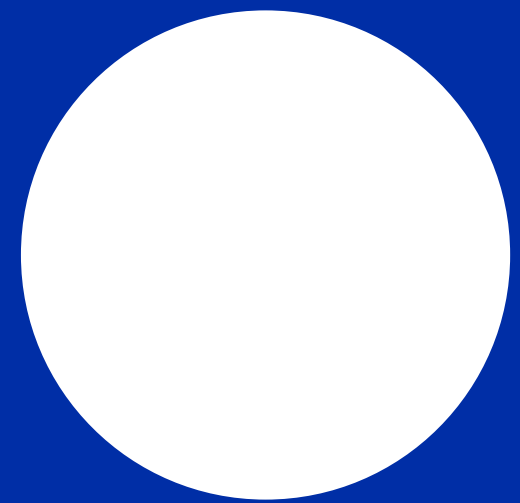


# Responsible Innovation & Impact Report 2023



**PANGAIA**

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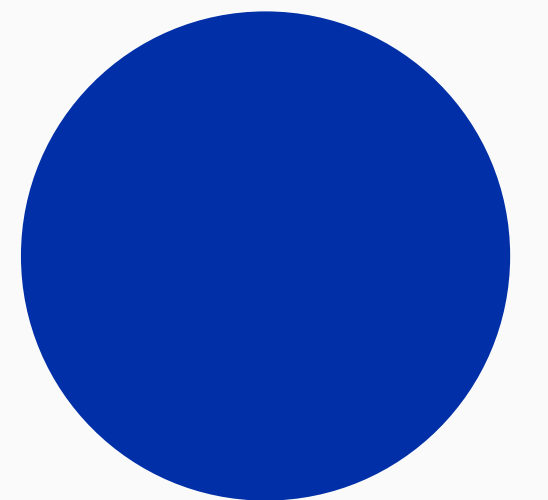
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# Introduction

We are PANGAIA—a materials science company bringing problem-solving innovations to the world. We are on a mission to reshape the fashion landscape, inspiring and accelerating action towards an Earth Positive future.



This report outlines 2023 — from the progress we made and the wins we celebrated, to the challenges we faced and the mistakes we made along the way.

# An Earth Positive Future Defined

## Creating & Accelerating An Earth Positive Future

1. We aim to remain loyal to our number one motivators—people and planet.
2. We aim to transition ubiquitous materials to positive alternatives through Responsible Innovation.
3. We aim to build a prosperous, responsibly-made apparel business, grounded in circular principles to give back more than we take.

## Navigating a New Landscape

2023 was a year of great adversity for the fashion industry. Before we can spotlight the actions we have taken this year to progress towards an Earth Positive future, we must first consider the common challenges faced by all.

## A Need for Action

Our industry has never been more galvanized by the need for action—and yet in 2023 it was announced that as a planet we have surpassed 6 out of 9 planetary boundaries, including climate change, biosphere integrity, land-system change and novel entities.<sup>1</sup> We must therefore acknowledge that our most sincere efforts are not resulting in fast enough change, and that we are working against a backdrop of inevitable disruption—both ecologically and economically.

## Natural Resources are Depleting

As an industry, we continuously extract from nature and 2023 was no different—the production and consumption of products was directly linked to land desertification, water pollution, degradation of coral reefs, deforestation, an increased level of carbon in the atmosphere etc. This degradation of nature that the fashion industry is causing has negative implications on both businesses and societies that rely on those very natural resources.<sup>2</sup>

## Responsible Innovation Faced Instability

Material innovators saw funding cut substantially between 2021 and 2022, making the pathway to scale evermore challenging.<sup>3</sup> In times of macroeconomic difficulty and uncertainty, Responsible Innovation initiatives (often associated with indefinite returns on investment) are often the first to be sidelined.

## Resilience Was Required

With consumer confidence and purchasing power affected by current economic conditions, many businesses had to make changes in response to the unstable market—both in size of business and scale of operations—including our own. Such changes forced us to reevaluate the interdependence of Responsible Innovation and the commercial realities of business to ensure resilience.

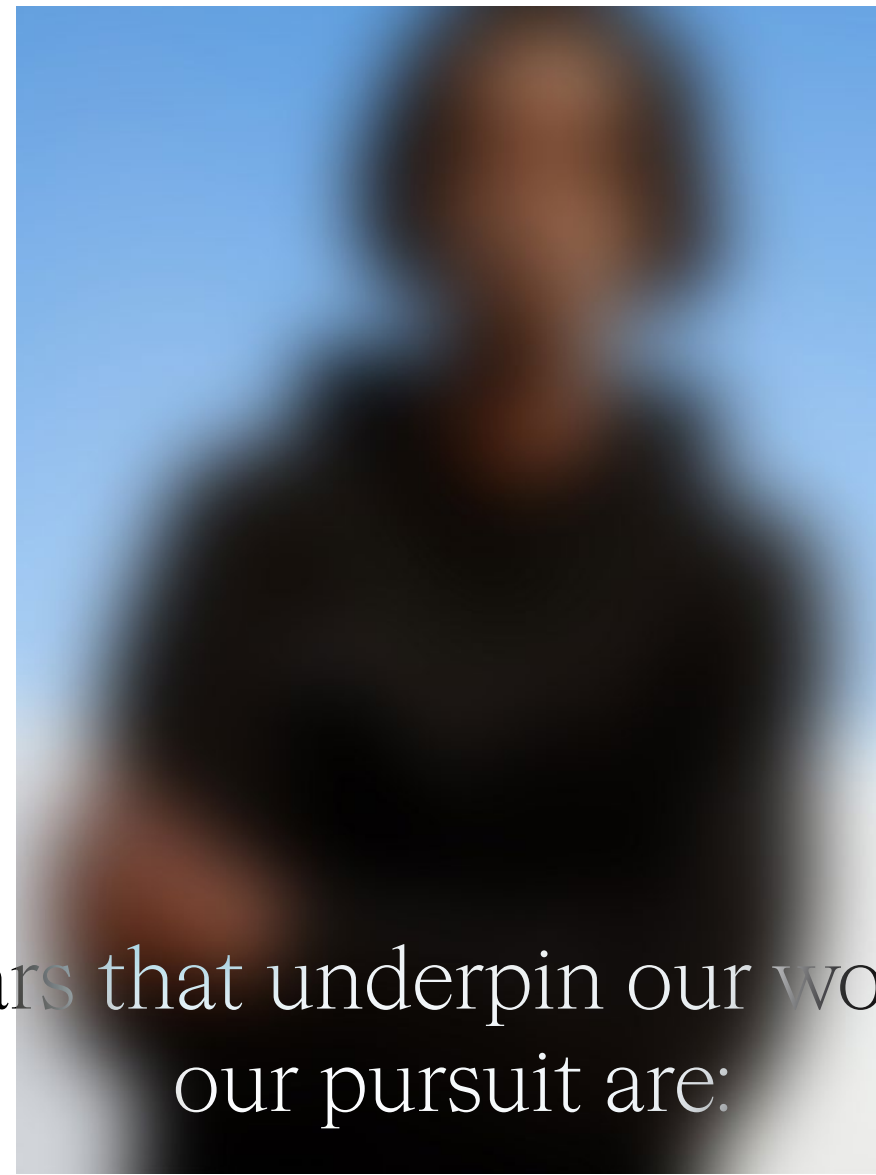
## Our Mindset

We took this year to dive deep into the reality of sustaining a responsible business in the face of inevitable disruptions (socio-economic and those of climate change). We welcomed 2023 as a year of reset—with a mindset that focused on resilience and adaptation.



# Part I

## Transition from Ubiquity to Positive Alternatives through Responsible Innovation



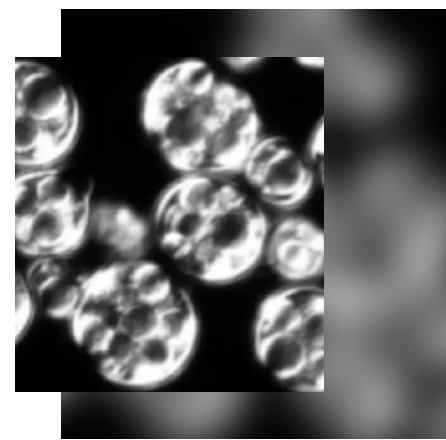
The five pillars that underpin our work to assist in our pursuit are:

- I Bringing first-to-market innovations to the industry
- II Integrating them into our mainline products through our material choices
- III Measuring material impact through Life Cycle Assessments
- IV Focusing on toxicity to understand the broader environmental implications of our production
- V Considering end-of-use implications for all products



As an evolution of our responsible innovation pursuits, we are building a business that replaces the ubiquitous fibers found today with biocompatible ones.<sup>4</sup> At PANGAIA, we adapted the common definition of biocompatibility to encompass the following:

- I Diverse fiber-crops & biobased inputs replacing petroleum.
- II A move away from virgin-animal fibers.
- III Reuse and recycling improving efficiency.
- IV Scaled decomposition systems returning nutrients to the soil.



Our approach to replacing ubiquity revolves around one core theory of change: bring pioneering material advancements to the industry and then integrate them into our core collections to realize and encourage their positive impact on people and planet at scale.

Our pursuit of Responsible Innovation considers environmental, social and ethical factors at every stage of the innovation process—from research and development to manufacturing, distribution, and end-of-use disposal, embedding considerations that prompt us to make decisions that sit in harmony with all life on Earth.

At PANGAIA, we define responsible innovation as:

The conscientious exploration, design, and implementation of new biocompatible materials and apparel technologies that contribute to the prosperity of both present and future generations, while minimizing or eliminating adverse effects on the environment and society.

Our ultimate aim is to accelerate the commercialisation of Responsible Innovation beyond the four walls of PANGAIA. We do this through partnerships. We launched our Powered by PANGAIA platform to offer turnkey solutions to mission-aligned companies. Join us on our journey.





# The Innovative Products We Launched

PANGAIA LAB is the primary vehicle by which we introduce responsible innovations to the industry.  
We are proud to showcase 4 launches from 2023.



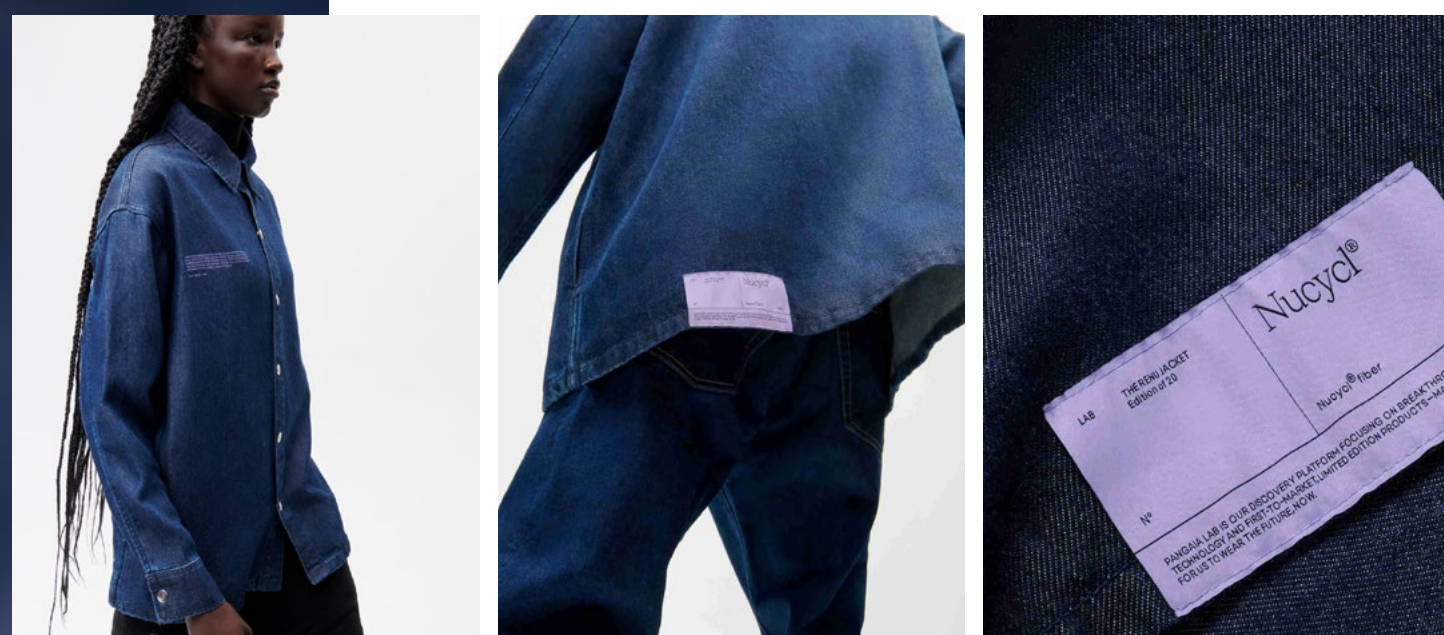
# Renu Jacket

Powered by Evrnu®

The world's first denim jacket made from 100% textile waste, using Evrnu's revolutionary technology. At the end of its life, it can be fully recycled when returned to the appropriate waste streams.

