Open Perspectives

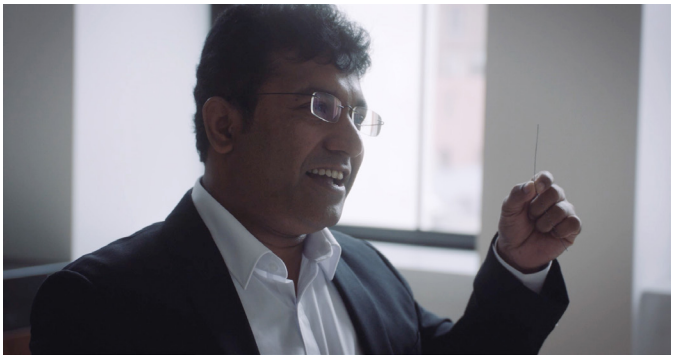
Innovation Showcase
NeueHouse, New York
April 19, 2024

Open Perspectives by H&M Foundation is an inspirational forum to discuss challenges, learnings and solutions to accelerate the transformation to a socially inclusive and planet positive textile industry.

H&M FOUNDATION

The Global Change Award by H&M Foundation is one of the biggest innovation challenges of its kind. It aims to help accelerate the textile and fashion industry into a planet positive one. The winners receive 200,000 euros each and get access to the yearlong GCA Impact Accelerator, provided by the H&M Foundation in collaboration with our partners Accenture, KTH Royal Institute of Technology and The Mills Fabrica. Neither H&M Foundation nor H&M Group take any equity or intellectual property rights in the innovations, as the aim is to find innovations that allow major change for the entire textile industry.

Global Change Award



Adetexs.ID Ltd
GCA winner 2017

The solution to full-scale textile recycling may, literally, be hanging by a thread. A thin RFID thread, that is. Adetexs has developed a washable and flexible e-thread packed with valuable information and designed to bridge the communication gap between manufacturers and recyclers to enable automatic garment recycling.

- RFID thread is washable and inserted into the garment during manufacturing.
- The thread remains in the garment until sent to a recycling centre, therefore supporting Digital Product Passports (DPP), which the EU has mandated.
- At the same time, existing billions of paper/fabric/metal RFID tags are going to landfills straight after sales without supporting DPP.

Current capacity:
- 1 million RFID threads per year.
- Planning to increase to 10 million in 2024.

Offer:
- Inventory management, self-checkout, garment production management systems, evidencing ethical/sustainable provenance, consumer entertainment (magic mirror), smart washing machines/wardrobes/irons, reuse (renting, second-hand sales, peer-to-peer sharing), laundry management, recycling, anti-theft, anti-counterfeit etc.

Top credentials:
- RFiD thread has been globally patented (USA, EU, UK, Sri Lanka, India, China, HK and Australia patents already granted).
- RFiD Threads® has been recognized globally as a disruptive technology.
- Multiple pilot projects and trials have already been carried out successfully with global major fashion brands.

Contact:
Anura Rathnayake, Founder & President

DyeRecycle
GCA winner 2023

There are the common, everyday recyclables: empty soda cans, newspapers, and end-of-life textiles. Then, there are the seemingly impossible ones, like colour. DyeRecycle uses green chemistry to give discarded fabric a second chance and salvage its dyes — enabling the colour from an old garment to be extracted, revived, and used to dye new fabrics.

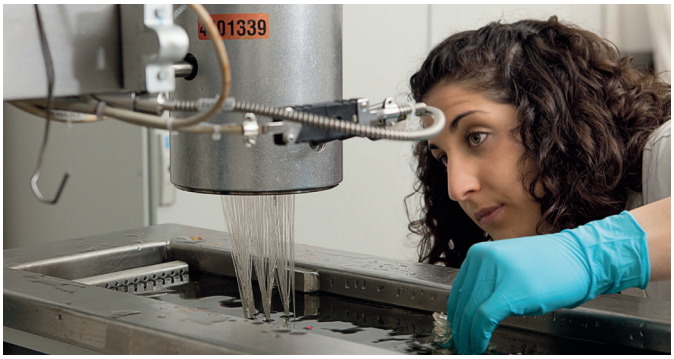
- 85% less GHGs, 80% less energy consumption, and 60% less water usage compared to conventional polyester dyeing.

