to SDG 9, 16% to SDG 13, 13% to SDG 6, 9% to SDG 15). In 2023, Arcadis reported that 14% of revenues were eligible to the EU Taxonomy, of which 13% were Aligned to the Taxonomy (namely for services for rail transport infrastructure, for building energy performance, and for engineering services dedicated to climate change adaptation). In 2023, Arcadis recorded increased order intakes for water optimisation and environmental restoration solutions, supported by tightening PFAS regulation in the USA and in Europe. Arcadis was contracted by the U.S. Army Corps of engineers for PFAS-related services, by the Brazilian government for biodiversity projects, and by the City of New York for flood mitigation projects.

Impact KPI

Although the company does not report KPIs on a company-wide basis, Arcadis showcases its positive contribution via engineering and consulting services on a project-level basis. For instance, in San Francisco the group developed strategies to reduce construction waste by 75% and apply low carbon energy and energy efficiency measures for the SRE Group; in Antwerp, it is supporting the implementation of a city-wide district heating network working on industrial waste heat to achieve the municipality’s climate neutrality target. The pilot zones built by 2030 already reduce emissions by 8.1%. In Mexico, Arcadis experts helped implement a wastewater treatment plant at a General Motors manufacturing site expected to save 329 million litres of water per year. In 2023, the company. secured consulting and engineering services for the Belgian property developer Immobel to implement Arcadis’ proprietary Biodiversity Net Gain Calculator to compare development scenarios and embed nature-based solutions, for the development of 11.5 hectares of property with a 3% biodiversity net gain compared to the baseline. We are engaging with Arcadis to encourage the company to enhance its impact reporting capacities, notably by disclosing company-level KPIs and increasing impact metrics reporting.

Impact

Contributing to resilient infrastructure through reducing the consumption of natural resources, climate change adaptation of infrastructure and cities and reducing PFAS decontamination. Arcadis is committed to only accept projects that will have demonstrable sustainability advantages.

Portfolio Weight: 3.3%.

Solution: Environmental Testing

Case Study: **Eurofins Scientific**

Increased awareness of biodiversity loss, policy momentum in the form of the Global Biodiversity Framework, and new reporting frame works like the TNFD disclosure recommendations and incoming Corporate Sustainable Reporting Directive (CSRD) requirements are forcing companies to report their impact on biodiversity from a double materiality perspective, both from their operations and their product and services.

Inputs

62,000 Employees

Activities

Eurofins is a leading provider of analytical services with a network of over 900 laboratories in 62 countries using over 200,000 analytical methods. The company offers a broad portfolio of services including testing, training, consulting, auditing and certification.

Eurofins serves clients of different sizes operating in a wide range of sectors, from industrial companies, NGOs, environmental consultants, contractors, retailers and governments. The Company also serves as an accredited test laboratory for various Ecolabels and Quality labels for low emitting products, VOC emission testing, LEED and BREEAM Green/Sustainable building certifications, and Vegan Verification of chemicals, materials and products.

Outputs

Eurofins' environment testing solutions contribute to the protection of the environment by providing a network of market-leading laboratory testing and monitoring for water (surface waste and groundwater, drinking and mineral water, hospital hygiene, cooling towers and seawater), air (stack emission, ambient air, indoor air in buildings, vapour intrusion, and soil gas), soil, waste, building materials, biofuels and other products (pesticides, herbicides and chemicals covered by REACH, radioactive compounds) to assess contaminant levels and impacts on human health and the environment.

Impact KPI

The number of "tests performed" KPI has not changed since 2020 (450 million), no other impact KPIs are available.

Source: Company reports

Impact

Eurofins provides environmental solutions to help companies comply with environmental standards, to validate sustainability claims and to measure and manage their biodiversity footprint. This enables companies and investors to better assess and integrate nature-related dependencies, impacts, risks, and opportunities into their decision-making process, increasing consumer trust in the sustainability of their products and services.

Portfolio weight: 2.1%

Consulting and Engineering	
AECOM, United States, Construction and Engineering Portfolio Weight: 3.3%	AECOM is a leading global infrastructure and consulting firm providing solutions for resilience infrastructure projects and programmes, notably around water and wastewater management. Aecom's services facilitate the building of resilient infrastructure, with a strong focus on sustainability. AECOM contributes to the water infrastructure project and programme management needs of both governments and private organisation, across the entire water and waste value chain. AECOM provides customers with both deep technical skills and expertise needed for large scales infrastructure projects and climate adaptation key infrastructure.
Environmental Testing	
Agilent Technologies, Inc. United States, Life Sciences Tools and Services Portfolio Weight: 3.4%	Agilent is a leading life sciences and diagnostic company. Their products and services contribute to environmental protection and biodiversity conservation by providing precise analytical instruments and testing solutions. Agilent enables companies and regulators to monitor pollutants, assess air and water quality, and detect contaminants in ecosystems with high levels of accuracy. The company also helps energy researchers investigate biofuels, renewable fuels and other forms of alternative energy.
Horiba, Ltd. Japan, Electronic Equipment Instruments and Components Portfolio Weight: 3.0%	Horiba manufactures and sells high-precision measuring equipment and instruments for environmental monitoring, diagnostics, among others. Its Process and Environmental segment (c. 10% of total sales in 2023) provides solutions for the analysis of stack gases (33% of segment sales), water quality (37%), and air pollution (18%). In Japan, it has a 50% market share for stack gas analysers and 40% for industrial water quality analysers. Around 39% of the Automotive segment sales (29% of total sales) are from vehicle emission measurement systems, for which Horiba has a 80% global market share. Finally, we note solutions used in water quality analysis in the Scientific segment (13% of total sales).
Halma Plc, United Kingdom, Electronic Equipment Instruments and Components Portfolio Weight: 2.9%	Halma provides innovative equipment to healthcare, security and environmental services industries. The Environmental and Analysis segment (32% of total sales in 2023) includes solutions used in pollution prevention (such as toxic gas detection solutions) and water quality analysis. As of 2023, c. 150k km of water pipelines were equipped by its water monitoring solutions. The Environmental and Analysis segment (32% of total sales in 2023) includes solutions used in pollution prevention (such as toxic gas detection solutions) and water quality analysis. As of 2023, c. 150k km of water pipelines were equipped by its water monitoring solutions.
Thermo Fisher Scientific Inc. US, Healthcare Portfolio Weight: 2.8%	Thermo Fisher provides environmental analysis technologies that facilitate environmental and food testing and monitoring, allowing industrial customers to operate more cleanly and safely and comply with regulations. The company provides a broad offering of instruments for chromatography, mass spectrometry, chemical analysis, and electron microscopy, as well as software and services that are used for a range of applications in the laboratories in production lines and in the field.