Evrnu's NuCycl® technology transforms pre-consumer material waste (such as unused fabric scraps and production offcuts) and post-consumer material waste (including old clothing) into brand-new fibers ready for reuse.

This process not only diverts materials from landfills and incinerators but also reduces the industry's reliance on resource-intensive virgin fibers like cotton and polyester.



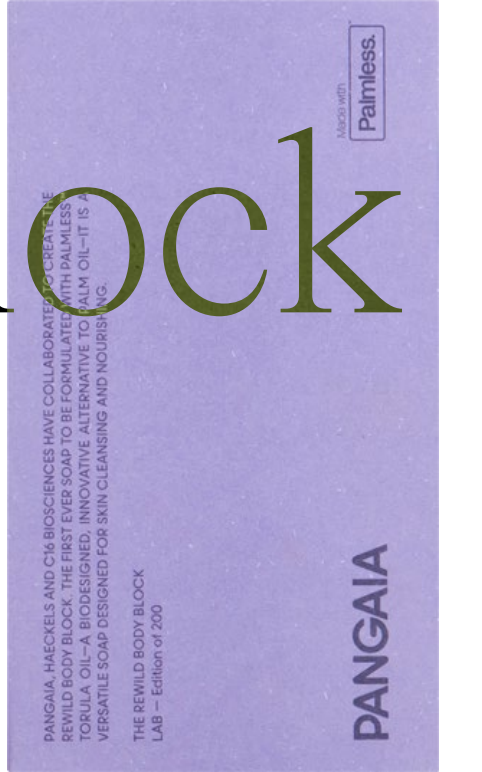
THIS JACKET REPAIRED  
IT IS THE WORLD'S  
A BREAKTHROUGH FIBER  
THE END OF ITS LIFE, THE  
RETURNED TO THE CORRECT  
January of 20





# Rewild Body Block

Powered by C16 Biosciences  
Made by Haeckels®



Teaming up with C16 Biosciences and Haeckels®, we introduced the Rewild Body Block—the world’s first soap made with Palmless™ Torula Oil.

A product crafted from an innovative palm oil alternative, this natural and biodesigned substitute is created through a fermentation process, addressing the environmental concerns linked to traditional palm oil production.

opportunities to further engage in this field. We are proud to share that the Rewild Body Block was named one of Harper’s Bazaar’s Beauty Icons of the year in 2023.

We see the significant role that biofabrication will play in the future and we are actively exploring



# Absolute Sneaker

Powered by Zellerfeld



The Absolute Sneaker, created in collaboration with Zellerfeld, adopts an on-demand production model and mono materiality.

This approach dramatically reduces unnecessary waste, from material offcuts to surplus stock, offering a sustainable alternative to the conventional sneaker manufacturing process.

material source (TPU thermoplastic polyurethane)—making it so much simpler to recycle when entered into the correct recycling stream.

The Absolute Sneaker is 3D printed with Zellerfeld's groundbreaking machinery that makes comfortable and breathable sneakers from just one





# Air Gilet

Powered by Natural Fiber Welding



In collaboration with Natural Fiber Welding, we combined a 100% biobased and plastic-free MIRUM® material with our patented FLWRFILL™ technology made from wildflowers.

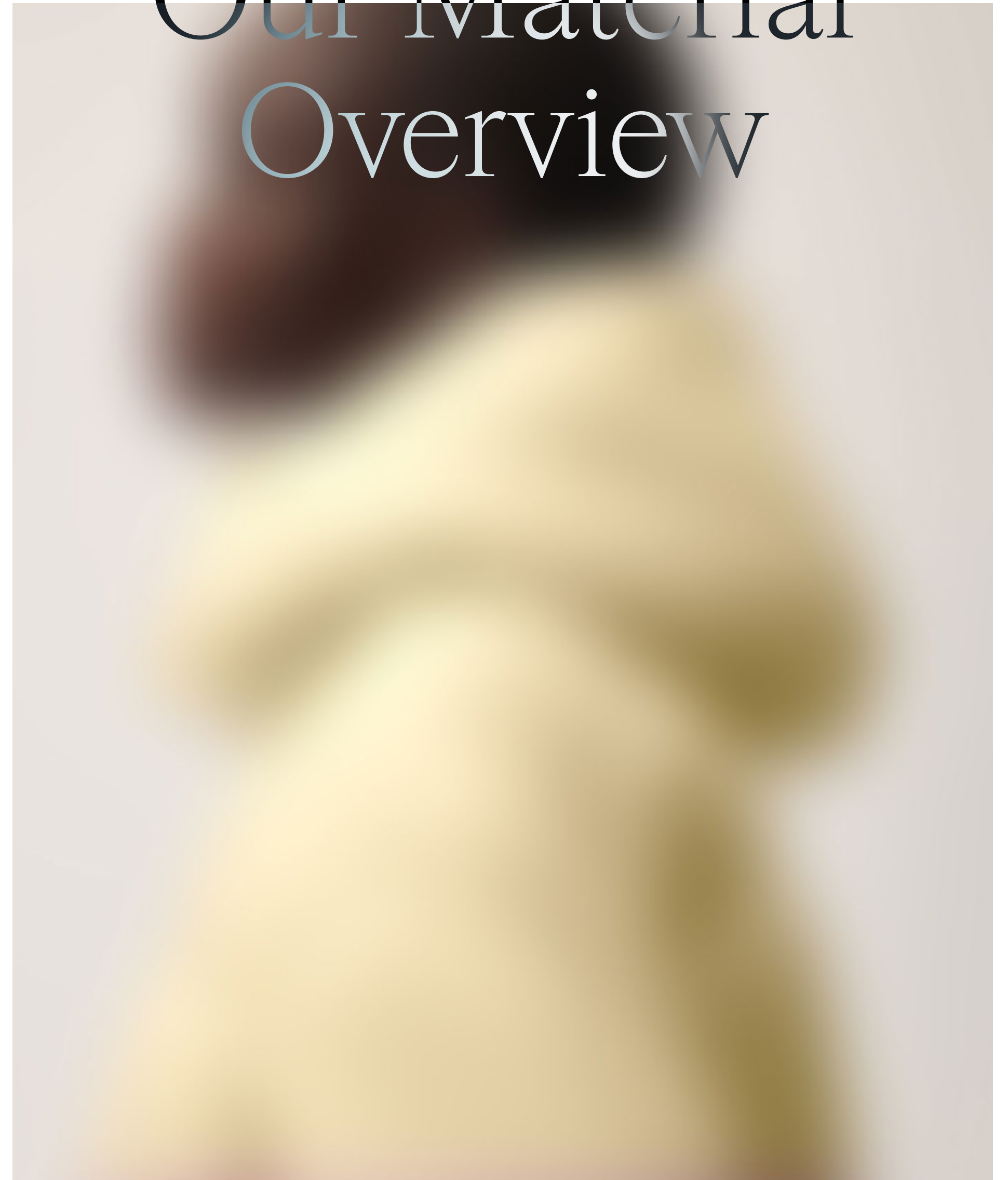
The result is the Air Gilet—a garment that eliminates the need for animals and fossil fuels in its production.

Unlike traditional leather, MIRUM® is derived from natural inputs sourced from plant matter, with additional components such as rubber and cork sourced from FSC-certified forests—ensuring responsible production practices.





# Our Material Overview



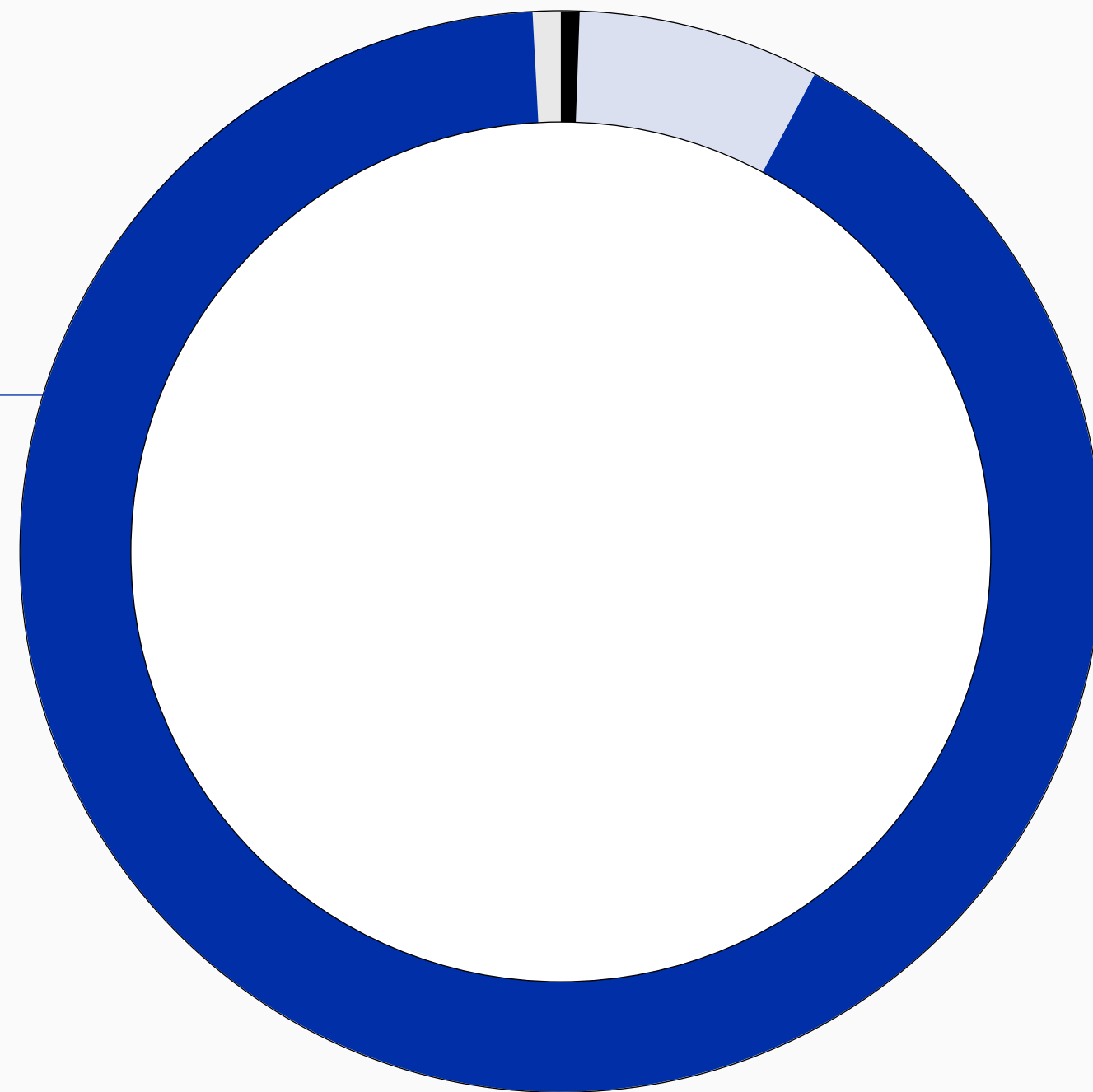
At PANGAIA, we continually measure our material usage across our entire product range to discourage the use of ubiquitous 'drop-out' materials and transition towards biocompatible 'champion' alternatives.