Current capacity:
N/A

Offer:
- Low percentage of waste in recycling – not only recycling the colour itself but also enabling recycling or reuse of the textile.
- Cost-efficient colours – 50% lower dyeing cost.

Top credential:
- Partnership with Future Fashion Factory.

Contact:
Aida Rafat, CEO



Ioncell
GCA winner 2016

This technology turns used textiles, pulp and even old newspapers into new textile fibres sustainably and without harmful chemicals. The process converts cellulose into fibers which in turn can be made into long-lasting fabrics.

- Ioncell® is the next-generation circular textile fibre, replacing virgin cotton, viscose and even polyester – made from 100% cellulosic textile waste.
- Their patented technology can improve fibre quality when cellulosic textile waste is turned into new recycled fibres.

Current capacity:
- Pilot plant with a capacity of 2-4 metric tons per year.

Offer:
- Ioncell is the strongest bio-based textile fibre in the world, made from 100% textile waste, enabling fully circular, high-quality products.

Top credential:
- Collaboration with Marimekko.

Contact:
Antti Rönkkö, Co-Founder & CEO

Refiberd
GCA winner 2023

The future of fashion depends hugely on recyclability. But the very first step in the process is proving a massive hurdle. Refiberd turns this obstacle into an opportunity. By merging AI and state-of-art robotics, the innovation detects a garment's composition and sorts it into its material range with laser precision.

- Refiberd's technology can detect material composition within 1-2% in millisecond speed, while competitors are struggling to achieve accuracy within 10%.

Current capacity:
- Have successfully completed 4 pilots and planning to complete 3-5 onsite deployments of technology.

Offer:
- Complete brand end-of-life supply chain by directly integrating with sorting and recycling partners.
- Enable material traceability through the brand supply chain.

Top credentials:
- Completed 4 pilots for technology validation including with a notable chemical recycler.
- Recognized as Time Magazine's Top 100 Most Influential People in AI 2023.
- Raised $3.4M for seed round in 2023.

Contacts:
Sarika Bajaj, CEO
Tushita Gupta, CTO

Tereform
GCA winner 2023

What if waste textiles could be broken down and reassembled into new materials, even if they contain challenging additives such as spandex? Tereform makes it possible. By using oxidation, polyester-based textiles can be deconstructed and reconstructed in a fully circular fashion — helping turn textile-to-textile recycling into reality.

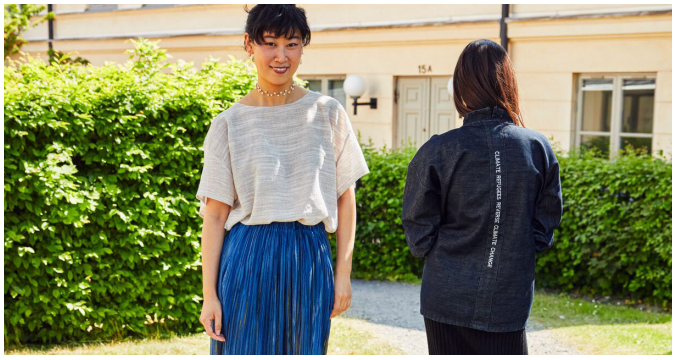
- Focus on recycling polyester/spandex blends using a process that operates effectively even in the presence of common additives and disruptors.
- The solution can isolate monomers from both polyester and spandex for use in making new textiles, while remaining cost-competitive and environmentally beneficial compared to petrochemical-derived materials.

Current capacity:
- Currently operate at the 1kg/day scale, but are building a new reactor that will process ~20 kg/day.

Offer:
- Spandex is pervasive in apparel but presents challenges for recyclers. Tereform provides a solution for fashion brands for these materials.

Top credentials:
- Projects with several outdoor apparel brands to test their challenging materials.
- Working with local manufacturers to process their postconsumer takebacks.
- Scaling their process in partnership with the National Renewable Energy Laboratory.

Contacts:
Kevin Sullivan, Co-Founder & CEO
Mikhail Konev, Co-Founder & CTO



SXD
GCA winner 2023

For every garment made, textile scraps get left behind. Unless SXD is in the mix. This pivotal AI solution is prompted with design concepts and fabric information from brands or manufacturers. Then, it generates a 100% efficient design that saves fabric and puts every millimetre of it to use. The output? Iconic designs with zero fabric waste.