Danaher Corporation, United States, Life Sciences Tools and Services Portfolio Weight: 2.5%	Since the 2023 spinoff of its Environmental and Applied segment, Danaher serves mostly the healthcare and life sciences industries with solutions used in medical diagnostics and to develop gene- and biologic-based therapies. We note however that its solutions portfolio still includes products used in applications with positive biodiversity impacts, such as mass spectrometry instruments and chromatography consumables that are widely used in environmental testing, and filtration solutions with applications in battery recycling. Its mass spectrometry instruments focus on quantification and differentiate themselves with their market-leading sensitivity, making them particularly well suited for measuring PFAS concentration in water among other things.
Water Ecosystem	
American Water Works Company, Inc. United States, Water Utilities Portfolio Weight: 2.3%	American Water Works (AWW) is the largest publicly traded water utility company in North America (in terms of revenue and customers served). We consider that the company addresses the issues of water quality and scarcity. Indeed, the company operates over 600 water treatment plants (and 175 wastewater treatment plants), invests in restoring water resources and ecosystems, and told us that it already exceeds the new PFAS drinking water standards set by the EPA in 2024 (it has over US$1bn of CAPEX planned for PFAS remediation). It has also invested in improving the efficiency of its network, with a pipe renewal rate 21% better than the industry average, and over 33% of its meters being AMI (advanced metering infrastructure), which enable reductions in non-revenue water. Since 2015, it has reduced the annual volume of water delivered per customer by 6.6%.
Kurita Water Industries Ltd. Japan, Machinery Portfolio Weight: 2.3%	Kurita provides specialty chemicals, water treatment services, and facilities which contribute to the better management of water resources. Via its two business segments, water treatment chemicals and water treatment facilities, Kurita enables customers to reduce their water and wastewater footprints, enables customers to close their water systems in loops, and reduces the prevalence and volumes of wastewater released from industrial sites. Kurita contributes to saving water resources and preventing wastewater emissions all throughout the lifecycle of industrial water. Kurita's solutions have notably enabled customers to save 125 million M^3 of water in FY23 alone.
Advanced Drainage Systems, Inc. United States, Building Products Portfolio Weight: 2.1%	Advanced Drainage Systems (ADS) is a leading North American provider of stormwater and onsite sceptic wastewater management solutions. These solutions ensure the sound and sustainable management of water (by preventing the pollution of waterways, capturing rainwater, and enabling the recharging of aquifers), and contribute to improving resiliency to extreme climate events, notably by preventing floods. ADS's products present significant environmental benefits when compared to mainstream alternatives as they are manufactured using a high content of recycled material: 50% of the material ADS sourced in FY24 (ended in March) was recycled. ADS was named the second largest plastic recycler in North America as it reprocessed 61% of the recycled plastic it consumed in FY24. In 2023, it consumed 33% of recycled HDPE bottles in the US. Other environmental benefits of ADS' products include their long useful life (50-100 years) and their lower carbon footprint compared to alternatives made out of traditional materials such as reinforced concrete or steel (they are manufactured using less energy, require less heavy machinery during installation and fewer deliveries per job site).

Solution: Technology Enablers

Challenges to address

While technology can cause habitat loss and disrupt natural systems, for example, through mining and extraction of raw materials or through manufacturing processes requiring high energy and water usage, technological solutions are also proving to be critical in advancing biodiversity efforts. Of CEOs surveyed in a recent research report by Cap Gemini, a leading global IT consultancy, 73% believe digital technologies can be a key enabler to reverse the biodiversity crisis.[42]

Changes or contributions that will come from solutions provided by companies

Technology, especially artificial intelligence (AI), can play a critical role in reducing the biodiversity footprint of highly intensive sectors like infrastructure, materials, or agriculture, quickly by providing scalable solutions that increase resource efficiency and reduce pollution. It also provides opportunities to innovate towards more sustainable products, services, and business models. Other technologies including robotics, synthetic biology, environmental DNA analysis, digital twins, 3D printing, and the Internet of Things are supporting organisations in addressing pressures on biodiversity. To which AI looks particularly promising in this regard.

One important use for protecting biodiversity is observation and tracing. AI solutions combined with drones, sensors, cameras, low-power radio networks, and satellite technology can remotely monitor wildlife behaviour and habitat changes in real time, tracking and monitoring the environment down to the level of individual animals to stop illegal poaching and habitat destruction. Robots connected to Satellite-based imagery and AI can also pick up trash in the ocean. Germany's Max Planck Institute for Intelligent Systems (MPI-IS) has created a "jellyfish-bot" designed to collect waste particles as it swims.

Another important AI application to protect biodiversity is precision agriculture, which aims to minimise the environmental impact of agricultural activities. Using data from sensors, drones, and satellites, AI systems can offer valuable guidance to farmers regarding irrigation, fertilisation, and pest management and can analyse ecological data to support conservation initiatives. Generative AI also has the potential to, for example, pinpoint ideal sites for wildlife corridors, formulate plans for safeguarded zones, and create tactics to counter poaching activity.