We reinforce our commitment to increase the share of biocompatible materials year on year.<sup>5</sup> For our 2023 analysis, we made a conscious decision to report on products purchased instead of products sold. This has vastly improved the accuracy and understanding of our material footprint.

### ‘Middle of the pack’ materials dominate PANGAIA products.

Our 2023 Material Usage by % Weight

- Champion 0.7
- Runner ups 7
- Middle of the pack 91
- Laggard 0.5
- Drop out 0.7



The Preferred Materials List (PML) is a tool used by our product and design teams to guide preferred material uptake for PANGAIA products. For the latest version of our PML and our rationale, please see [PANGAIA 2022 Impact Report](#).

### Key Takeaways

“Middle of the Pack” and “runner-ups” make up the most significant categories proportionally.

Natural cellulosic materials continue to hold the highest proportion, largely due to cotton’s significant role in the creation of customer favorites.

### Overall

We recognize the need for further action to increase the share of better materials. Challenges still remain in achieving the same quality—that our customers know and love—in alternative materials.

# 8%

of our material footprint is made up from ‘Champion’ and ‘Runner up’ materials.

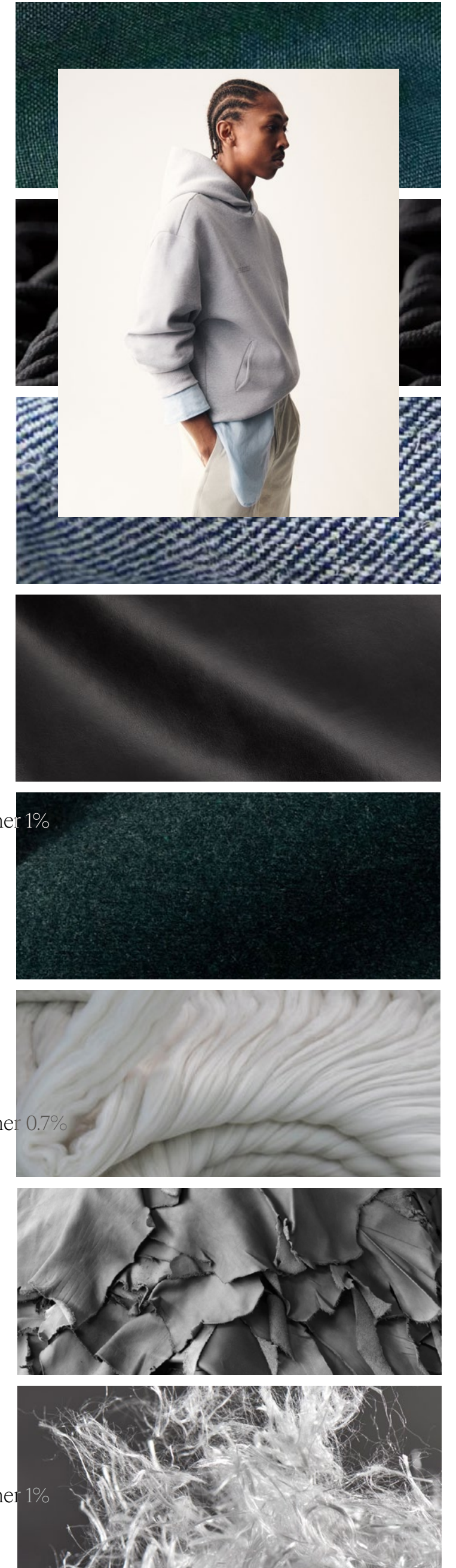
Champion  
0.7%  
Natural Protein 0.7%

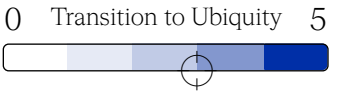
Runner Ups  
7%  
Biosynthetic 1%  
Natural Cellulosic 3%  
Natural Protein 3%

Middle of the Pack  
91%  
Biosynthetic 5%  
Man Made Cellulosic 1%  
Man Made Synthetic Polymer 1%  
Natural Cellulosic 84%

Laggard  
0.4%  
Man Made Synthetic Polymer 0.7%

Dropout  
0.7%  
Man Made Cellulosic 0.2%  
Man Made Synthetic Polymer 1%  
Natural Protein 0.4%





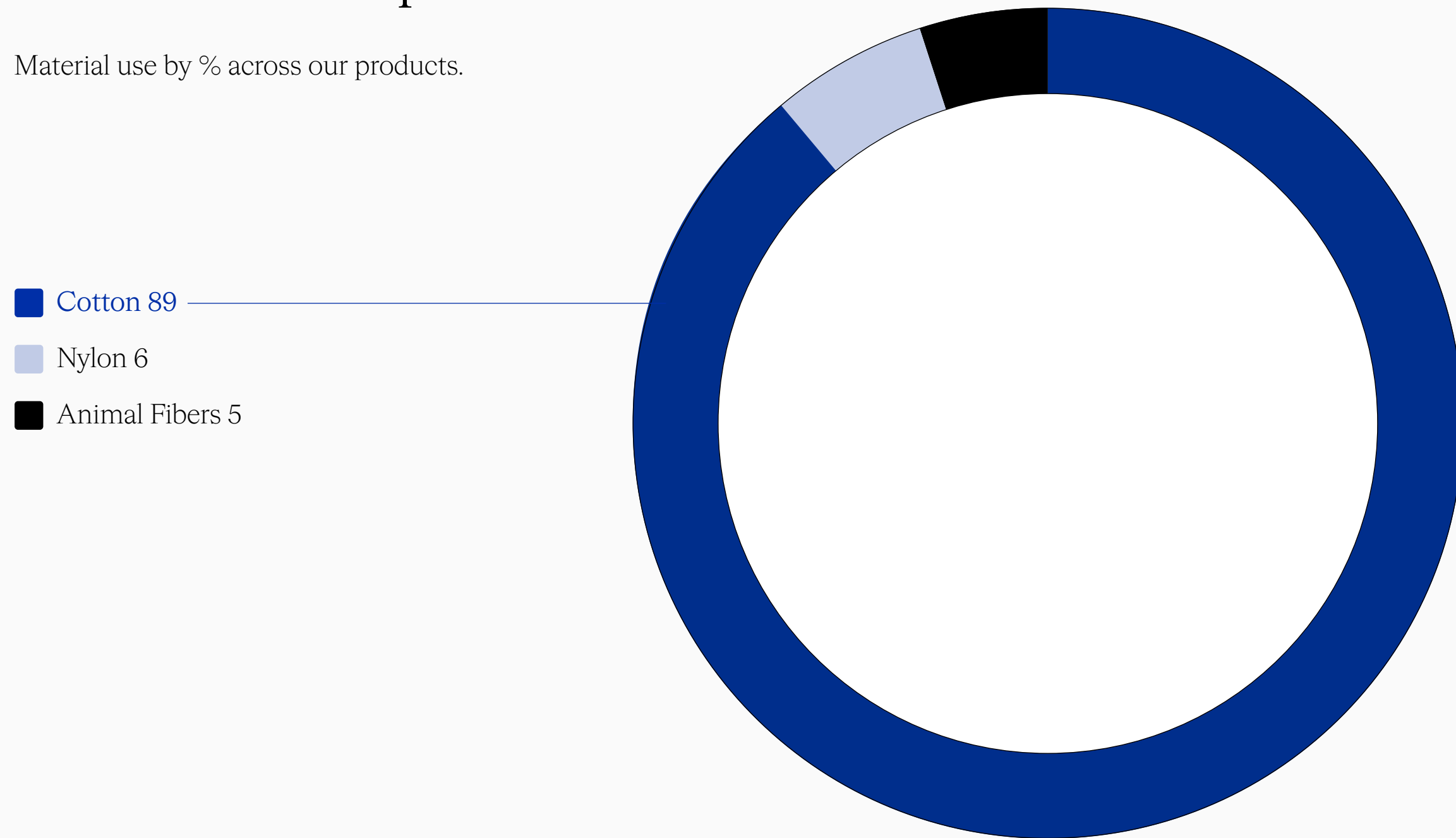
# Cotton

Including organic, recycled and regenerative—remains the highest percentage of our materials purchased, despite our exploration of alternative blends like C-fiber™, PALF (FrutFiber™) and bast fibers.



## Cotton is the most prevalent material used across our products.

Material use by % across our products.



### Wins

We achieved a 100% Seacell Lyocell quality, increasing the percentage of Seacell Lyocell used in previous collections by 80%.

### Challenges

#### Regenerative Transition:

High upfront investment costs given our size and order volumes, as well as difficulties connecting our supply chain to support the uptake of regenerative materials.

#### Cotton Diversification:

Supply chain complexity and lack of alternative infrastructure limits the uptake of new inputs

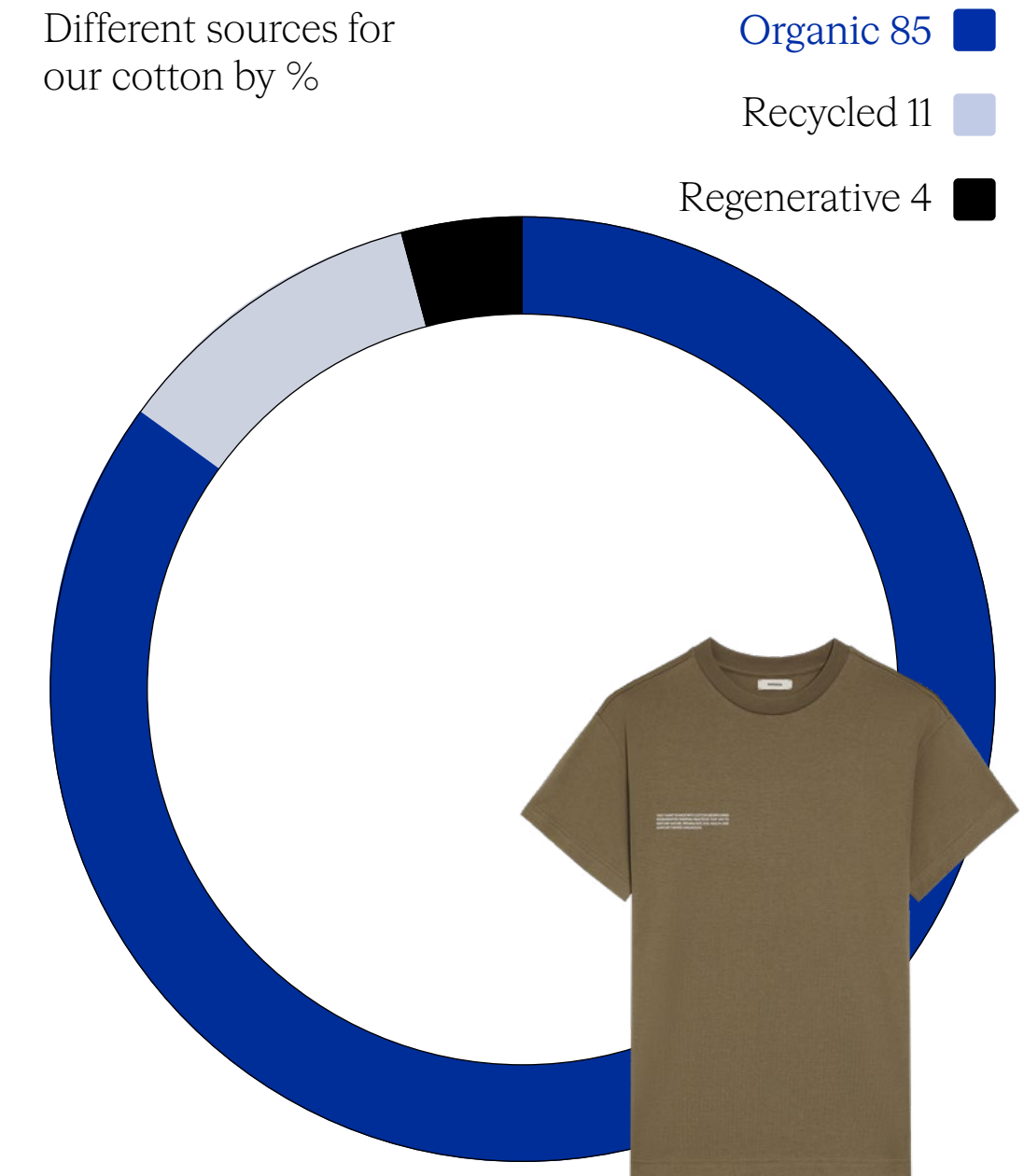
#### Technical Challenges:

Chemical processing is often required which can negatively impact product and material footprints.

