



TURNING INVESTMENTS INTO IMPACT

IMPACT REPORT 2021

PREFACE

At SHIFT Invest, we are on a mission to fight climate change, the depletion of natural resources and the alarming loss of biodiversity. We believe that innovation and entrepreneurship play a crucial role in solving the global, unprecedented climate and environmental issues the world faces and that is why - since 2009 - we invest in start- and scale-ups with a significant positive environmental impact potential. Bound by our values of ambition, entrepreneurship, professionalism and joy, we have invested in over 30 impactful start-ups and will continue to grow that number every year.

This impact report gives a brief overview of why we do what we do at SHIFT Invest and how we do it. It showcases some of the impactful frontrunners we are invested in. These and many other companies in our portfolio show us the way forward and demonstrate that change is possible. We believe this report confirms to our investors that they have chosen the right destination for their capital. And we hope it substantiates investing can be a means to an end rather than just a goal in and of itself, to encourage other investors to invest in this asset class. Lastly, it would be great if this report inspires change on both a collective as an individual level, as we are all part of the same challenge: to support solutions that can deliver the 2030 climate goals and pave the way to become climate-neutral by 2050.

Apart from the realised impact captured by this document, there is more good news. The impact investing sector is growing quickly. The more awareness and capital available, the better. Clear promises, expectations and reporting, followed by accountability from fund managers, will drive the sector forward. At SHIFT Invest, we continuously work to improve our methods and way of working.

We are thankful for the trust of our entrepreneurs in partnering with us and for their unstoppable drive to build meaningful companies. And we are thankful for our investors who entrust their capital to us, with which we can invest in these entrepreneurs and companies of the future.

We hope you enjoy reading this report.

On behalf of the whole SHIFT Invest team,

Guus Verhees

HIGHLIGHTS 2021

CO₂(e) emissions
reduced



173.69_{kt}

Equivalent to 440 million litres of E10 Fuel

29% increase from 2020. Key contributors:



Chemicals
reduced



67%

compared to conventional

Key contributors:



Materials reused/
upcycled/recycled



350.5_t

39% increase from 2020. Key contributors:



Pesticides
reduced



300_t

25% increase from 2020

Key contributors:



Water saved



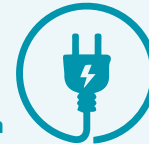
823,483_{m³}

Equivalent to 3,4 million hours in the shower

32% increase from 2020. Key contributors:



Renewable
energy produced



9.866_{MWh}

258,783_{MWh}

4% increase from 2020. Key contributors:



Reduced
energy use

New Investments



New Investments: Thematic Technology Transfer Fund



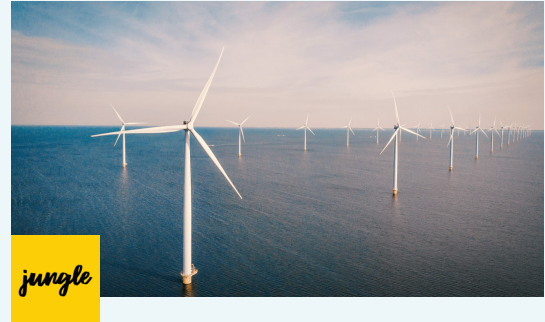
HIGHLIGHTS

According to portfolio companies

ByBorre: Won the Dutch Design award for our platform, which now integrates LCA assessments for all fabrics.



Jungle: Increased the renewable electricity production at nine new wind-farm customers, proving our added value to the industry.



Kriya: In our 15 years of existence, we have sold products that will save 245 million kgs of CO₂ emissions over their lifespan.



Vertoro: Agreed that the world's largest shipping company, MAERSK, will use our sustainable marine fuel to support their sustainability goals.



CEVAP: Sold the first C-100 evaporator and partnered with four water-treatment companies to bring these to the Dutch market in 2022.



Pieter Pot: Celebrated saving over 1 million packages by finalising the design of our new jar, with lower carbon footprint.



WHO WE ARE

At SHIFT Invest it is our mission to fight climate change, the loss of biodiversity, and the depletion of the natural resources of our planet.



Climate Change

The stability of life on earth is at risk. We feel the urgency to contribute to the fight against climate change. The United Nations climate report (IPCC) gives us *unequivocal* scientific evidence that climate change is a threat to human well-being and planetary health¹.