In infrastructure, over 82% of architecture, engineering, and construction (AEC) companies today are feeling pressure to improve sustainability, according to Autodesk's State of Design & Make report.[43] Engineering and design software solutions such as digital twins facilitate early-stage site planning, design, and analysis, enabling architects with real-time, data-driven insights and AI-powered analysis and predictive capabilities, to support enhanced project outcomes and more sustainable infrastructure. Digital twins can assist in building more resilient infrastructure by integrating biodiversity loss drivers into the design process and facilitate nature conservation initiatives.[44] By creating a virtual model of the infrastructure and its surrounding environment, digital twins enable real-time monitoring and simulation of various ecological scenarios. This integration helps identify potential impacts on local biodiversity and allows for the design of infrastructure that minimises these effects. For example, planners can simulate the effects of construction on wildlife habitats and water systems, allowing them to implement mitigation strategies proactively, and enabling conservation, but also in restoration projects. Climate change and greenhouse gas emissions remain one of the main drivers of biodiversity loss. Digital twin solutions can also help control and reduce infrastructure carbon emissions by optimising energy efficiency, predicting maintenance needs, and enabling scenario testing to assess the impact of different infrastructure projects.[45] They can also contribute to assessing embodied carbon and therefore support lifecycle emissions management.

KPIs:

R&D percentage of sales

Solution: Software (Digital Twins)

Case study: **Autodesk**

Autodesk's architecture, engineering, and construction solutions enable building, infrastructure, and industrial projects to be designed, built, and operated in a more efficient and sustainable manner.

Inputs

13,700 Employees
US$1,373m spent in R&D in 2023, equating to a R&D-to-Sales ratio of 25.5%.

Activities

Autodesk is a software company that produces technology solutions for sectors such as architecture, engineering, construction, product design, and manufacturing. Autodesk's software products notably help advances across these industries to become more resilient and sustainable, through improved accuracy, innovation and collaboration across the lifecycle of a building, infrastructure or industrial projects.

Outputs

Autodesk's architecture, engineering, and particularly digital twins allow building, infrastructure, and industrial projects to be designed, built, and operated in a more efficient and sustainable manner. Autodesk's 3D design and documentation software for civil infrastructure and its Building Information Modelling software products, particularly Digital Twins, help to reduce embodied carbon, operational carbon, and help to assist in water management (by modelling mitigation of flooding risks, designing drainage systems, modelling water distribution systems), amongst other areas. Autodesk's product development and manufacturing software products can be used by manufacturers to drive energy efficiency improvements and improve material efficiency and circularity in product design, development, and manufacturing processes. Autodesk has had a net revenue retention rate between 100% and 110% over the last three financial years, indicating high customer satisfaction. The company offers free educational licenses for software to students and educators, as well as the Autodesk University[42] which has hundreds of open access and free training sessions on using Autodesk software.

Impact KPI

The company doesn't report impact KPIs but Autodesk provides numerous real life case studies that demonstrate the resource-use efficiency savings of using its software products and services. For example, in 2022, the UK's National Polar Research Institute used Autodesk's software to replace six existing buildings in Antarctica that had reached their end of life. Use of Autodesk software allowed carbon-informed design options that have so far saved nearly 700 tons of the used of whole-life carbon emissions particularly digital twins.[46] In 2023, the sporting goods company Decathlon used Autodesk software in the production of a new bike its software allowed multiple design iterations based on targets for the bike weight and the quantity of materials used, ultimately producing a bike that reduces carbon, uses less material, and can be produced more efficiently. Construction group Obayashi Singapore Pte Ltd used Autodesk's advanced digital technology and digital twin software solutions to manage the construction of the Mandai Wildlife Reserve in northern Singapore, adjacent to a nature reserve which prioritised environmental considerations and organic design in the planning and construction processes. This approach helped create features such as terraced rice paddies and ensured the preservation of bird habitats.

We are actively engaging with the company to encourage company-level impact metrics reporting.

Impact

Autodesk's solutions help reduce pressures on biodiversity by enabling the design of more resilient and sustainable infrastructure, and by reducing the environmental impacts of manufacturing. Autodesk's software products enable architects and engineers to model and analyse the effects of their projects on natural habitats, promoting more sustainable development practices.

Portfolio Weight: 2.0%.

Solution: Semiconductors (AI)

Case study: **NVIDIA**

Nvidia provides the world's leading solutions for enterprise AI infrastructure that enables data intensive and graphic rich enterprise applications to run in data centres, clouds and other computing devices.

Inputs

29,600 employees,
US$8.7bn spent in R&D in FY24 (ended in January), 75% of employees in R&D positions

Activities

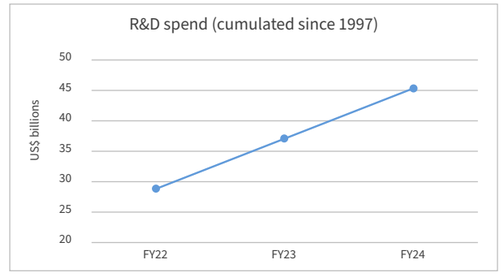
NVIDIA designs and develops computer graphics processors, chipsets and ancillary software. It can be credited for defining modern advanced computing with the introduction of the GPU in 1999. In FY24, it derived c. 78% of its FY24 revenue from its Computing and Networking segment (accelerated computing platforms for data centres, AI, networking and autonomous and electric vehicles applications as well as its Jetson computing platform used in robotics), while the rest came from Graphics (GPUs for gaming, professional visualisation, and 3D internet applications).

Outputs

NVIDIA's computing solutions are used in a wide range of applications, in particular hyperscale computing and AI. Its solutions enable several activities with positive biodiversity impacts. For example, it partners with the National Oceanic and Atmospheric Administration and Lockheed Martin to construct the Earth Observation Digital Twin (EODT), an inaugural prototype of Earth modelled on geophysical data sourced from satellites and ground station to be used to monitor global glacier melting, drought impacts, wildfire prediction, and climate-related events that affect biodiversity. We also note an initiative of Northwestern University and Argonne National Laboratory researchers to use NVIDIA Jetson-powered devices to better understand wildfires, urban heat islands and the effect of climate on crops. Finally, NVIDIA's computing platforms are instrumental to various precision agriculture technologies that rely on machine vision, such as John Deere's See & Spray, as well as those of many other companies (including some that participate in the NVIDIA Inception incubator program).