#### Non-traditional inputs:

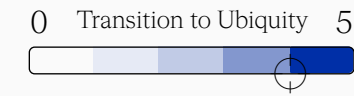
When engaging with non-traditional supply chains, our procurement volumes are lower, meaning our ability to ask for more information is minimized—this can increase risks in relation to fully assessing social and environmental risk.

Different sources for our cotton by %



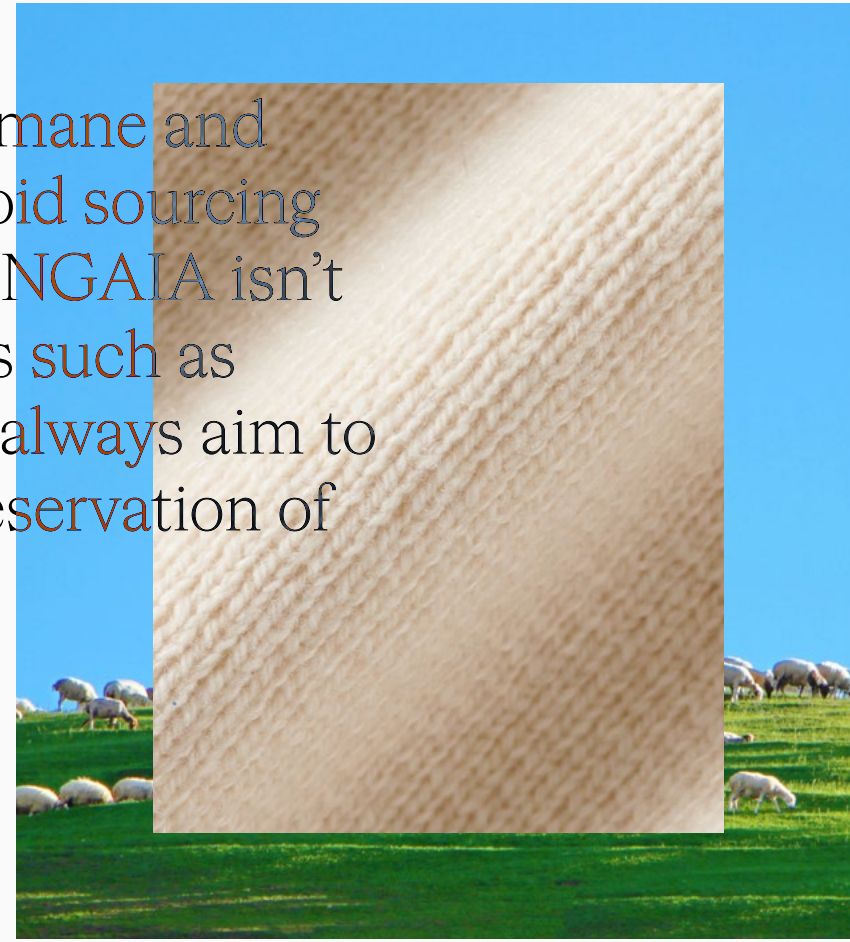
# 100%

We achieved an 100% Seacell Lyocell™. We acknowledge the risks of over-relying on a single fiber, like cotton. By developing a product using a 100% Seacell Lyocell™, we are diversifying our sources and promoting innovation within the MMCF sector.



## Animal Fibers

PANGAIA is dedicated to advocating for the humane and responsible treatment of animals. We strictly avoid sourcing materials derived from the death of animals. PANGAIA isn't exclusively a vegan brand, as we utilize materials such as cashmere, merino wool, and sheep's wool — we always aim to ensure the well-being of the animals and the preservation of their ecosystems.



### Wins

We met our commitment by extending our partnership with \*NATIVA™, introducing Regenerative Merino from Uruguay into our product offerings.

A second launch of our recycled wool collection.<sup>6</sup>

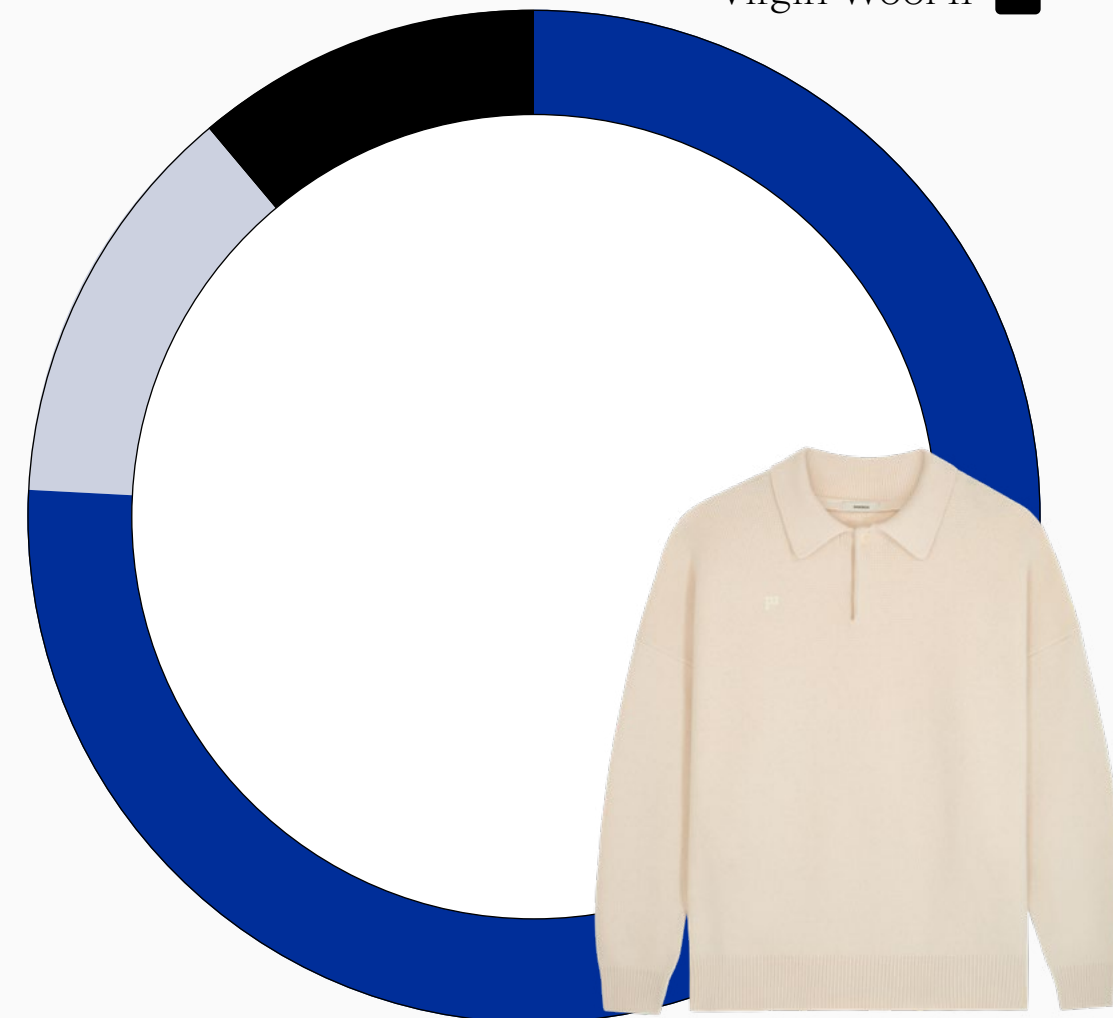
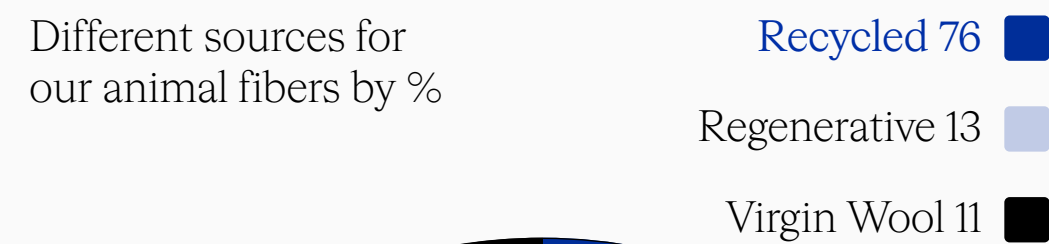
To find out more about NATIVAREGEN™ — [explore our webpage](#).

### Challenges

Continued use of virgin wool—this is still currently required to maintain quality and performance criteria for our recycled blends.

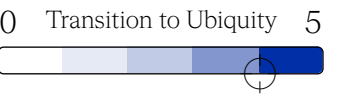
95%

Continued offering of recycled cashmere, with our highest percentage (95%) of recycled content to date.



## Nylon

We remain committed to avoiding the use of virgin synthetic materials. We continue to use recycled options where no alternatives currently exist, such as recycled nylon and we continue to explore biosynthetics like Bionylon and Elastane. In this category, we are quickly moving away from ubiquitous materials.

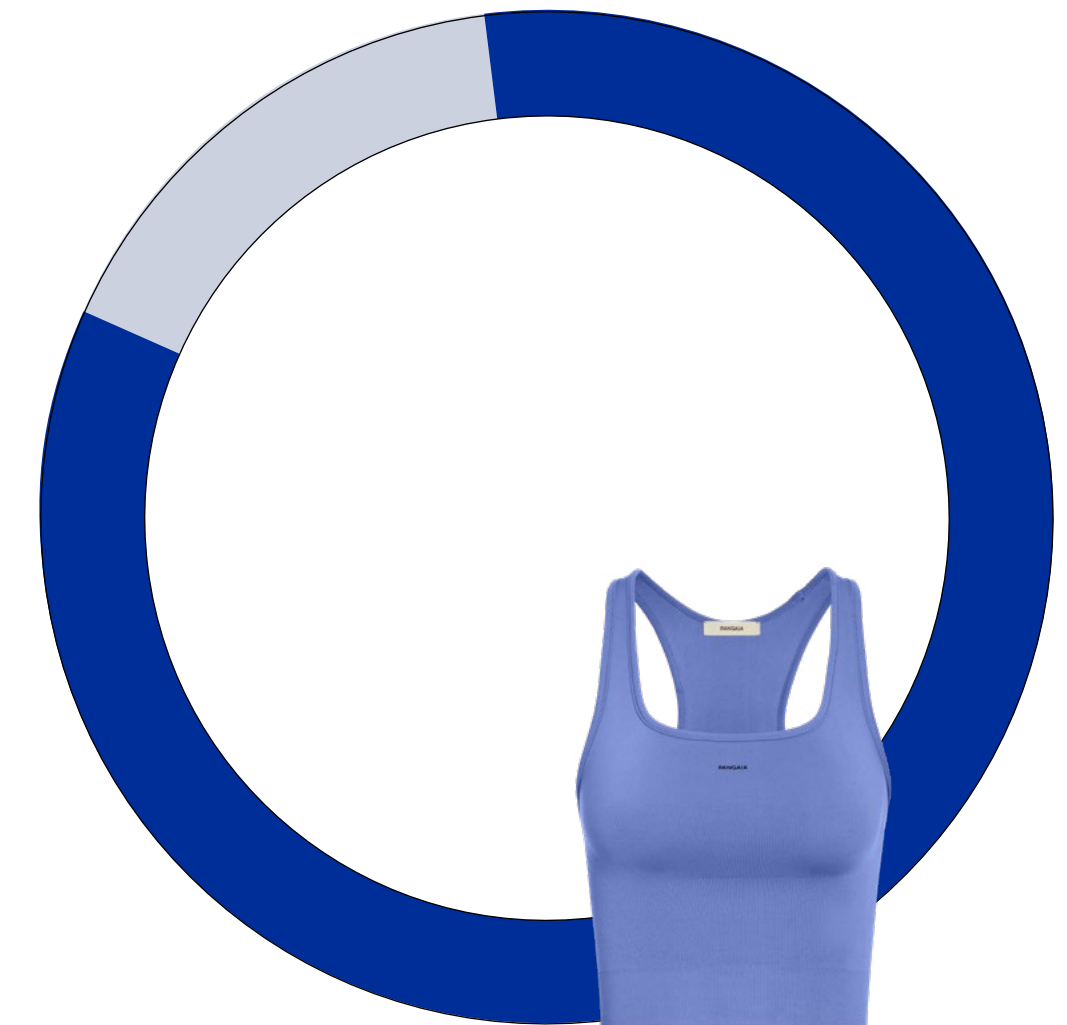


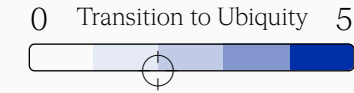
### Wins

We continued to develop our biobased product offering, using creora elastane (30% biobased content).