Human influence has warmed the atmosphere, ocean, and land. The North Pole is 40% smaller than it was 30-40 years ago, there are more heatwaves, less frost, and heavier rainfall². We only have a brief and rapidly closing window of opportunity to adapt and mitigate these changes so immediate action is needed.



Natural Resource Depletion

We believe that the way in which we use natural resources needs to change. Global consumption at its current rate is unsustainable. To feed and fuel our 21st-century lifestyles, we are overusing the Earth's biocapacity (rate of regeneration) by at least 56%³. While our economies have managed to double the amount of capital we have produced since the 1990s, we used almost half of the earth's natural capital to do so. It is clear that we need to move towards a circular economy.



Biodiversity Loss

We are concerned with the current state of biodiversity health. The global Living Planet Index⁴ continues to decline, with a 68% decrease in population sizes of mammals, birds, amphibians, reptiles, and fish between 1970-2016⁵. Biodiversity is also a life support system for society: ecosystems provide numerous services with significant economic value⁶. We believe it is important to strive for a more balanced existence with all the species we share the planet with.



1. IPCC, 2021 | 2. NOS, 2021 | 3. WWF, 2022 | 4. WWF, 2020 | 5. PBAF Netherlands, 2020 | 6. FDES, 2013

WHAT WE DO

SHIFT Invest is a venture capital fund that exclusively invests in innovative enterprises with a significant positive environmental impact potential. We believe innovation and entrepreneurship are necessary to help restore the balance between nature and society⁷.

As an impact investor, we take financial and impact risks that conventional investors are not able or prepared to take. In doing so we contribute to the sustainability transition. We invest in environmental start- and scale-ups, providing them with access to growth capital, our network, and 12 years of impact investment experience.

We enable innovations to realize their transformative and impact potential. Our aim is for our investments to become mainstream so they can contribute to changing unsustainable value chains and lead the way towards a new economy.

We invest multi-stage, ranging from proof-of-concept to growth. We typically invest € 250K up to € 5M per company as lead investor and are open to co-investing as well.

The People That Make It Happen

Our team is diverse and experienced, with backgrounds ranging from entrepreneurship, to strategy consulting, finance and business. We are united by our drive for impact.



Our Impact Committee



Aaron Vermeulen
Director Green
Finance, WWF



Alain Cracau
Chairperson
Head Sustainable
Business, Rabo



Geanne van Arkel
Former Head
Sustainable
Development,
Interface



Koen Boone
Sustainable Agro &
Impact, WUR



Marc Jansen
Manager BOM
Ventures

⁷. IEA, 2021

HOW WE MAKE IMPACT

Investment process

Mission

SHIFT Invest has a fund-level impact mission, with sustainable investment themes and the UN Sustainable Development Goals to direct investment sourcing.