Impact KPI

NVIDIA's advanced computing platform that enables technologies with positive biodiversity impacts are made possible by enormous investments in R&D



Source: Company reports

Impact

NVIDIA's solutions enable a wide range of technologies used to monitor biodiversity and to reduce the negative impacts of economic activities on ecosystems, such as agriculture. By enabling significant energy efficiency improvements in computing (in FY23, its solutions powered 23 of the 30 most energy-efficient supercomputers in the world), NVIDIA also helps address climate change, one of the main causes of biodiversity loss.

Portfolio weight: 1.8%.

Software and Services	Company Description
Trimble Inc. United States, Electronic Equipment Instruments and Components Portfolio Weight: 2.9%	Trimble is a provider of positioning solutions that mostly serves customers in the fields of construction, surveying, transportation, and agriculture. It thus focuses on sectors that have been traditionally underserved by technology and whose impact on biodiversity is very significant and serves them with solutions that improve productivity and resource efficiency. The company estimates that its solutions used in construction enable up to 50% less rework and that its agriculture solutions (autonomous steering systems, automated or manual spraying, planting, and harvesting solutions, data management solutions, irrigation and drainage solutions…) enable up to 20% in water efficiency improvement.
SAP SE, Germany, IT services Portfolio Weight: 2.7%	SAP offers a diverse range of enterprise software solutions, including enterprise resource planning, supply chain management software, and cloud-based services. These solutions drive improved resource management and support sustainable business practices. SAP's increasing focus on providing cloud solutions contributes to SDG 7.3, as cloud computing is known to be more energy-efficient than traditional data centers, especially considering SAP's use of 100% renewable energy in its data centers. SAP's sustainability solutions include 'SAP Sustainability Footprint Management' (to calculate corporate and product carbon footprints), 'SAP Responsible Design and Production' (helps companies to track and comply with rapidly changing product packaging and plastics regulations, as well as make more sustainable design choices in packaging). Industry specific solutions include 'SAP Intelligent Agriculture' (software that allows field and farm data, such as soil quality, crop yield, and resource usage, to be captured and used to optimise farming processes).
Bentley Systems, Incorporated Class B, United States, Software Portfolio Weight: 2.6%	Bentley Systems provides software applications and services for enterprises and professionals who design, build, and operate critical global infrastructure. Their solutions span the project lifecycle (conception, planning, surveying, design, engineering, simulation, and construction) and the asset lifecycle (allowing users to manage engineering changes for safety and compliance purposes and to model performance and reliability to support operating and maintenance decisions). Their solutions contribute to sustainable and resilient infrastructure in two principle ways: through resource efficiency from using software that help to reduce emissions, energy and water use, and materials particularly through the use of digital twins, and by enabling infrastructure development in sustainable sectors that are key to meeting the SDGs, such as the energy transition, climate action and resilience, land and water resources, and healthy cities and communities such as tree mapping in cities.
PTC Inc. United States, Software Portfolio Weight: 1.5%	PTC's software solutions drive positive impact by improving productivity and efficiency in manufacturing through digital transformations, improving worker safety and training, and by driving sustainable product innovation. PTC's computer-aided design solutions include digital twins used from the early design phase to manufacturing. Benefits of this include minimising product failures, avoiding redesign and wasted materials, and optimising product designs for factors such as reliability and sustainability.

Semiconductor	
Silicon Laboratories Inc. United States, Semiconductors and Sustainable Equipment Portfolio Weight: 2.0%	Silicon Laboratories (SLAB) is a fabless semiconductor company focusing solely on Internet of Things (IoT) devices. Its solutions are used in a wide range of applications, among which we note energy and water smart metering, industrial and building automation, and smart precision agriculture as contributing to biodiversity objectives. As a provider of complex, high-performance mixed-signal chips that can function with low power and capable of long wireless range connectivity, we see Silicon Labs as a key enabler to several IoT applications with positive biodiversity impacts.

Investor Contribution: Engagement

Our engagement activities are closely linked to the strategy's theory of change and targeted impact outcomes and aim to support, accelerate or enhance the ability of investee companies to deliver these outcomes.

We aim to engage with at least 50% of the companies in the fund, focusing on companies where engagement can provide the most material positive impact on the outcomes. We aim to influence business strategy or operations in a manner that is directly tied to these impact outcomes and focus on encouraging portfolio holdings to make their product(s) more accessible to underserved populations through pricing, distribution mechanisms or other changes to business strategy, and/or to allocate more capital and R&D resources towards positive impact solutions. We also engage with companies to ensure they address any negative impact that their products, services or operations may have.