### Challenges

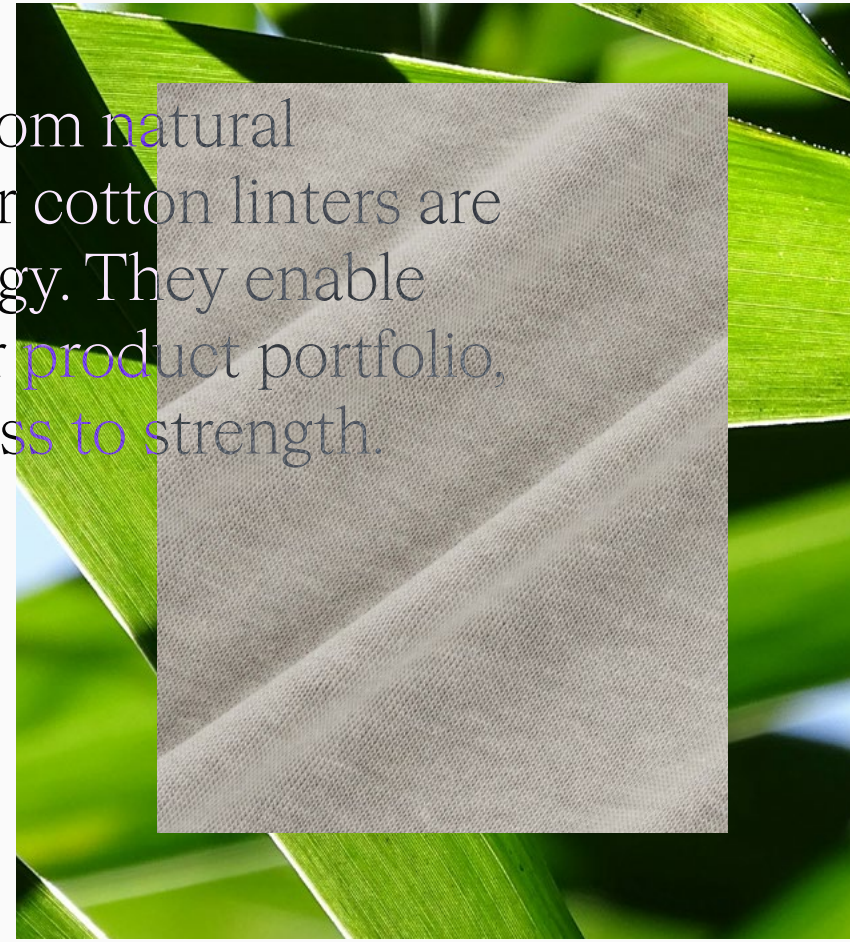
We are aware of elastane alternatives with a higher proportion of biobased content, we are working to integrate this into our collections—but we are not there yet.





## MMCFs

Man-made cellulosic fibers (MMCFs), derived from natural cellulose sources such as wood pulp, bamboo, or cotton linters are important materials for our diversification strategy. They enable us to reduce reliance on cotton and broaden our product portfolio, offering a wide range of properties—from softness to strength.



### Wins

We continued our commitment to safeguarding and conserving forests through initiatives like the \*Tomorrow Tree Fund.

\*To find out more about the Tomorrow Tree Fund—see page 76.

We established a new partnership with the environmental NGO, Canopy—ensuring further conservation efforts, more recyclable packaging and the continued exploration of alternative materials.

### Challenges

Due to the limited availability of next generation MMCF's, we were unable to introduce these materials at scale

Man-made cellulose currently represent only a small percentage of our total fiber usage—we need to increase the proportion of the fibers we use in the future.

## Material Spotlight:

### FLWRDWN™ and FLWRFILL™

2023 saw the expansion of our thermal technology in two ways:

- I) In the increased usage of FLWRDWN™
- II) The introduction of our newest own-innovation FLWRFILL™



FLWRFILL™ is a novel material made using a combination of wildflowers, lyocell and a biopolymer.

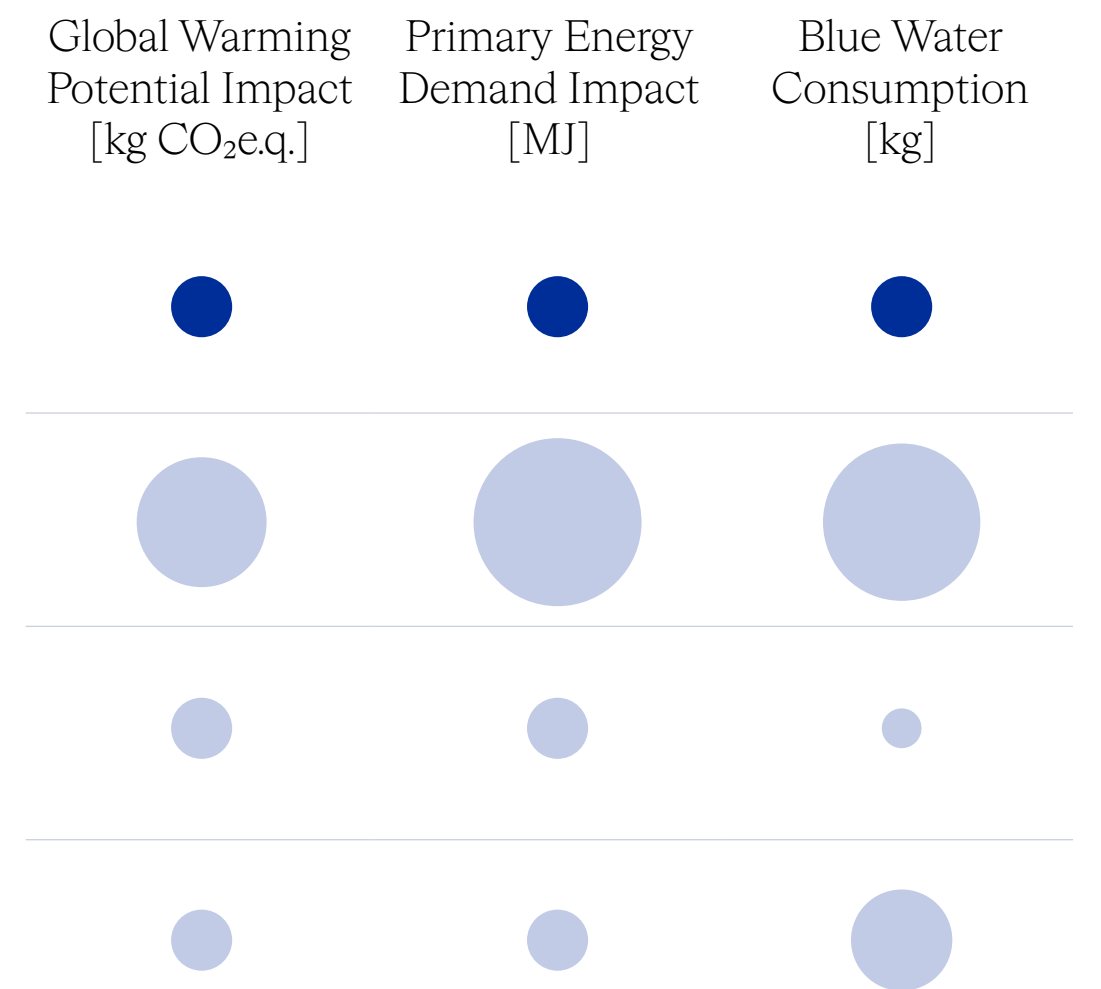
It offers a bio-based alternative to synthetic, fossil fuel-derived wadding—resulting in a thermally efficient and lightweight material that accelerates the transition away from problematic ubiquitous materials.

We worked with our supply chain partners to carry out an LCA analysis to compare the impact of FLWRFILL™ with comparable alternatives (See Table):

### Future Goal

Utilize the findings from this LCA to better understand the emission hotspots associated with FLWRFILL™ and begin programmatic work to reduce them where possible.

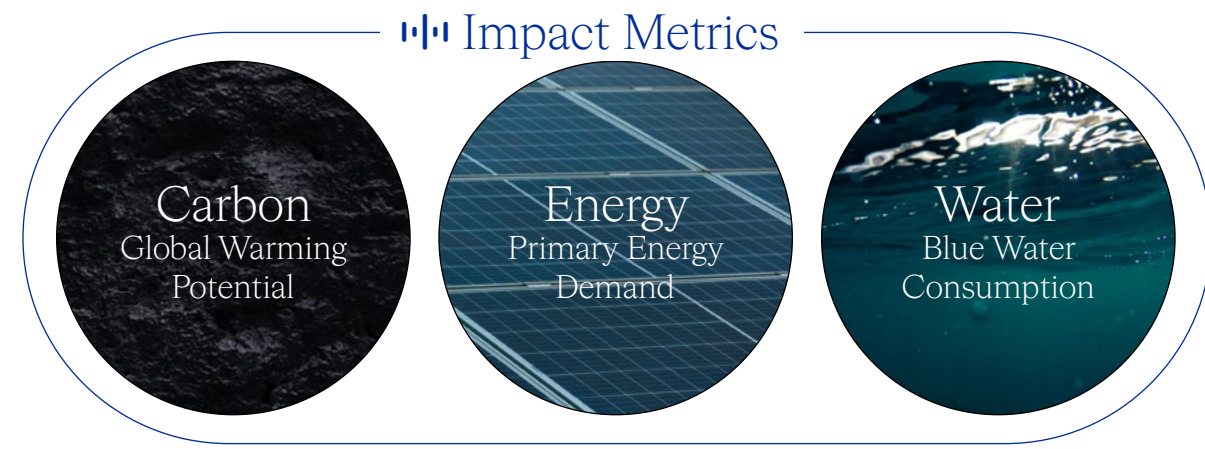
\*To find out more about FLWRDWN™ & FLWRFILL™—[explore our webpage.](#)





## Material Impact Emissions data per hotspot.

In 2023, our LCAs covered 84% of the products we produced for sale. This allows us to deep dive into 13 impact metrics—3 of which we prioritize year on year:



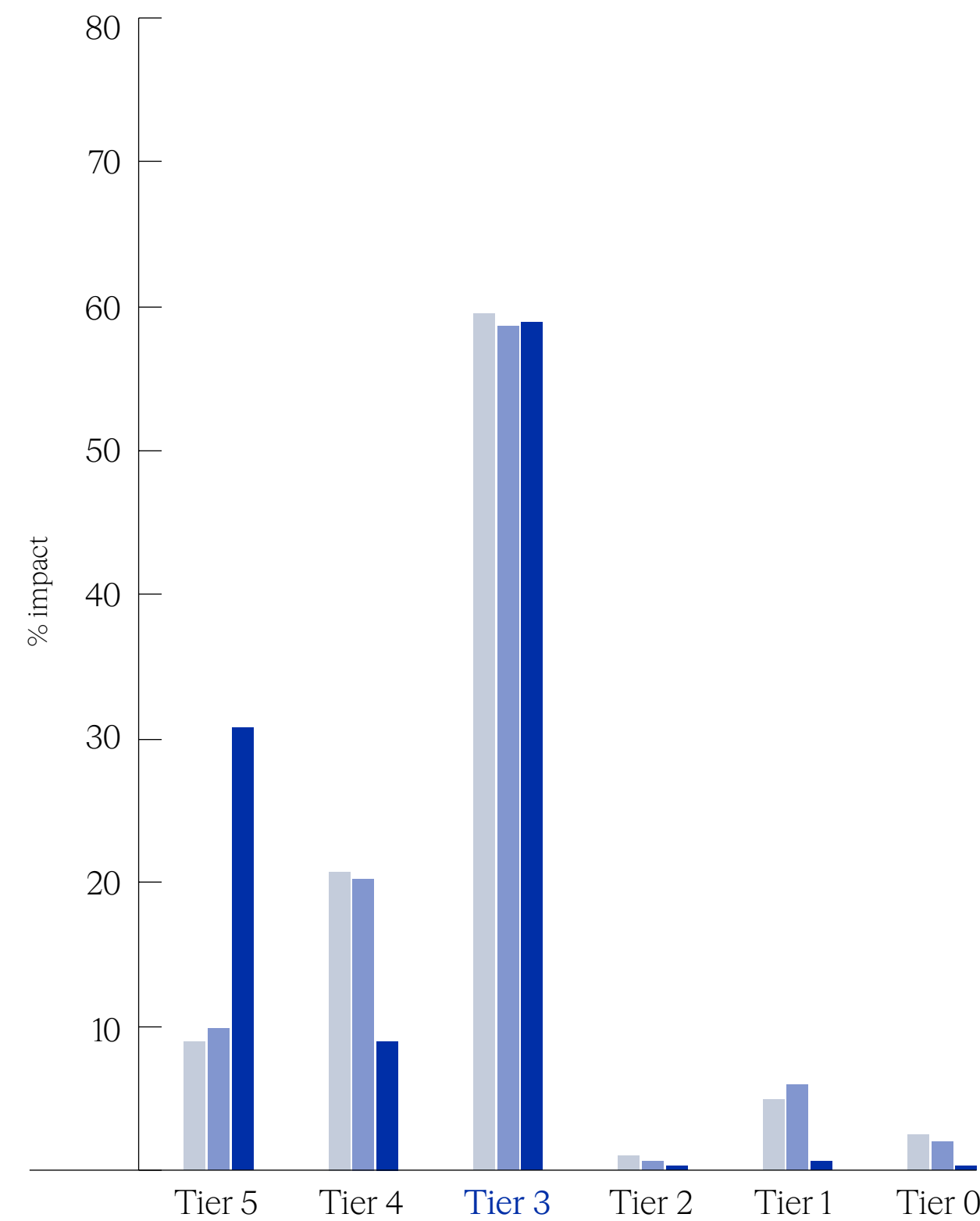
Our greatest environmental impact as a business is furthest away from our direct operations (Tiers 3, 4 and 5). Our definitions are:

- Tier 0 Office, Retail and Distribution Centres
- Tier 1 Finished Product
- Tier 2 Material Processes or Product Enhancements
- Tier 3 Material Production and Component Supplier
- Tier 4 Fiber Processing
- Tier 5 Raw Material or Feedstock Sourcing

The majority of our supply chain impacts for Carbon, Energy and Water are within Tier 3 Material Production processes.

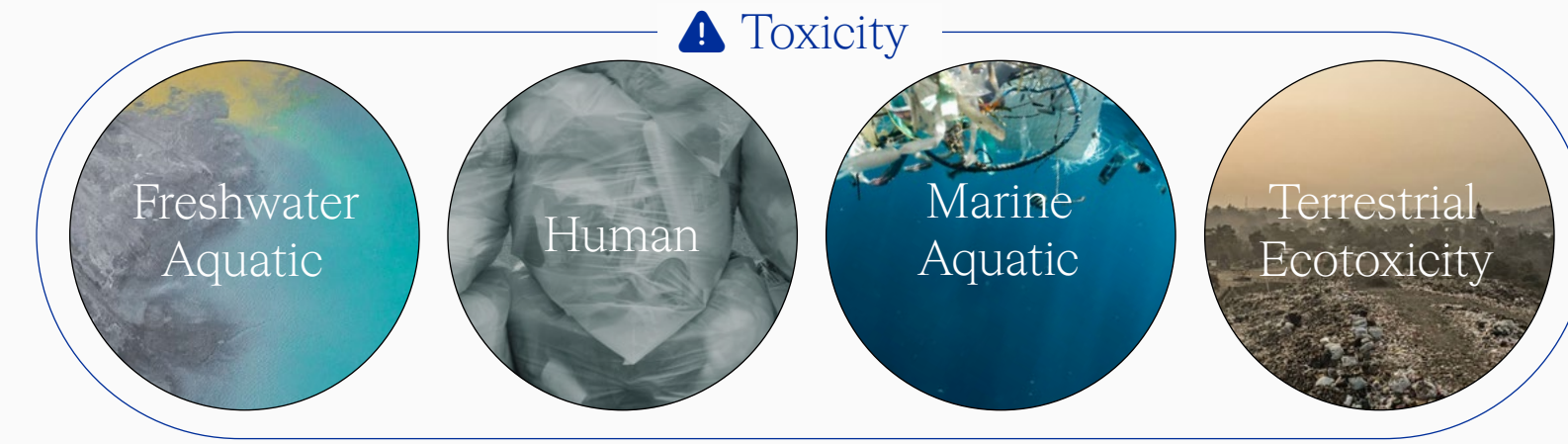
For 2024, we are prioritising impact reduction strategies within our Tier 3 operations based on in-depth value chain risk assessments.

- Global Warming Potential (GWP 100 Years) kg CO<sub>2</sub> eq.
- Primary Energy Demand from Ren. & Non-Ren. Resources (net cal. value) [MJ]
- Blue Water Consumption (kg)



## Toxicity

In 2023 we zeroed in on an interconnected focus category to our LCA analysis—toxicity. These metrics include:



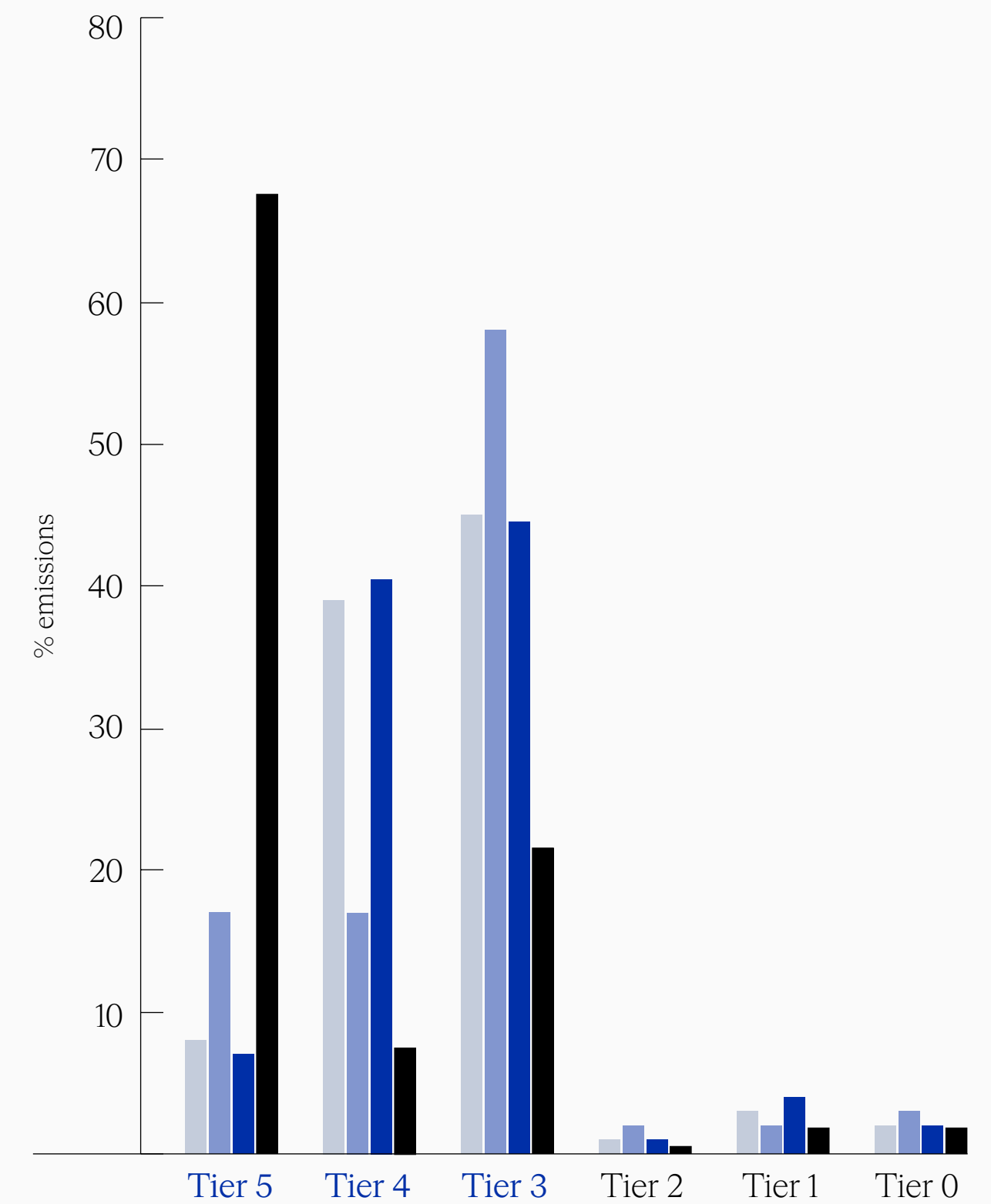
By incorporating toxicity assessments alongside our prioritized impact categories, we gain a more holistic understanding of the environmental implications of our production processes. Toxicity assessments also provide valuable information for conducting risk assessments, which evaluate the potential harm posed by substances to human health and the environment.

Tiers 3 to 5 are the most impacted by production in terms of toxicity, with Tier 3 being the most consistently material.

The spike in Terrestrial Ecotoxicity potential in Tier 5 represents the potential impacts on the land as a result of raw material cultivation and farming (this comes largely from our organic cotton production).

We know Tier 3 processes consistently have greater environmental impact—a significant contributor to this is the energy-intensive dye process.

- Freshwater Aq. Ecotoxicity Pot. (FAETP inf.) kg DCB eq.
- Human Toxicity Pot. (HTP inf.) kg DCB eq.
- Marine Aq. Ecotoxicity Pot. (MAETP inf.) kg DCB eq.
- Terrestrial Ecotoxicity Pot. (TETP inf.) kg DCB eq.





# How We're Considering End-of-Use

At PANGAIA, we're aiming to create a more circular business, with consideration for what happens to our products at the end of their usable life.

# End of Use

To take greater consideration for the end-of-use of our products, we mapped the recyclability of the materials compared with the current recycling infrastructure that is available, or soon to be available.<sup>7</sup>

Being a cotton-heavy business means that we are inherently making products that have a more clear end-of-use pathway, given the maturity of recycling technologies; however, we also make very clear design and manufacturing decisions to ensure that our products are as compatible with current recycling infrastructure as possible.

For example, we only use elastane where absolutely necessary (e.g. cuffs and ribs) on the majority of our products and avoid blending materials where possible.

We also recognize that, due to challenges in textile collection and sorting, many products may not enter into the correct recycling streams.