Vision

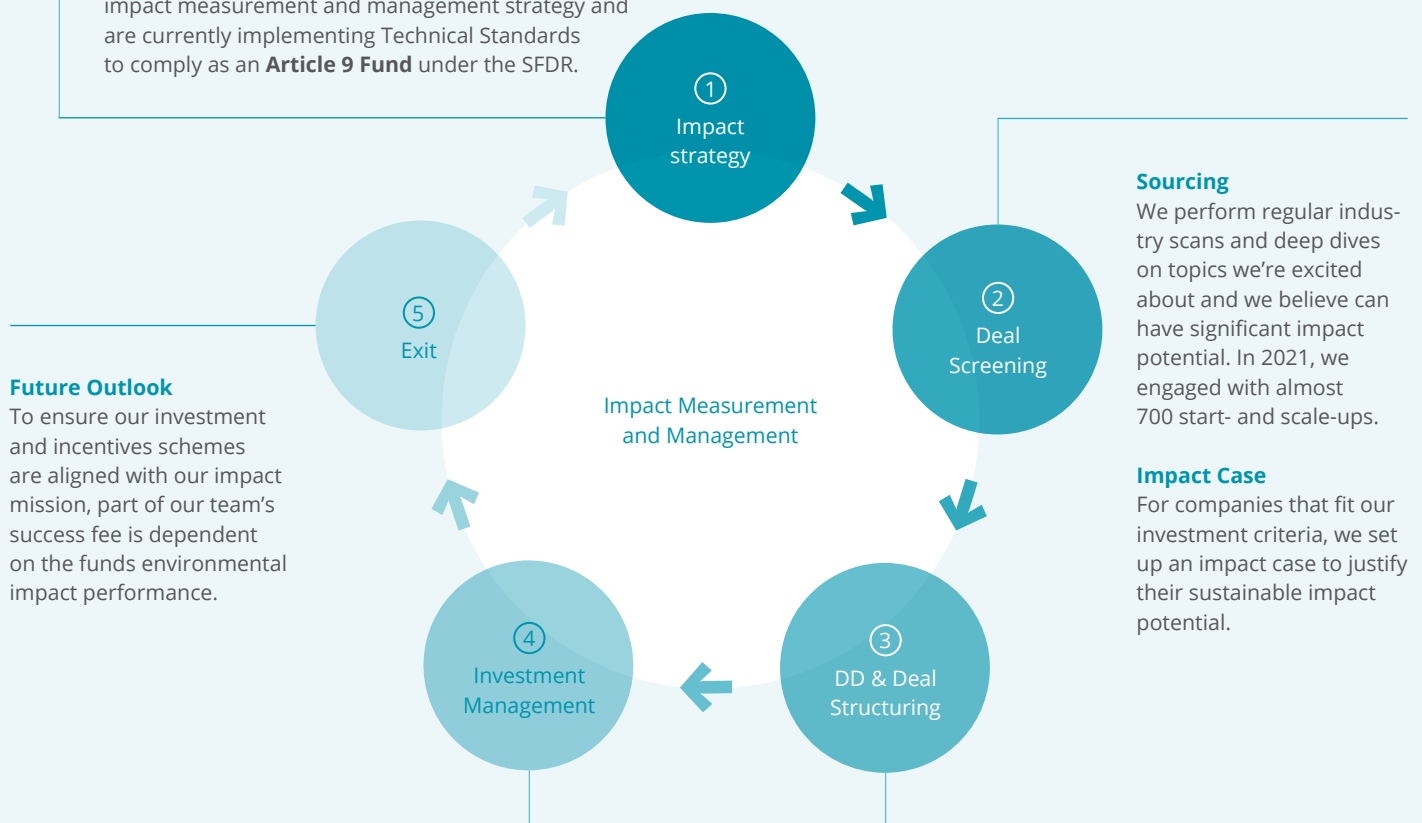
We develop impact strategies for our impact domains and investment themes based on research by trusted institutions like the IPCC, IPBES, IEA and GIIN.

Responsible Investment

We are dedicated to the continuous improvement of our impact measurement and management strategy and are currently implementing Technical Standards to comply as an **Article 9 Fund** under the SFDR.

Policy

We stand by our Code of Conduct and screen all investments against it. We also support founders and management teams to work towards a more diverse gender mix in founder and management teams (at least 35% female).



Impact Management

We actively support our portfolio companies in making sure impact remains a top priority. We help formally integrate impact in policy and decision making and select follow-on investors that share the same commitment.

Monitoring and Reporting

We perform an annual in-depth impact monitoring process together with our portfolio companies and share impact results in our Impact Report. The impact results are also discussed with our Investment Advisory and Impact Committees to check-in on progress and flag potential areas for improvement and impact maximalization.

Theory of Change

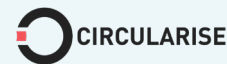
To build a solid impact case and understanding we assess a company's theory of change, identify measurable impact KPI's and targets, consider additionality, and take into account any risks and tradeoffs.

Impact Committee

Before committing to an investment, we discuss the impact case with our Impact Committee. This independent group of experts help ensure our investments make a material contribution to the impact objectives of our fund.

INVESTMENT THEMES

Imbalanced ecosystems drive SHIFT Invest's focus on themes that fight climate change, biodiversity loss & natural resource depletion.



Coming in 2022

This overview excludes Changing Health, which is part of our portfolio but focuses on social (health) impact rather than environmental.

ENERGY TRANSITION



Energy is inseparable from our livelihoods, and current trends indicate that we will require 80% more energy to sustain socio-economic development⁸. But today's energy system is not capable of meeting this challenge without disastrous consequences for the planet and our future on it⁹.

Despite this, energy-related sectors are not nearly moving fast enough: the latest report on the state of climate action highlighted that in 2020, there was 13% more funding going into fossil fuels alone than into activities that combat climate change¹⁰. At SHIFT Invest, we support innovative companies that push the needle on energy efficiency and the generation of energy from renewable sources.

Challenges Addressed



Climate Change

Becoming more energy efficient and moving to renewable energy sources has the potential to halve global greenhouse gas emissions¹¹.