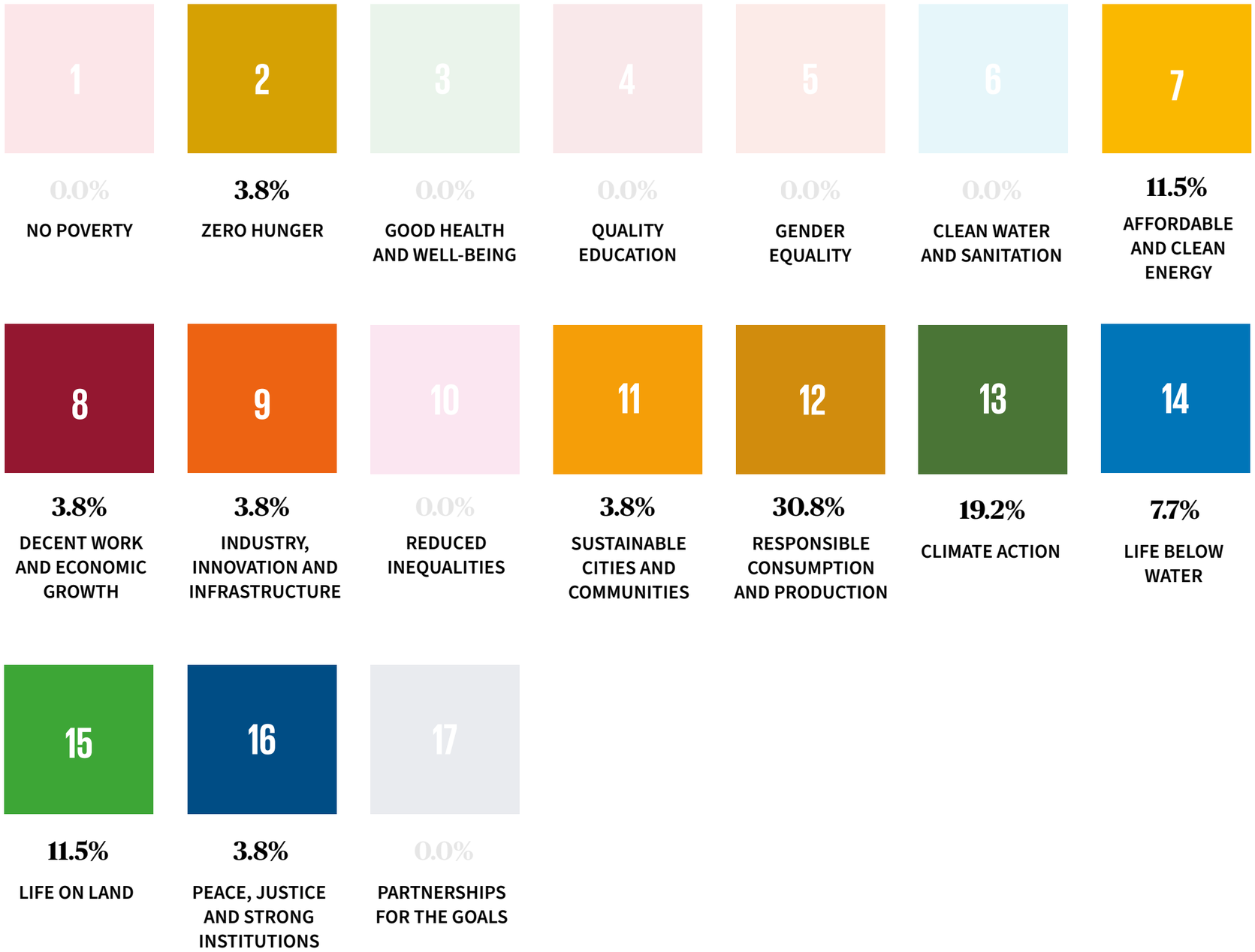
One of the tools that contributes to delivering impact as an investor is through requesting investee companies to report impact KPIs, increase the transparency of their impact reporting and set quantified targets for their impact. By committing to quantified impact targets, companies are demonstrating real intent to make contributions towards targeted impact outcomes as part of their overall strategy. Prior to an engagement, we determine a company's baseline impact performance, select specific impact KPIs linked to the targeted outcome to measure progress on impact performance, and seek to work with the company's management teams throughout the duration of an engagement.

AXA WF ACT Biodiversity Fund Impact Report / AXA IM

Investor Contribution: Engagement

The below graph provides a breakdown by UN SDGs targeted with our engagements with investee companies during 2023

Some of our Engagements with objectives aim to contribute to the Sustainable Development Goals, which is an agenda made up of 17 Sustainable Development Goals adopted by world leaders in 2015. The Goals encourage countries to establish national frameworks to end all forms of poverty, fight inequalities, halt and reverse biodiversity loss and tackle climate change. Each goal has specific targets to be achieved by 2030. Initially developed for Governments, the Sustainable Development Goals have been widely adopted by the private sector to identify opportunities in generating positive, sustainable impact. The data on the right shows the percentage of engagements which target each SDG. We consider the primary and secondary SDGs targeted by each engagement process with each issuer.

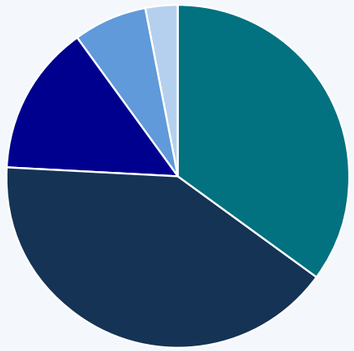


Investor Contribution: Engagement

The below graph provides engagements statistics by topic that were conducted with investee companies during 2023.

Engagement by topic

14 issuers engaged, 18 meetings held

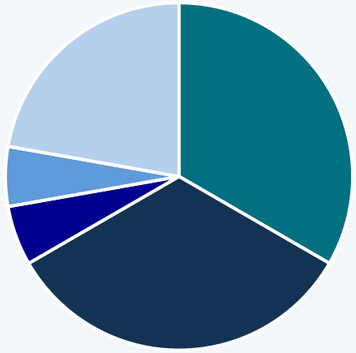


35%	Climate Change
41%	Resources and Ecosystems
14%	Human Capital
7%	Corporate Governance
3%	Business Ethics

The below graph provides engagements statistics by sector that were conducted with investee companies during 2023.

Engagement by sector

14 issuers engaged, 18 meetings held

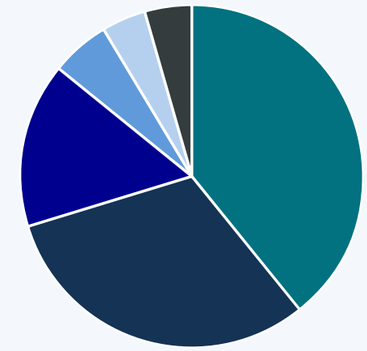


33%	Basic Materials
33%	Industrial
6%	Software
6%	Technology
22%	Utilities

The below graphs provide voting statistics by topic voted on during 2023.