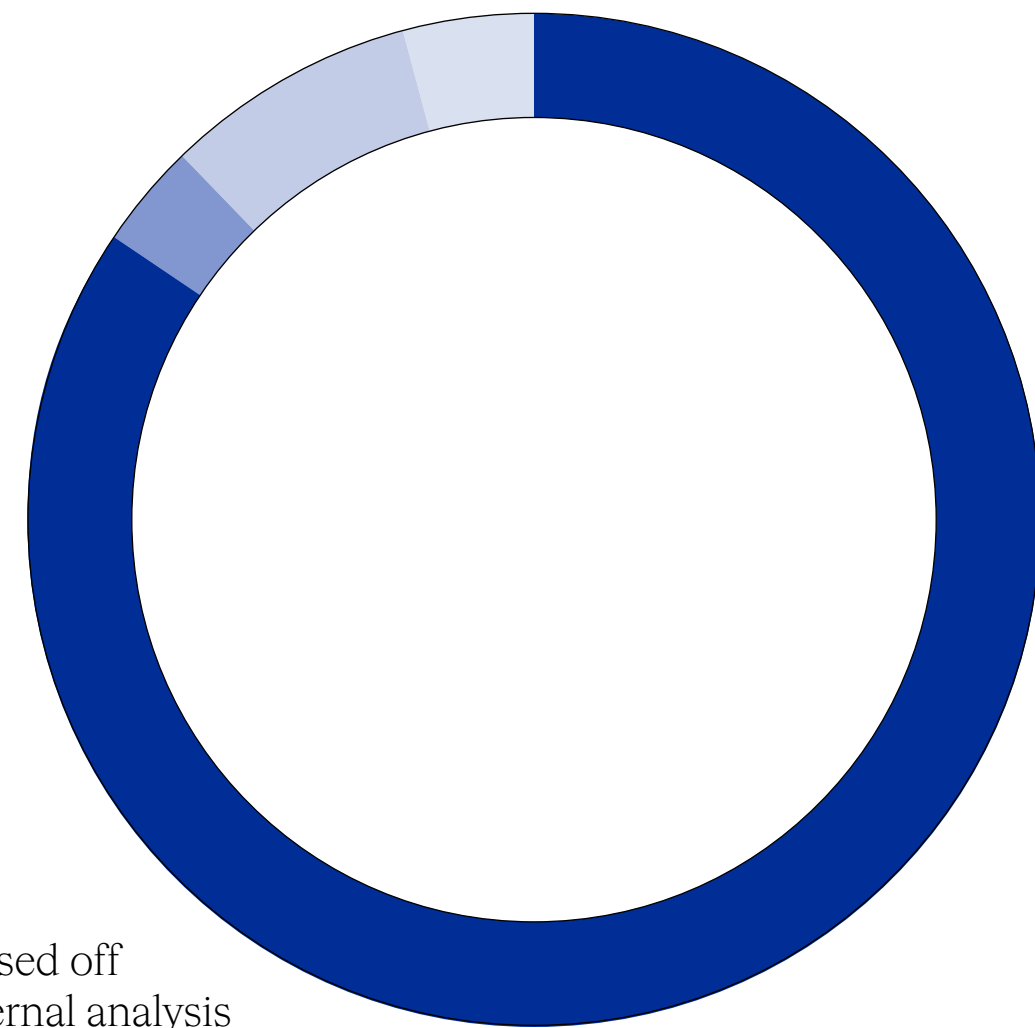
The concept of biocompatibility encourages us to consider circularity in a more multifaceted way, framing the concept of 'end-of-use as transformational flows of energy and matter through networks, rather than 'closed-loops'.

Using biomimetic system principles, we are interested in how textile waste can act as a biocompatible, or even bio-beneficial input to nature's system.

The field of biocompatibility testing within the fashion industry is still in its infancy—but we are engaging with our strategic partners to explore how we can operationalise the concepts of biocompatibility for our products and hope to share more in next year's report.

The % of products that we make which are recyclable at the end of their life.

- Readily Recyclable 85
- Chemical Recycling Now 3
- Chemical Recycling Future 8
- Not Recyclable 4



\*based off internal analysis



# Part II

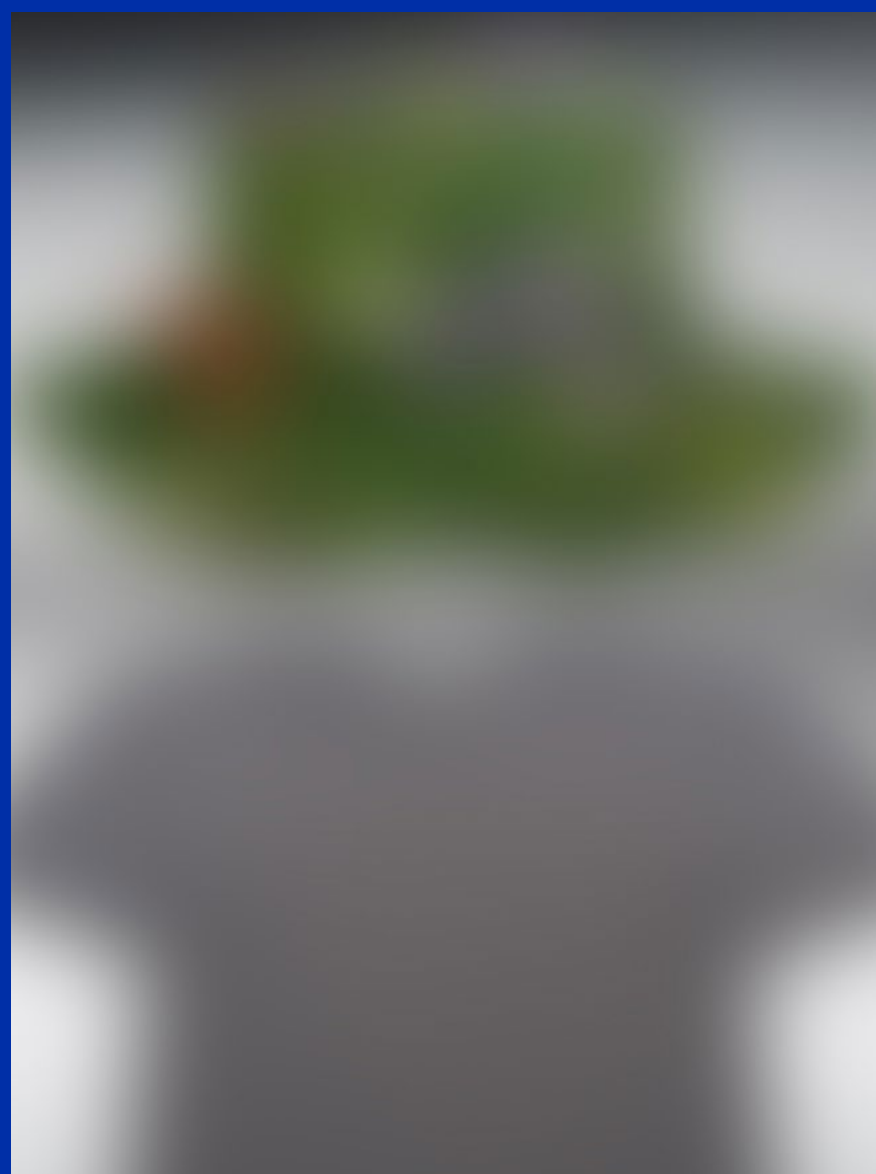
Building a prosperous responsibly made apparel business, grounded on circular principles that give back more than they take.



The five pillars that underpin our work to assist in our pursuit are:

- I Supporting circular systems that promote biocompatible inputs.
- II Aligning with science for our approach to climate, water and biodiversity.
- III Acting as an ethical business and positively impacting lives in our supply chain.
- IV Empowering our Global Collective
- V Giving back to communities and nature





# Our First Step into a More Circular Future



As part of our commitment to accelerating the transition to a more circular future, we are creating the systems to allow our products to stay in circulation for longer.

# Embedding Circular Systems

Last year we introduced our interrelated approach to circularity across the value chain and explained our focus on ‘upstream’ circularity - that is, at the material selection and processing stage. In 2023 we maintained that focus, but expanded our work to explore how we can integrate circular business models into our operations and consider the end-of-use of products..

In order to take full responsibility for the biocompatibility of our products, we need to build the business systems that support a circular flow of resources and products.

The biggest progress area for us in 2023 was the launch of PANGAIA ReWear.



# PANGAIA ReWear

In September 2023, we launched PANGAIA ReWear—our first peer-to-peer resale platform—in partnership with Archive Resale.

At PANGAIA, we know that Circular Business models—including resale, rental and aftercare—play a crucial role in increasing product utilization and extending the life cycle of our products. The Ellen MacArthur Foundation (2017) found that doubling the amount of times an item is worn reduces the associated GHG emissions by 44%.<sup>8</sup>

The launch was the first-of-its-kind thanks to the Instant Resale™ integration with EON—leveraging the power of Digital Product Passports to automate the listing process.

The vast majority of our products contain QR codes, holding crucial product-level information that empower customers with a seamless one-click resale experience.

Through one scan of the QR code, all the relevant product-level information is pre-populated into the seller flow on PANGAIA ReWear—enabling the listing of a product in under 30 seconds.

Whilst we are proud of our first step into the Circular Business Model space, we recognize that this is just that—a first step. Moreover, we launched PANGAIA ReWear only in the UK initially; we have ambitions to offer the solution to our customers worldwide to facilitate the increased reuse of our products

To find out more about PANGAIA ReWear—explore our webpage.



# Our Commitment to Decarbonisation



Science and purpose have always been at the heart of PANGAIA's mission - to give back more than we take. Analysing our environmental impact and aligning with the most ambitious, science based targets is what guides us to action.

# Aligning with science for our approach to climate, water and biodiversity.

Our commitment to decarbonisation:

Last year we committed to continue measuring our carbon footprint, transitioning to renewable energy in our direct operations and we also got our science based targets approved by the SBTi:

- I Reach net zero across our entire value chain (Scope 1, 2 and 3) by 2040.
- II Reduce emissions from our direct operations (Scope 1 and 2) by 42% by 2030.
- III On our journey to net zero, we have also set ourselves an interim target of at least halving our value chain emissions by 2030.
- IV We fully intend to go above and beyond this target and achieve net zero in our direct operations by 2025.

These goals are in line with the most ambitious goals of the Paris Agreement and are consistent with reductions required to keep warming to 1.5°C.

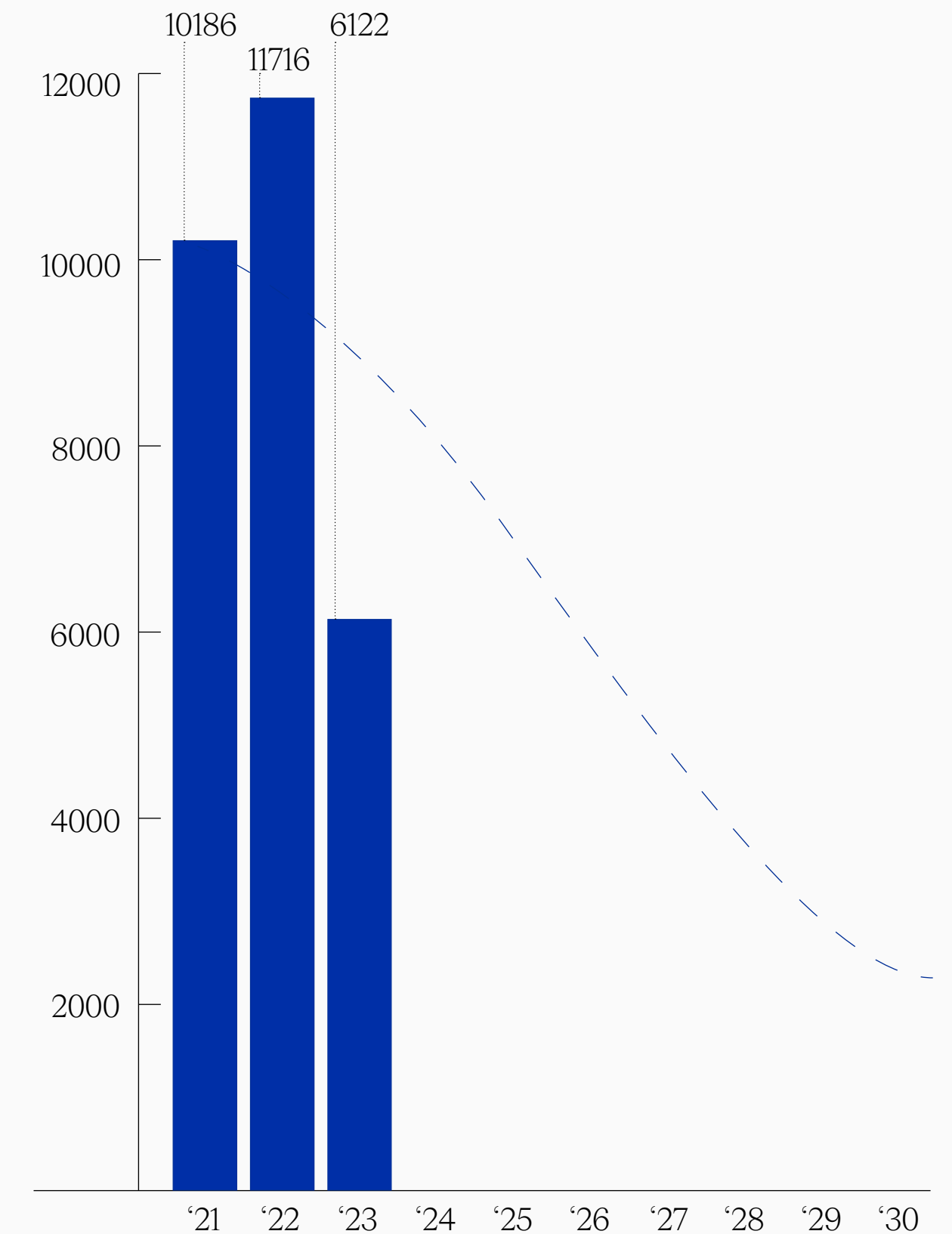
With our climate partner, Plan A, we measure our carbon footprint annually and publish the results here, following the principles of the Greenhouse Gas (GHG) Protocol.