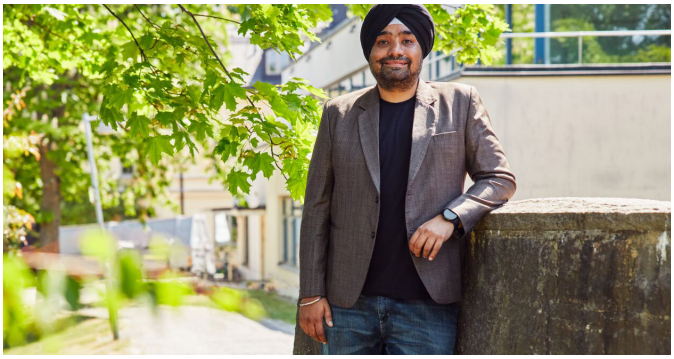
- SXD reimagines pattern-making by utilizing AI to automate and scale zero-waste design.
- This reduces carbon footprint by ~80% and material usage by up to 46%.

Current capacity:
- 7 more brands in 2024.
- SXD delivers immediate impact across carbon reduction, water saving, waste elimination, and material use reduction.

Offer:
- SXD turns brands' products to beloved zero-waste ones with smaller carbon footprint and lower fabric consumption, enabling cost savings.

Top credentials:
- Saving brands millions while supporting refugees at 2-4x the local wage.
- 10x more material savings than other technologies.
- Published patent.

Contact:
Shelly Xu, Founder



KBCols Sciences
GCA winner 2023

Conventional colours are synthetic, and the textile industry's standard dyeing practices are major contributors to freshwater pollution. KBCols is spearheading next-generation dyes, derived from living microorganisms with the potential to shift one of the most critical steps in the entire supply chain and turn it planet positive.

- At the forefront of producing sustainable natural colours from microorganisms.
- Microbes, which are omnipresent in nature, are sourced through their technology to get natural colours of choice.
- The feed supplied for production is composed of waste resources.
- The final product (bio-colours) is a universal drop-in solution to dye the majority kinds of fibres.

Current capacity:
- At a pilot scale, producing 20 kilos/month.
- Scaling up production to 500 kilos/month by June 2024.

Offer:
- Sustainable natural colours offer substantially high water, energy and time savings compared to conventional colours.
- KBCols' colours are reproducible and have better fastness performing than other natural products.

Top credentials:
- Piloting with leading luxury and apparel brands in the world.
- Setting up scale-up plant (500 kg/month).
- Products certified for clean chemistry.

Contacts:
Dr Arjun Bajwa, Co-Founder & Business operations
Dr. Vaishali M. Kulkarni, Co-Founder & Director

Reverse Resources
GCA winner 2016

Reverse Resources maps, traces and transfers textile leftovers through a network of textile-to-textile partners. This digital platform connects brands, suppliers, recyclers and traders in a push to make textile waste history.

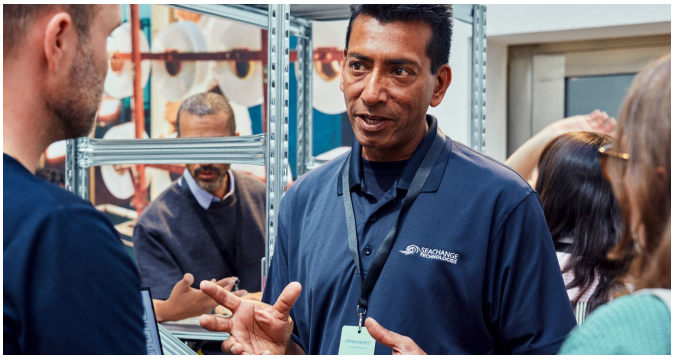
- Offers real-time waste mapping and tracing for recyclable textile waste from the very source.
- Verifies the waste movement through the complex supply chains of the waste.
- Significantly reducing the cost of sourcing and increasing the quality of the waste for recyclers.

Current capacity:
- Today work with 18 largest global brands, 700 garment factories and 10 waste handlers across 18 countries tracing 1,000 tonnes of waste each month to high-end textile-to-textile recycling.