Natural Resource Depletion

Oil, coal, and gas are the main resources for the world's energy supply, but all are finite resources¹². While it is still uncertain exactly how large the leftover reserves of these resources are, it will become increasingly less economically and environmentally viable to obtain them¹³. Also for this reason, we support companies that accelerate moving from fossil fuel to renewable energy sources.



Biodiversity Loss

The energy and extractives industry is responsible for almost 20% of impacts on near-threatened species¹⁴. Given energy infrastructure has a long lifespan, choices around new energy design and deployment will significantly impact the health of natural ecosystems for decades, especially when it comes to biological feedstocks. We believe it is important for the energy transition to be nature-positive.

Solutions Provided

Renewable energy generation



Energy efficiency technologies



Key Impacts Generated by Portfolio Companies



81.58kt
CO₂e emissions reduced



258,783 MWh
energy use reduced



9,866 MWh
additional renewable energy produced

Observed Risks

1. Securing sustainable feedstocks and materials: although a better alternative to fossil fuels, feedstocks like biomass still have an environmental impact (depending on origin).
2. Participation risk: energy efficiency technologies can be used by polluting industries to maintain their (cost) advantage over green industries.
3. Spatial footprint: renewable energies like wind and solar have a relatively large spatial footprint, and thereby risk disrupting local wildlife and habitats.

8. New Climate Economy, 2014 | 9. IEA, 2021 | 10. Climate Action Tracker, 2021 | 11. Dessler, 2022. Note: other powerful anthropogenic GHGs include methane (CH₄), nitrous oxide (N₂O), and halocarbons. | 12. Shafiee & Topal, 2009 | 13. Our World in Data, 2020 | 14. WEF, 2020

JUNGLE

Jungle helps owners of wind turbines to get more out of their assets by illuminating asset performance, both now and in the future.

The average wind turbine contains around 200 sensors. Applying machine learning to the real time data coming out of these sensors helps owners to increase production of renewable energy. Jungle's technology analyses this data to understand what normal asset behaviour looks like, detects under-performance, and analyses faults. With this information, operators are able to achieve greater efficiency and energy outputs.



From Challenge to Solution



CHALLENGE

The output of several renewable energy sources is unpredictable and depends on a wide range of external circumstances. This makes it harder for asset owners to forecast their output, leading to inefficiencies in production.

SOLUTION

Jungle forecasts energy output and generates insights to optimize maintenance planning for wind turbines. This combined can increase the overall output of wind parks by between 1 and 1.5%.



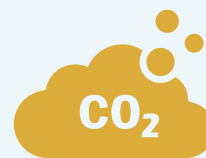
Impact

Efficiency Wins

Jungle has successfully deployed its product, Canopy, for customers in manufacturing and renewable energy. The impact of production efficiency will grow exponentially as the size of renewable energy projects grows.



9,866_{MWh}
additional renewable
energy generated



6,630_t
CO₂ emissions reduced

These outcomes describe the company's performance in FY2021.



SMART FOOD & AGRICULTURE



Agriculture is a primary cause of crossing the planetary boundaries for nitrogen, phosphorous, biosphere integrity, land-system change, and freshwater use¹⁵. There is increasing evidence that our interconnected land, soil, and water systems are stretched to their productive limits¹⁶. A recent study on the state of global soils suggests that 16% of conventionally managed soils have a lifespan of fewer than 100 years¹⁷. Changing the way we use our land, water, and soil is going to be fundamental to ensure we maintain access to nutritious food in a way that does not undermine global biodiversity and other planetary systems. Because the Netherlands is the second-largest exporter of agricultural goods in the world¹⁸, we at SHIFT Invest actively strive to contribute to the innovation of this sector.



Challenges Addressed



Climate Change

The entire food system accounts for around 1/4 of global emissions¹⁹. Sources are varied: nitrous oxides from fertilizer application, methane from rice and livestock production, carbon dioxide from agricultural machinery, and the conversion of carbon sinks like forests into carbon-emitting pastures.



Natural Resource Depletion

Agriculture is also responsible for 70% of freshwater use²⁰. It is one of the principal domains where regenerative practices are needed to ensure we do not exceed the biocapacity of our planet.



Biodiversity Loss

The agricultural sector accounts for 80% of deforestation and uses chemicals, fertilizers, and pesticides that harm the long-term health of our soils and pollinators²¹. Drivers linked to food production causes 50% of freshwater biodiversity loss.