Voting Statistics

71 Votes against Management



39.40%	Board Issues
31%	Remuneration
15.50%	Accounts and Auditors
5.60%	Articles of Association
4.20%	Capital Issues

2023 Engagement Case Studies

American Water Works

Outcome(s) targeted by the engagement: water ecosystem, sustainability reporting, resilient infrastructure.

Date of latest meeting: 12/03/2024

SDG(s) targeted by the engagement: SDG 6 (Clean Water and Sanitation), SDG 13 (Climate Action).

Engagement progress tracker: 2 Company responds.

Objectives:

- Provide details on the strategy to realise savings in water delivered per customer and expand initiatives to incentivise water savings from customers.
- Disclose more KPIs related to the impact of its solutions.
- Provide details on the strategy to increase resilience and on the importance of climate-risk considerations in decision making.

Engagement Summary:

- American Water Works (AWW) is the largest publicly traded water utility company in North America, serving c. 14m people. Water and wastewater infrastructure are key issues in the United States, as the American Society of Civil Engineers estimates that c. 7.5 trillion litres of drinking water are lost every year due to water main breaks and leakages. Water can also be unsafe for drinking, due to pollution by contaminants or inadequate wastewater management (the EPA estimates that 23k-75k sanitary sewer overflow events occur each year in the United States). All in all, over 25m Americans lived in areas where water systems did not meet safety standards as of 2023 (EPA).
- The company has a target to achieve 15% savings in water delivered per customer by 2035 compared to 2015, with 6.6% achieved so far (about half coming from demand reduction on the consumer side and half from reduction of non-revenue water, or NRW). Additionally, while there are some local "educational" initiatives to promote water savings from customers, we encouraged the company to expand these and to consider financial incentives, a similar model to that of other electric utilities. Regarding network efficiency improvements, we encouraged the company to accelerate and provide more details on its transition to advanced metering infrastructure (AMI). Around 33% of its meters are now AMI, with the company intending to transition to 100% AMI, but only upgrades once previous generation meters reach the end of their useful life. We encouraged the company to commit to targets on NRW reduction, while understanding that the levels will fluctuate with M&A operations (especially since AWW tends to focus on distressed utilities).
- We asked for more details on AWW's investments in resilience. Around 10% of its 10-year CAPEX plan is dedicated to resilience, with capital projects such as raising floodwalls, building reservoirs, hardening assets (they are mainly preparing for floods, droughts, extreme temperatures). The main focus is avoiding impact to customers, or at least ensuring that service can be restored as quickly as possible. It mentioned its proprietary Utility Resilience Index, which measures preparedness of utilities (with indicators looking at continuity planning, training of employees, etc.). To the company's knowledge, there are no public peer equivalents of comparable size, despite the fact that resiliency is an increasingly critical issue for the industry. We wanted to understand how important climate risk and resiliency were in business decisions. While it is a key factor for AWW and form part of their screening process, it doesn't appear to be a deal breaker at present. Finally, we encouraged the company to report more on KPIs that relate to the positive impact they generate, such as volumes of water treated and saved through efficiencies or GHG emissions avoided. The company was receptive to the idea.
- We will measure the success of our engagement in the company's future sustainability reporting.

Verallia

Outcome(s) targeted by the engagement: responsible production and consumption, recycling and recirculation and resource efficiency.

Date of latest meeting: 03/07/2023

SDG(s) targeted by the engagement: SDG12 (Responsible Consumption and Production); SDG7 (Affordable and Clean Energy).

Engagement progress tracker: Step 2, the company responded.

Objectives:

- Ensure annual emissions will follow the company's long-term target pathway
- Encourage the adoption of reuse as a viable model for value creation.
- Ensure premium-priced offerings integrate sustainability design and principles.

Engagement Summary:

- Verallia is a leading global producer of glass packaging for beverage and food products. It is the largest glass packaging manufacturer in Europe and the third largest globally. Annually, the company produces around 17 billion glass bottles and jars, which requires a significant amount of energy and heat to melt the raw materials and manufacture the bottles. However, Verallia is transforming its activities to embrace a more circular operating model, value chain, and to reduce the environmental footprint of its manufacturing capabilities. Through setting ambitious long-term targets, Verallia has already begun delivering on multiple strategies aimed at making their products more environmentally friendly.
- Verallia has identified three principal ways it can achieve a reduction in its operational carbon footprint. These are through the continued increase in cullet use, the increase in sourcing renewable electricity and finally, the adoption of energy efficiency measures. Cullet is the name given to waste and broken glass sourced externally, recycled into new glass. Cullet replaces the need for 'raw' materials, and saves substantial amounts of energy, as it requires less heat to melt than needed to combine the virgin raw materials of glass. Verallia has set up targets to use 59% of external cullet by 2025, and 66% by 2030. In 2023, the group used 54% of cullet. We asked whether the company could use 100% of cullet. Although technically feasible, progress in glass collection rates lag these ambitions due to the lack of collection facilities. However, Verallia has shared initiatives to install collection points in Brazil to improve public infrastructure and improve the rate of recycled material in their products.