Offer:
- Reverse Resources' platform provides a digital dashboard to follow how much textile waste (by composition, colour, material type) is generated by the brands' garment manufacturers and how much of that gets recycled to high-end recycled materials.

Top credential:
- Work closely with H&M Foundation, Global Fashion Agenda, Fashion For Good and other parties to open up circular waste trace in countries like Bangladesh, India, Vietnam, Pakistan, Turkey.

Contact:
Ann Runnel, Founder & CEO



SeaChange Technologies
GCA winner 2020

This water treatment technology uses a powerful jet engine to purify the most challenging industrial waste-water. Turning sludge and chemical discharge into a dry powder, and extracting clean water to be released or reused.

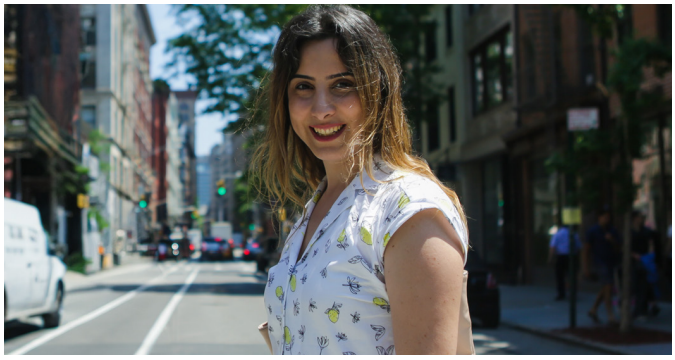
- SeaChange's compact mechanical water treatment modules integrate with existing suppliers to reduce operating costs, environmental discharge, and GHG emissions.

Current capacity:
- Prototype module can process 1-10 tons of effluent or sludge per day, depending on current water treatment configuration.

Offer:
- Can make the products and fashion that people want, without sacrificing our planet.

Top credentials:
- Expert industrial water treatment consultant.
- International regulatory compliance and pilot trials.
- Ability to negotiate deals with suppliers and brands at the table.

Contact:
Dipak Mahato, CEO



Tandem Repeat
GCA winner 2018

Inspired by the self-healing characteristics in squid genes, Tandem Repeat has developed a self-healing, elastic textile that serves as a biodegradable alternative to spandex.

- The production of Squitex involves several stages, including the biomanufacturing of protein powder, fibre production, yarn production, and fabric production.
- Squitex protein provides unique properties such as self-healing, elasticity, strength, and thermal responsiveness compared to natural and synthetic fibres.

Current capacity:
- Using toll manufacturing for both the fermentation of protein powder and the solution spinning of the Squitex fibre.
- Successfully developed prototypes of denim and dress made with protein blend fibres.
- Have vertically integrated with CMO partners.

Offer:
- Tandem Repeat enhances softness and colour uptake, improves wear and tear resistance and elasticity, and achieves switchable thermal properties, through Gen-1 to Gen-Z product line.

Top credentials:
- Winner of Microfiber Innovation Challenge.
- Cost-effective bio manufactured fibers with multiple performance properties.
- Strong patent portfolio.

Contacts:
Gözde Senel-Ayaz, President
Julie Willoughby, Interim CEO

Algreen
GCA winner 2023

The foam in our shoes, the coating on our coats, the invisible seams on our gym clothes. They all include polyurethane, a resilient petrochemical causing micro-plastic pollution. Algreen is a biobased alternative that uses nature to heal nature — creating adhesives, foams and coatings made with regenerative technology reducing plastic pollution.

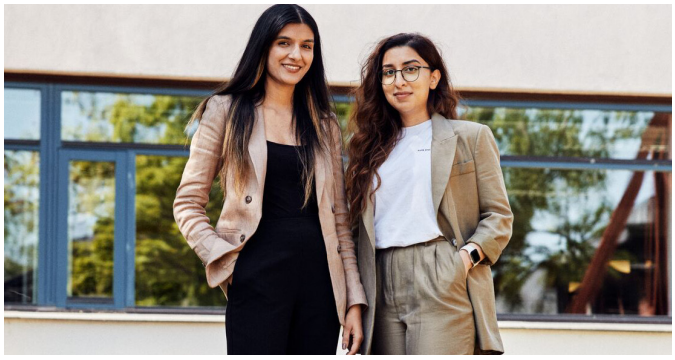
- Algreens direct replacement for carbon-intensive, polluting, non-recyclable, non biodegradable and toxic products with 100% biobased alternatives, immediately removes carbon from products and the supply chain of global businesses, while creating recycling opportunities for all products.
- Polyurethane is a planet polluter, with toxic components and metal catalysts that create the base product.
- Polyurethane represents approximately 8% of all world plastics and can be found in many products.