Solutions Provided

Plant-based innovation



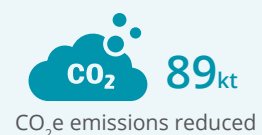
Precision agriculture



Value chain optimisation



Key Impacts Generated by Portfolio Companies



Observed Risks

1. Climate change: the effects of global warming will decrease the supply chain resilience of the food system, making it more difficult to source, store, and transport inputs efficiently.
2. Lagged results: it can be time-consuming to transform traditional agriculture systems as they depend partly on natural cycles and timelines, meaning that benefits may not be immediately apparent.

15. WWF, 2020 | 16. SOLAW, 2021 | 17. Evans et al., 2020 | 18. Whiting, 2019 | 19. Our World in Data, 2019 | 20. New Nature Economy, 2020 | 21. WWF, 2020

MEATLESS

Improving food the natural way.

In 2005 Meatless started pioneering plant-based ingredients. Their products enable the food industry to produce superior and price competitive sustainable plant-based products. In recent years, the company's growth has accelerated and their continuous innovation has resulted in many new applications, receiving numerous awards.



From Challenge to Solution



CHALLENGE

Nearly 70% of the EU agricultural sector's greenhouse gas emissions come from the animal sector, which also uses 68% of total agricultural land²². This pressure is expected to grow along with prosperity and population.

SOLUTION

Meatless produces a 100% fat-free fibre, made of lupine, wheat, rice, fava beans, quinoa or peas without artificial binders, colourizers, or taste enhancers. This fibre is integrated in vegan, vegetarian and hybrid products.



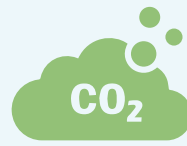
Impact

The Future Is Plant-Based

Meatless significantly reduces the amount of land, water, and energy that is required to produce food. Their products are often made of whole foods and do not require high pressures or temperatures. Most of their ingredients are sourced locally in Europe.



5,783_{ha}
arable land saved



77.82_{kt}
CO₂ emissions reduced



425,490_{m³}
water saved

These outcomes describe the company's performance in FY2021.

22. European Commission, 2020

PIETER POT

Sustainable packaging-free groceries.

Pieter Pot started early 2019 in Rotterdam with a mission to stop the use of single-use packaging in retail. With an online supermarket where consumers can buy their daily groceries in glass jars, return and reuse the jars for their next order, Pieter Pot has created a truly circular business model saving over 1.5 million packages already!



12 RESPONSIBLE CONSUMPTION AND PRODUCTION



13 CLIMATE ACTION



15 LIFE ON LAND



From Challenge to Solution



CHALLENGE

Plastic packaging is mostly derived from (virgin) fossil-based feedstocks and is rarely reused or recycled. The majority of packaging material comes from food and beverages²³ which becomes waste right after unpacking and ends up either being burned or processed for low grade-applications.²⁴

SOLUTION

Pieter Pot's online store provides groceries in jars which are returned, cleaned and reused.



Impact

Away With Single-Use Packaging

Although the production of glass jars initially has a higher climate impact, the jars can be used at least 40 times making it a more sustainable option²⁵. Pieter Pot is now working on a new lightweight jar so they can further reduce the footprint of their transport.



1,500,000
packages saved

This outcome describes the company's performance in FY2021.

23. ING, 2019 | 24. ICER, 2021 | 25. LCA, 2021



GREEN INDUSTRIES



Industrial sectors have a substantial footprint on the planet. Air pollution, significant energy and water use, fossil inputs and the production of large amounts of waste are commonly associated effects of industrial processes. Additionally, industries produce novel minerals, rocks, and chemicals like elemental aluminium, concrete and plastics that form “technofossils” previously not known to the Earth system²⁶ and which are highly energy-intensive to produce. To mitigate these negative effects, industries of the future need to be reliant on renewable energy, more energy and resource-efficient, less polluting, and more biobased.



Challenges Addressed



Climate Change

Industry-related greenhouse gas emissions are higher than those from other end-use sectors and continue to grow²⁷. It is an especially energy-intensive sector, often with limited mitigation potential.



Natural Resource Depletion

While resource efficiency has improved over time, the industry is still the most resource-intensive sector. For example, the Dutch manufacturing industry uses 3-4x more water than households²⁸.