2023 Engagement Case Studies

- During the meeting, we asked Verallia for some guidance on its emissions pathway. Representatives assured us that the company's emissions would follow a decreased pathway. We were pleased to see that in 2023, Verallia's scope 1 and 2 emissions decreased compared to 2022. This was in part due to the use of cullet rather than raw materials, but also to the upgrades in equipment, and progress in using low-carbon furnaces. The company aims for a 49% reduction in scope 1 and 2 emissions between 2019 and 2030, this target was validated by the SBTi as aligned with a 1.5-degree trajectory. Verallia notably plans to adopt more hybrid furnaces, fully electric furnaces, and oxy-combustion furnaces that Inject oxygen and use heat recovery systems.
- In addition to the initiatives to reduce carbon emissions, we encouraged the company to adopt a 'reuse' model, as this could also help reduce carbon emissions. Representatives shared the complexities of adopting such models, which are accompanied by several barriers to ensure feasibility. The most significant barrier remains collection, as the model relies on collection infrastructure to pick up bottles from end-customers, that remain in proper state to be reused. The model moreover implies infrastructure and costs related to glass cleaning and disinfection. We were pleased to hear that despite hurdles, the company was exploring this model and in 2023, it tested a reuse project in France with a collection partner company.
- Finally, we discussed the integration of sustainability considerations in the company's premium offerings, such as glass bottles for premium spirits. These bottles tend to be heavier, using translucent glass (rather than green or brown glass, which typically uses more cullet). Verallia shared that it is progressively integrating its sustainability initiatives for its premium product range, notably integrating light weighting and cullet into these products. Verallia moreover accelerates customer engagement to promote its sustainable product ranges.

Republic Services

Outcomes targeted by the engagement: responsible production and consumption and climate change mitigation,

Date of latest meeting: 28/09/2023

SDG(s) targeted by the engagement: SDG 7 (Affordable and Clean Energy), SDG 12 (Responsible Consumption and Production), SDG 13 (Climate Action).

Engagement progress tracker: N/A (sustainability dialogue).

Engagement Summary:

- Republic services is one of the leading providers of waste management services (collection, treatment, recycling, etc.) and other environmental services in the US and Canada. It serves over 13m customers with essential waste collection services, with an average of 5m pick-ups per day, and operates 206 landfills and 71 recycling centres. Poor waste management, and in particular inadequate operations of landfills, leads to water, soil and air pollution and is a significant source of GHG emissions. According to the US Environmental Protection Agency (EPA), landfills are responsible for 15% of methane emissions in the US, with methane accounting for over 12% of US GHG emissions from human activity.
- We asked the company to explain their science-based Green House Gas reduction targets (aligned with the "well below 2°C" scenario) considering that most of their emissions are modelled rather than measured. Republic Services explained that their methodology to model emissions has evolved as they are investing in direct measurement technology that will improve the accuracy of their model. The company even expressed their intention to update their science-based targets to align with the 1.5°C scenario.
- The company explained that it has an economic interest in reducing landfill emissions as it can monetize the landfill gas it recovers. At the time of the engagement, the company flared c. 50% of the recovered landfill gas and had beneficial reuse for the rest (either through electricity/thermal energy generation- 39 projects at the time, or through renewable natural gas, or RNG, production- 16 projects at the time). We encouraged the company to increase the share of beneficial reuse, in particular through RNG production. The company explained that it lacked the expertise to launch such projects by itself and thus partnered with energy companies, which meant faster and more numerous developments, and more available capital to launch projects in its field of expertise (e.g., recycling). It had 27 beneficial reuse projects in development, and aimed to reach 70% of beneficial reuse in the coming years. We also encouraged the company to set targets on the collection, on-site treatment and/or reuse of leachate. The company explained it was difficult to commit to on-site treatment due to permitting issues.
- We think that our engagement has contributed to accelerating Republic Services' efforts in landfill gas beneficial reuse and its focus on renewable natural gas: in its latest sustainability report, it mentions 4 additional RNG projects, with a pipeline of 50 RNG projects to come online by 2029.

2023 Engagement Case Studies

AGCO CORP

Outcomes targeted by the engagement: sustainable food and agriculture.

Date of latest meeting: 30/11/2023

SDG(s) targeted by the engagement: SDG 2 (Zero Hunger), SDG 12 (Responsible Consumption and Production).

Engagement progress tracker: N/A (sustainability dialogue).

Engagement Summary:

- AGCO is a global manufacturer and distributor of agricultural equipment. The agricultural sector is facing a sustainability challenge: it must simultaneously reduce its environmental footprint and improve its resilience and yields, as food systems are vulnerable to climate change and global food production will have to increase to meet demand. AGCO's solutions contribute to improving farmers' productivity, thus tackling food insecurity and improves the sustainability of their operations.
- AGCO's solutions often allow customers to align their economic interest with sustainability, as they can cut cost with retrofitting, and reduce input needs from precision agriculture technologies. The company explained that some precision technology, such as auto guidance and steering (to minimise the number of passes needed), are starting to have high penetration rates, whereas technology such as precision planting technologies remain quite niche. AGCO expects that the penetration will increase as a result of several factors: the transition to a new generation of farmers, high commodity prices which leave farmers in a position to make investments, and regulatory incentives (for example, the EU has set targets to reduce the use of pesticides and mineral fertilisers, with precision and smart agriculture technologies clearly identified as key levers). Declining prices for these solutions will also help. The deployment of connected machines is an enabler, AGCO expects that in the next 3-5 years, most machines will be connected. The JV with Trimble will accelerate its connectivity transition. We also discussed AGCO's agronomical expertise, and how it helps it deliver solutions that both improve farmers' productivity (their value proposition can be summed up as improving farmers' productivity by c. 20%), and their sustainability profile. The main way it influences farmers to adopt regenerative and precision practices is through conferences and test farms, where it demonstrates the advantages of these technologies, especially in terms of yields. We encouraged the company to integrate the display of sustainability-focused KPIs and evidence the economic benefits of such practices to encourage adoption. Notably through its JV with Trimble, it offers software products to help farmers monitor the carbon sequestration in the soil (through direct measurement) and easily monetise it.
- We also discussed AGCO's strategy for transitioning to cleaner fuel types for its tractors. A determining factor is the size. For engines below 100 horsepower, it is looking at fully electric engines. For larger engines, it is considering biofuels (e.g., biodiesel, ethanol) as a "medium term" intermediary solution. For biodiesel, existing diesel engines are already fully compatible, and AGCO is trying to futureproof them so that they will be compatible with other sustainable fuels (including hydrogen-based fuels) with minimal tweaks required. Other levers include hybridisation and better fuel economy. AGCO explained its aim is always to reduce farmers' costs. While the company could not commit to hard targets or guidance for fuel economy, it explained that it is a key part of its scope 3 emissions reduction strategy.