Current capacity:
- Algreen utilizes their customers' supply chain partners to scale their solution, to reduce CapEx and time to market.

Offer:
- Providing biobased coatings, foam, adhesive and sequins to reduce your carbon footprint in scope 1, 2 and 3.

Top credentials:
- Have a world-class team of scientists, who has developed their patented products.
- Won the Global Change Award 2023.
- Nominated for The Earthshot Prize 2024.

Contacts:
Zhixuan Wang, Co-Founder & CEO
Roderick Thackray, Co-Founder & COO



ALT TEX
GCA winner 2023

Only two thirds of the food produced in the world ends up in our bellies. The rest is lost or wasted. Using three steps, ALT TEX transforms food waste and makes it wearable. The novel solution ferments waste into polymers, melts polymers into yarn, and spins yarn into an industrially biodegradable polyester.

- ALT TEX has created a biodegradable, recyclable and carbon-neutral textile, engineered entirely from the world's largest landfill contributor – food waste.
- Through a patent-pending fermentation process, food waste is converted into a next-generation high-performance polyester fiber that plugs into existing textile infrastructure, generating fabric at scale.

Current capacity:
- Today: 50 metres of fabric per month, enabling prototyping.
- Short-term (2025): 500m of fabric/month, enabling capsule collections.
- Long-term (2030): multi-ton fabric/month

Offer:
Textiles with:
1. Versatile applications including woven, knits, non-wovens, leather, trims
2. Performance comparable to synthetics
3. Accessible pricing owing to plug-and-play capabilities

Top credentials:
- Team of 10 scientists, supported by top accelerators like Y Combinator.
- Created the world's first shirt made of food waste.
- Raised over $4 million in funding.

Contacts:
Myra Arshad, CEO
Avneet Ghotra, CTO

dimpora
GCA winner 2019

To make outdoor wear withstand harsh weather conditions, environmentally harmful substances are often added. Dimpora has developed a solution. Their biodegradable, non-toxic, mineral-based membrane shields humans against the elements — and benefits the planet's shared resources.

- dimpora® is a revolutionary textile membrane that makes fabrics completely waterproof and breathable without harming the environment.
- Thanks to a scientifically based and patented CoreLayer technology brands can move from toxic chemicals towards circularity.

Current capacity:
- About 20,000 running meters per day in Europe.

Offer:
- Providing cutting-edge membranes for brands seeking sustainable, non-toxic, high-performing fabrics.
- Their world-exclusive CoreLayer technology is the only one to support circularity in fashion.

Top credentials:
- Pioneers in biodegradable waterproof breathable membranes.
- Award-winning revolutionary sustainable technology.
- Partnerships with major outdoor apparel brands.

Contact:
Dr. Mario Stucki, Co-Founder and CEO

GALY.CO
GCA winner 2020

GALY uses biotechnology to create lab-grown cotton, a process that uses less water, no land and emits far less greenhouse gas than conventional cotton. And it's fast, as much as ten times faster than growing cotton on land.

- GALY offers a sustainable and game-changing innovation to the biomaterials and agriculture industries.
- Using its proprietary technology, GALY produces lab-grown high-quality cotton, among other products, that is 80% less resource intensive (across CO2, land, and water), pesticide-free, 100% traceable, and with the future potential for customization around quality.

Current capacity:
- Currently at a late-lab scale utilizing small-scale proprietary reactors to fulfil quantities in the grams to kilograms stage.

Offer:
- Lab-grown sustainable cotton.
- Has similar properties to that grown in the field, but with a unique edge.

Top credentials:
- 150+ years of experience.
- Investors include John Doerr and Sam Altman.
- 2 PoCs and 1 Offtake with leaders in Fashion/Nonwovens.