Biodiversity Loss

Industrial pollution directly affects species by making their environment unsuitable for survival or affecting factors such as food availability or reproductive behaviour²⁹.



Solutions Provided

Biobased alternatives



Keep products, materials and resources in use



Key Impacts Generated by Portfolio Companies



272.5 t

material reused/upcycled/recycled



67%

chemicals reduced



Observed Risks

1. Competition with other uses: biobased feedstocks can compete with other high-value applications for biomass, such as food.
2. Execution: reforming and replacing manufacturing systems can be capital intensive.
3. Rebound effect: Resource efficiency is cheaper, which can mean savings are allocated to additional consumption (with corresponding environmental footprint).

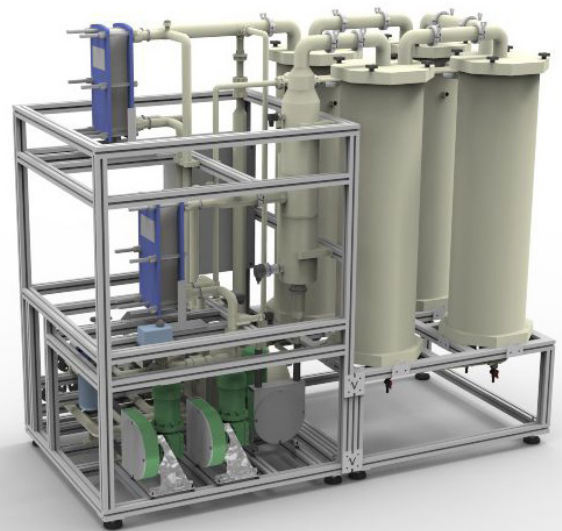
26. Persson et al., 2022 | 27. IPCC, DATE | 28. Eurostat, 2022 | 29. WWF, 2020

CEVAP

Making water treatment feasible.

CEVAP Technology addresses the low- to medium-volume (waste) water streams from industries like the paper industry, for which no other economical solution is available. The company develops smart evaporator-based equipment that can economically deal with difficult waste-water streams. CEVAP's evaporators use unique easily replaceable plastic cartridges that require less maintenance and are able to work with fouling and corrosive feed waters. If the industrial process generates waste heat, this can be used to drive the CEVAP evaporator and increase energy efficiency.

CEVAP
TECHNOLOGY



6 CLEAN WATER AND SANITATION



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



From Challenge to Solution



CHALLENGE

Many industrial wastewaters are currently not being treated because treatment costs are too high. Wastewaters can cause ecological disturbances, are energy-intensive to process and waste valuable resources.

SOLUTION

CEVAP develops and sells thermal separation technology that can be used to affordably treat wastewater, in various industries.



Impact

The recovery of clean, usable water from wastewater is an important outcome of CEVAP, as well as the recovery of other raw materials like salt. Using waste heat also saves significant amounts of the energy that is required to process wastewater streams today. The company is also developing a cartridge recycling program to minimize its footprint.



100%
of waste stream can be recovered for brine in the cheese industry



80%
of waste stream can be recovered for black liquor in the paper industry

THEMATIC TECHNOLOGY TRANSFER FUND



At SHIFT Invest, alongside Seed to Series B financing, we also provide pre-seed capital to promising start-ups through our dedicated Proof of Concept Fund: The Thematic Technology Transfer Fund. We run this fund together with the technical universities of the Netherlands and the Dutch research organization TNO. The goal of this RVO-backed fund is to accelerate the transfer of new technologies arising from knowledge institutes to the market. In this way, we enable entrepreneurs to take disruptive ideas coming from Dutch knowledge institutes to the market and support them in building ventures with broad adoption and impact.

TTT Fund Portfolio Overview



Sets a new standard for sustainability and nutrition with carbon negative microalgae-based food ingredients.



Develops an innovative biobased lactic acid production process based on mixed culture fermentation, using waste biomass.



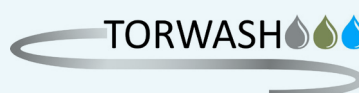
Revolutionises indoor agriculture with robotics and AI to help the transition to autonomous indoor farming.



Specialised in the recycling of phosphates from various waste streams, with a low carbon footprint.



Develops sustainable fat ingredients that improve the texture, taste, and footprint of dairy alternatives.