VEOLIA ENVIRONNEMENT

Outcomes targeted by the engagement: resilient infrastructure, water ecosystem, responsible production and consumption and climate change mitigation

Date of latest meeting: 16/11/2023

SDG(s) targeted by the engagement: SDG13 (Climate Action); SDG11 (Sustainable Cities and Communities).

Engagement progress tracker: Step 2, the company responded.

- Veolia is a global leading environmental services company, and is one of the largest global water, waste, and energy companies, by number of people serviced. With an international presence, Veolia supplies 113 million people with drinking water, and connects 103 million people to sanitation services, including over 7.2 million who benefit from inclusive measures for access to these services. Veolia also produces energy within its water and waste businesses, by repurposing and transforming the biogases from sludge wastewater, or waste, while mitigating their effluent and emission potentials. Access to safe water, sanitation, and hygiene (WASH) is among the most basic human needs for health and wellbeing. Demand for water is rising due to population growth, urbanisation, and growing water needs for industry, energy, and agriculture. More efficient water and waste management are critical to ensure resilient access to precious natural resources. Additionally, uncollected, and untreated waste remains a significant source of environmental pollution, effective waste collection and management services remain critical to achieve the SDGs.
- In 2022, Suez and Veolia merged, creating a global leading water and waste management group. Veolia has historically, demonstrated high-level ambitions and a good track record in avoiding operational incidents. Representatives confirmed to us that operational resilience, service quality and environmental assurances are essential for the company and for business continuity. Representatives shared that the company had significant safeguards to ensure quality and safety. The company's contracts with customers including municipalities, are bound by very strict business continuity and quality requirements, and that they were a fundamental part of its business.
- We continued the discussion on the company's Vigilance Plan. As Veolia is progressively integrating Suez's assets, it is disseminating its application of the Duty of Vigilance Law to these assets. Veolia is notably deploying staff and manager trainings, to ensure all employees have adequate capacities to apply these requirements. Veolia shared that Suez had its own expertise on quality and safety, which was also shared across the Veolia group to enrich operational management processes. We also discussed certification of operational sites against ISO standards, and encouraged the certification of all sites, in addition to internal operational management systems.
- Veolia's operations of waste management generate opportunities to recycle waste and transform it into a precious resource to generate energy. Veolia is regarded as one of the top companies spearheading circular processes. Veolia captures methane at its landfills and transforms it into a biogas. The company is not yet able to capture and recover 100% of methane. We encouraged the company to increase capture and recovery and aimed to increase our understand of barriers preventing full capture. Finally, we encouraged the company to progress on carbon capture, and were optimistic to hear about the company's updated Science-Based pathway, which aim to align with a 1.5-degree trajectory, and which will strategically integrate carbon capture and sequestration in the coming years.

2023 Engagement Case Studies

GEA

Outcomes targeted by the engagement: climate change mitigation and sustainable food and agriculture.

Date of latest meeting: 29/11/2023

SDG(s) targeted by the engagement: SDG 9 (Industry, Innovation, Infrastructure); SDG13 (Climate Action).

Engagement progress tracker: Sustainability Dialogue.

Engagement Summary:

- GEA is a global leader in systems and components for the food, beverage, and pharmaceutical industries. GEA provides clients worldwide with advanced machinery, plant and process technology solutions, that notably help enhance the sustainability and efficiency of production processes. GEA's technology is integral to everyday life, as for example, approximately every fourth package of spaghetti is processed with GEA technology and every fourth litre of human blood for plasma-derived products is processed using GEA equipment. The company also plays a crucial role in environmental protection, averting around two million tons of pollutants annually through its emission control plants.[43] GEA's commitment to innovation and sustainability is reflected in its diverse portfolio, which includes solutions for dairy farming, chemical processing, marine applications and more. Feeding humanity puts a tremendous environmental pressure on our planet, but these pressures are unequally distributed by geography and by food types. These disparities provide the foundation for efforts to steer consumption towards lower-impact foods and ultimately the system-wide restructuring which is needed to feed humanity sustainably.[48]
- We met with representatives of GEA to increase our understanding of its efforts to develop innovative, low carbon solutions, and solutions that help manufacture sustainable foods aligned with lower-carbon diets. We discussed GEA's 'Mission 26' initiative, which aims to increase R&D investment and boost new product sales. By 2026, GEA targets 30% of revenue from products less than five years old, focusing on eco-efficiency. It plans to have 40% of new product sales in environmental sustainability and 20% in new food segments. We appreciated these ambitious, time-bound targets for impactful solutions.
- GEA shared its strategy for sustainable food production, emphasising its role in the decarbonisation of the food industry. We further discussed GEA's New Food segment, and opportunities in this specific area. GEA is focusing on plant-based proteins, cell-based proteins, and to a minor degree, insect-based proteins. GEA's solutions can span the entire value chain for plant-based and cell-based proteins, from sourcing to processing to distribution. GEA notably supplied the first cell-based protein industrial scale factory, based in the United States. GEA reported a specific target for order intake growth in its new foods segment by 2026.
- We continued the discussion on low-carbon products and encouraged the company to enrich its reporting of emissions avoided via low-carbon products. The company introduced the 'Add Better' product labelling scheme for resource-efficient products. This new portfolio requires validation of products' eco-efficiency attributes by a third-party verifier (TUV Rhineland), according to the requirements of ISO 14021. This portfolio of products will directly contribute to the company's efforts to avoid carbon emissions. GEA is also enhancing product circularity, aiming for a 100% circular spare parts portfolio by 2026. This requires extensive engagement and work with suppliers. We encouraged further detailed sustainability reporting and appreciated their commitment to environmental impact.

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