Contact:
Luciano Bueno, Founder & CEO

Nanoloom
GCA winner 2023

Graphene is the stuff of science fiction: 200 times stronger than steel, incredibly lightweight and highly flexible. Nanoloom is pushing the frontiers of modern science by spinning graphene into biodegradable fibre and making it wearable. With limitless applications, wearable graphene has the power to alter the future of textiles.

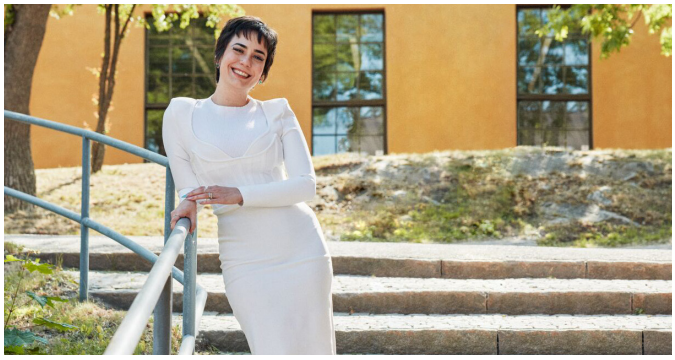
- A new material that is based on the technology of the future: graphene.
- 200x stronger than steel and light as a feather but requires deep expertise to utilize effectively.
- The textile is ultra high-performing mechanically, non-toxic, biodegradable, recyclable and doesn't shed.

Current capacity:
- Currently, all things running with 100% efficiency, they can produce 1 kilogram of 40dtex fibre (250,000 metres) per day.
- Much more is possible with thicker fibres.
- Once close on their current fundraising occurs, this is on track to be exponentially increased to industrial scale production at 6 months thereafter.

Offer:
- A replacement for traditional materials, starting with elastane, which can be (1) twisted/blended with other materials, or (2) used directly, in a large range of weave/knit constructions.
- Designed to work with existing technology and slot into existing supply chain.

Top credentials:
- A new material that is (1) scalable and cost-competitive, (2) better mechanically performing than traditional materials and (3) biodegradable and recyclable.

Contacts:
Victoria Mataczynski, CEO
Alexander Seifalian, Science Director



Phycolabs
GCA winner 2023

It can be green, red, or even purple. It's slimy and sequesters massive amounts of carbon. PhycoLabs transforms seaweed into regenerative fabrics and sources the miracle organism from farming communities along Brazil's vast coastline. The output?
A traceable and regenerative material that improves the health of the planet — and the wealth of its traditional communities.

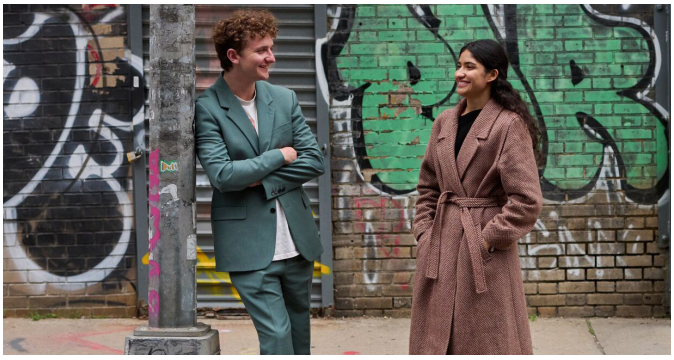
- Stand out by exclusively using seaweed, eliminating microplastic production.
- Their scalability and energy-efficient yarns aim to form a closed-loop system with controlled degradation.
- Cost-effective production in Latin America ensures an eco-friendly, economically competitive, and high-performance textile solution, distinguishing us from polyester and cotton.

Current capacity:
- In the development phase, transitioning to testing with partners.
- The capacity will adapt to meet the needs of our clients.

Offer:
- Sustainable seaweed-based textiles, redefining fashion with eco-friendly materials for foward-thinking brands seeking innovation and environmental responsibility.

Top credential:
- Innovative seaweed solutions, scalable production, and eco-friendly practices, embodying excellence, sustainability, and commitment to environmental responsibility.

Contact:
Thamires Pontes Lordao, Founder & CEO



Ponda
GCA winner 2022

A fashion brand's highest environmental impact comes from the sourcing of materials, making it one of the most damaging industries globally. Similarly, damaged peatlands contribute about 10% of greenhouse gas emissions. Ponda's mission is to connect the restoration of wetlands to healthier materials for the fashion industry.