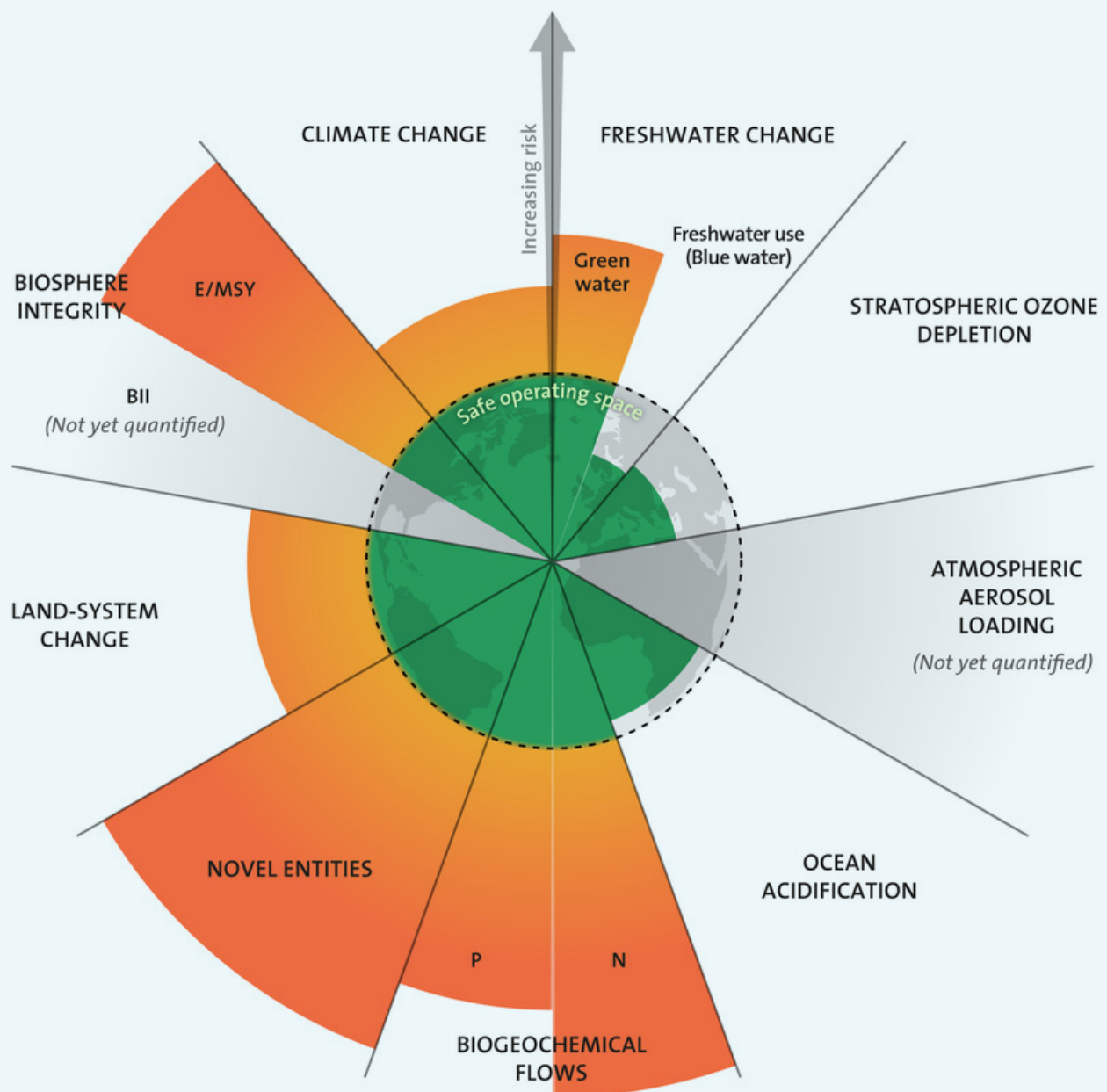


Converts organic waste like sewage sludge into durable biofuel pellets with a unique dewatering and grinding technology.

LOOKING FORWARD: PLANETARY BOUNDARIES

As sustainability is in no way limited to climate change, we highly value Johan Rockström's Planetary Boundaries Framework. This concept is based on the theory that humanity needs to operate within nine essential ecological boundaries. Crossing these boundaries will trigger abrupt environmental changes with potentially catastrophic consequences.




Recent studies suggest we have already crossed the threshold in multiple key areas. It is imperative that we move towards an economy that stays within these boundaries for a balanced existence with nature for future generations.



Credit: Designed by Azote for Stockholm Resilience Centre, based on analysis in Persson et al., 2022 and Steffen et al., 2015.

The Planetary Boundaries are currently not yet widely adopted within the financial sector. We believe it is a powerful tool to use in the field of environmental sustainability and strive to integrate it further into our investment process by translating these boundaries into factors we can incorporate in our investment strategy. The table below provides a preliminary indication of how our current portfolio contributes to the Planetary Boundaries.

Indicative mapping of portfolio to Planetary Boundaries

		Biosphere integrity	Climate change	Novel Entities	Stratospheric Ozone Depletion	Stratospheric Aerosol Loading	Ocean Acidification	Biochemical flows	Freshwater use	Land system change
	<ul style="list-style-type: none"> ● Large contribution ○ Small contribution 									
	ENERGY TRANSITION									
	Emagy		●			○	○			
	Vertoro		●				○			
	HeatMatrix		●			○	○			
	Jungle		●				○			
	Kriya		●	○	○		○			
	Whiffle		●				○			
	SMART FOOD & AGRICULTURE									
	30MHz	●	●						●	○
	Ful	●	●				○	●	●	○
	Meatless	●	●				○		●	○
	OneThird	○	○				○		○	○
	Pieter Pot		○	●						
	Saia	●	○						○	○
	Squall	○		●					○	○
	Time Travelling Milkman	○	●				○			○
	GREEN INDUSTRIES									
	Basilisk		●			○	○			
	BYBORRE	○	●	○			○		●	○
	CEVAP		○						●	
	ChainCraft	○	●				○			○
	Circularise		●	○			○			●
	Foamplant	●	○	○						
	Nature's principles			●				○	○	○
	Susphos		●	●					○	
	The Renewal Workshop		●				○		●	

LOOKING FORWARD: SHIFT IN 2022

Sustainability within SHIFT Invest

While we believe we have a net-positive footprint through the companies we finance, we also strive towards a minimal negative footprint in our activities at SHIFT Invest. In 2022, we will be working towards a more data-driven impact mitigation strategy. From a governance standpoint, we are a partner of #Fundright. We strive to fund equal female and male founders and leadership teams with a broad diversity. In the sectors we are active in, this is still a challenge and an important point on the agenda.

EU Taxonomy

SHIFT Invest supports the development of the EU Taxonomy for Sustainable Finance, which allows investors, companies, issuers and project promoters to navigate the transition to a low-carbon, resilient and resource-efficient economy. As regulation is currently under development, we are looking to include it as part of our investment process in 2022. A preliminary analysis of our latest fund shows that, where technical standards have been established (for climate change mitigation and adaptation), 100% of portfolio companies likely generate their revenue through taxonomy-eligible activities. We aim to perform a more detailed analysis in 2022 to establish if these companies are also aligned with the associated criteria and can be classified as sustainable according to this framework.

Introducing Sustainable Mobility & Logistics

We are very excited that, as of 2022, we will be adding Sustainable Mobility & Logistics as an investment theme to our fund. Trends show that transport emissions grew faster than most other sectors in the past 25 years. Efficiency improvements have been offset by the sheer volume of movement that modern society demands³⁰. Transport is now estimated to account for at least a quarter of global greenhouse gas emissions, which does not even account for emissions from other stages of the lifecycle, like vehicle production and disposal. On top of this, the sector has a high material footprint, requires a significant amount of critical raw materials³¹, and contributes to multiple drivers of biodiversity loss³². Thus, there are plenty of reasons for SHIFT Invest to invest in innovative solutions to the multifaceted challenges the sector faces.



30. CAIT, 2016 | 31. European Commission, 2020 | 32. WWF, 2020

Colofon



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SHIFT Invest is managed by New Balance Impact Investors (NBI). NBI manages early stage venture capital funds with a purpose. We work with a diverse and experienced team committed to accelerate innovation by supporting the creation of great companies.

Report developed in collaboration with Sinzer:

Sinzer, a specialised impact and sustainability consultancy founded in 2008, is part of Grant Thornton's advisory services since 2019. In the past 14 years, Sinzer has supported businesses, financial sector, charities, governments and public service providers large and small to 'futureproof' their business and

improve their impact on people and planet. Sinzer helps financial sector and businesses identify, assess, report, and manage ESG and impact results in line with relevant regulations and standards, and maximize their value.