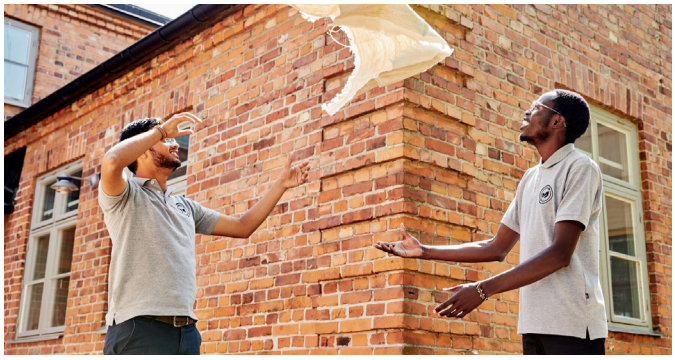
- The only 100% traceable textile fibre made from plants grown on regenerated wetlands.
- Ponda's unique supply chain mitigates significant carbon emissions, increases biodiversity and strengthens climate resilience.

Current capacity:
- 400 tonnes a year of BioPuff Loose Fill 2024-2025 (1.5 tonnes of available stock).

Offer:
- Ponda develops next-generation textiles from truly regenerative fibres.
- They connect the regeneration of damaged wetlands to the production of healthier materials for the fashion industry.
- Their first product is BioPuff – a biobased insulation.

Top credentials:
- Cradle to Cradle (GOLD).
- Traceability/Transparency to Regenerative Farm.
- Third-Party certified LCA.

Contacts:
Julian Ellis Brown, CEO
Neloufar Taheri, COO



Rethread Africa
GCA winner 2023

Bio-based synthetics can be extracted from a variety of raw materials. By turning waste from example sugar and corn production into biobased synthetics, this innovative material uses far fewer resources while upholding the same qualities as petrol-based alternatives. The best part? These textiles will naturally decompose if discarded.

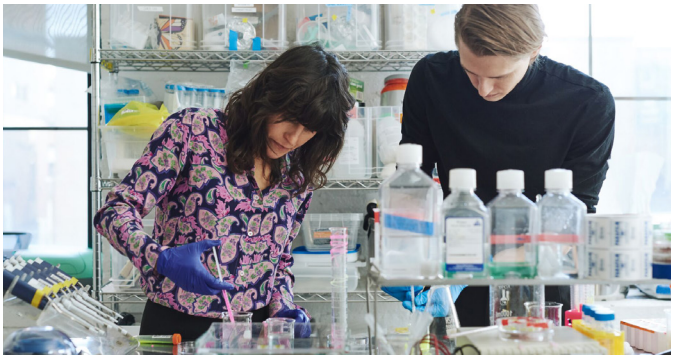
- Using agricultural waste and creating a biodegradable fibre that can compete with conventional polyester.
- Using less water and emitting less CO2 compared to conventional polyester.
- Designed to re-enrich the soil at its end-of-life.
- Social impact by enabling extra income for farmers.

Current capacity:
N/A

Offer:
- Enabling local production.
- Fewer resources are required leading to less emissions released in the process.
- Made from an abundant raw material, resulting in short lead times.

Top credentials:
- 2024 The Earthshot Prize Nomination
- 2023 Make It Circular Challenge Winner
- 2022 Global Climate Challenge

Contacts:
Charles Oyamo, Co-Founder & CEO
Mitesh Varsani, Co-Founder & CFO
Vincent Momanyi, Co-Founder & CTO



Werewool
GCA winner 2020

Werewool designs textile fibres with the desired features — like colour, stretch and water repellence — built-in on DNA level. Successfully eliminating the need to coat, dye or process a finished fabric.

- Tunable colour and performance from the DNA level, Werewool fibers are designed to degrade into nutrients for a healthy ecosystem.

Current capacity:
- 100–300 grams

Offer:
- Looking to engage in pilot programs.

Top credentials:
- Backed by Sofinnova Partners and Material Impact.
- Team of bioengineers, textile developers, and material scientists driven to make the fashion industry compatible with nature.

Contacts:
Chui-lian Lee Co-Founder & CEO
Valentina Gomez Co-Founder & COO

Our Global Change Award partners:

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