We are currently operating under our forecasted emissions in order to meet our Science Based Targets; however, it is early days.

Actual emissions vs our forecast emissions to meet Science Based Targets Commitment

[ ] Total Scope 1, 2 & 3 Forecast (SBT)  
 ■ Total Scope 1, 2 & 3





## Year on Year

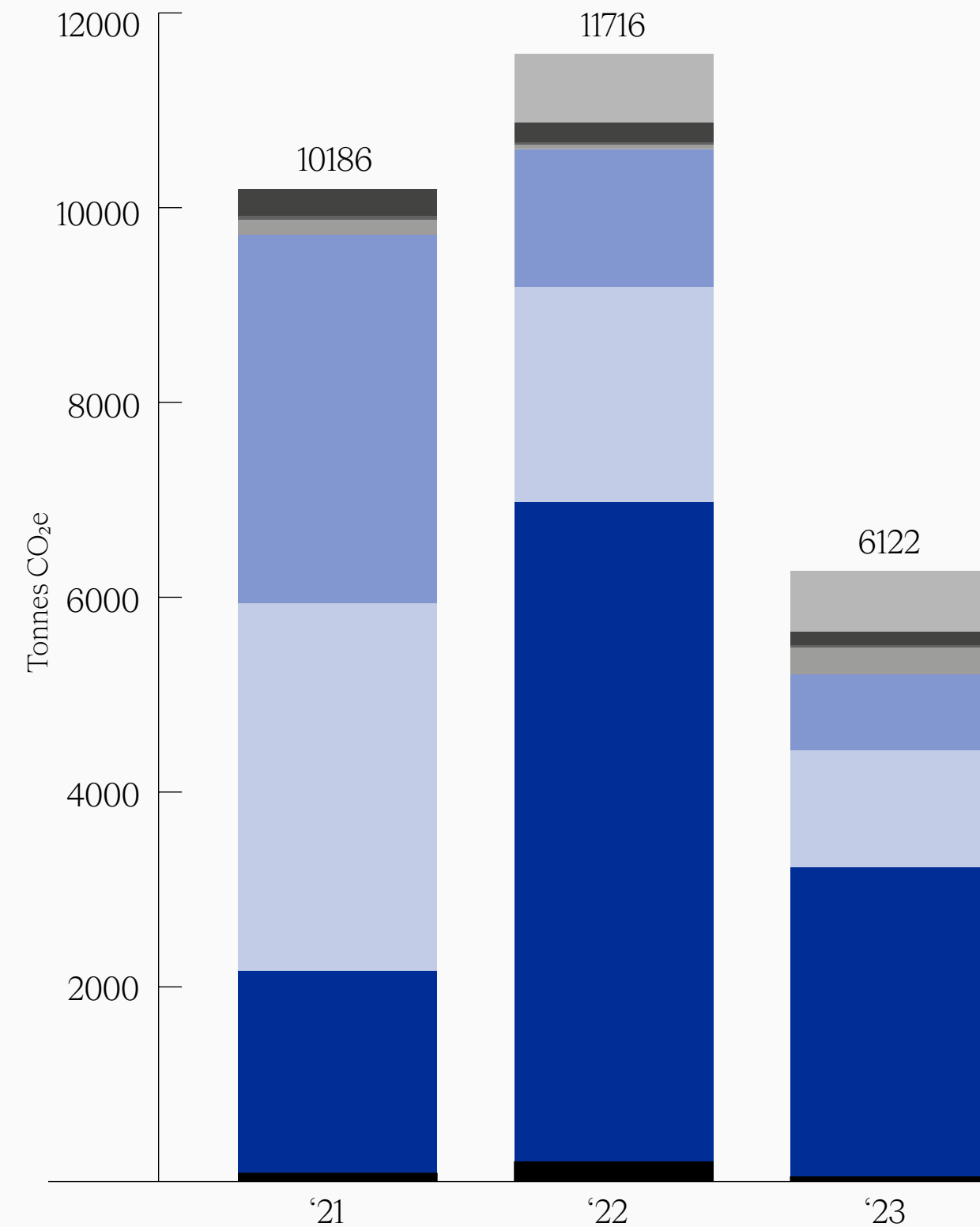
In 2023 we have reduced our carbon footprint by 40% from our 2021 baseline. This is significant progress, however the challenge will be to maintain this as our business grows.



In 2023, we focused on streamlining our business spend, and utilized a lot of material and product stock we had stored towards the end of 2022. As a result, we purchased less material in 2023, reducing our Purchased Products & Materials emissions, though we recognise this will not be the case each year.

The total amount of carbon emissions (tonnes CO<sub>2</sub>e) we generate as a business within different categories per year.

- Sold Products
- Retail
- Commuting
- Business Travel
- Waste
- Transportation & Distribution
- Purchased Products & Materials
- Business Spend
- Electricity & Heating

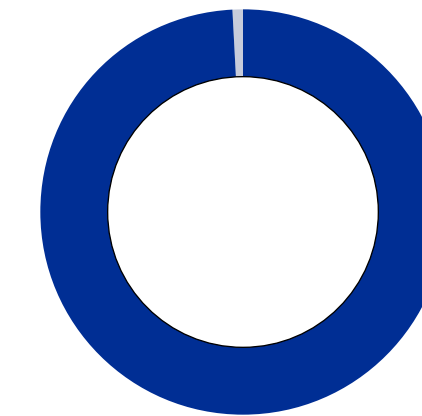


## Our Carbon Footprint

Our hotspots: Like most brands, Scope 3 makes up the majority of our total carbon footprint—99%. As we work to reduce our Scope 1 & 2 emissions to net zero, this becomes more exaggerated. Scope 3 is therefore where we have the potential to make the greatest impact.

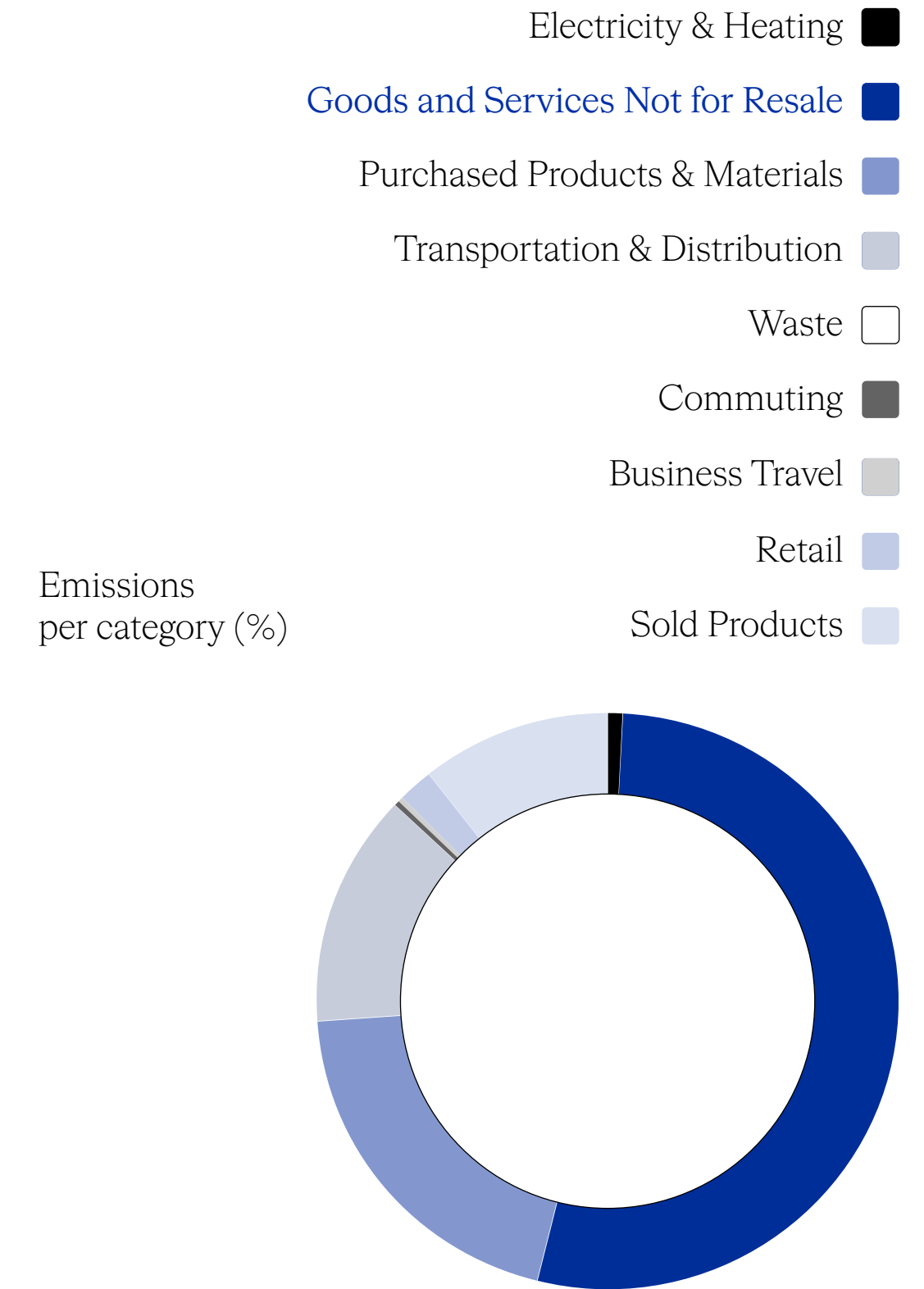
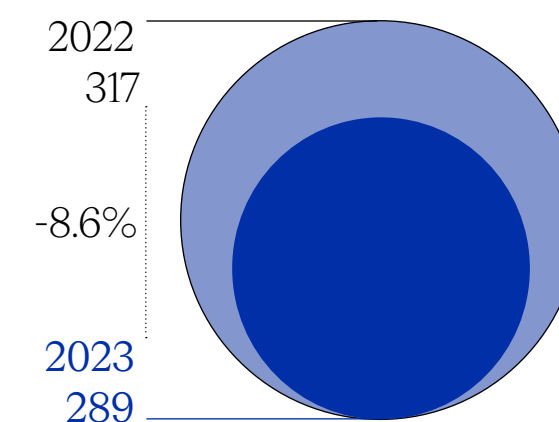
In 2023, Over 99% of our total carbon footprint came from Scope 3 emissions.

Proportion of carbon emissions that come from Scope 1 & 2 vs Scope 3



Our Emissions Intensity reduced by ~9% from 2022 to 2023.

Tonnes CO<sub>2</sub>e per \$million of revenue



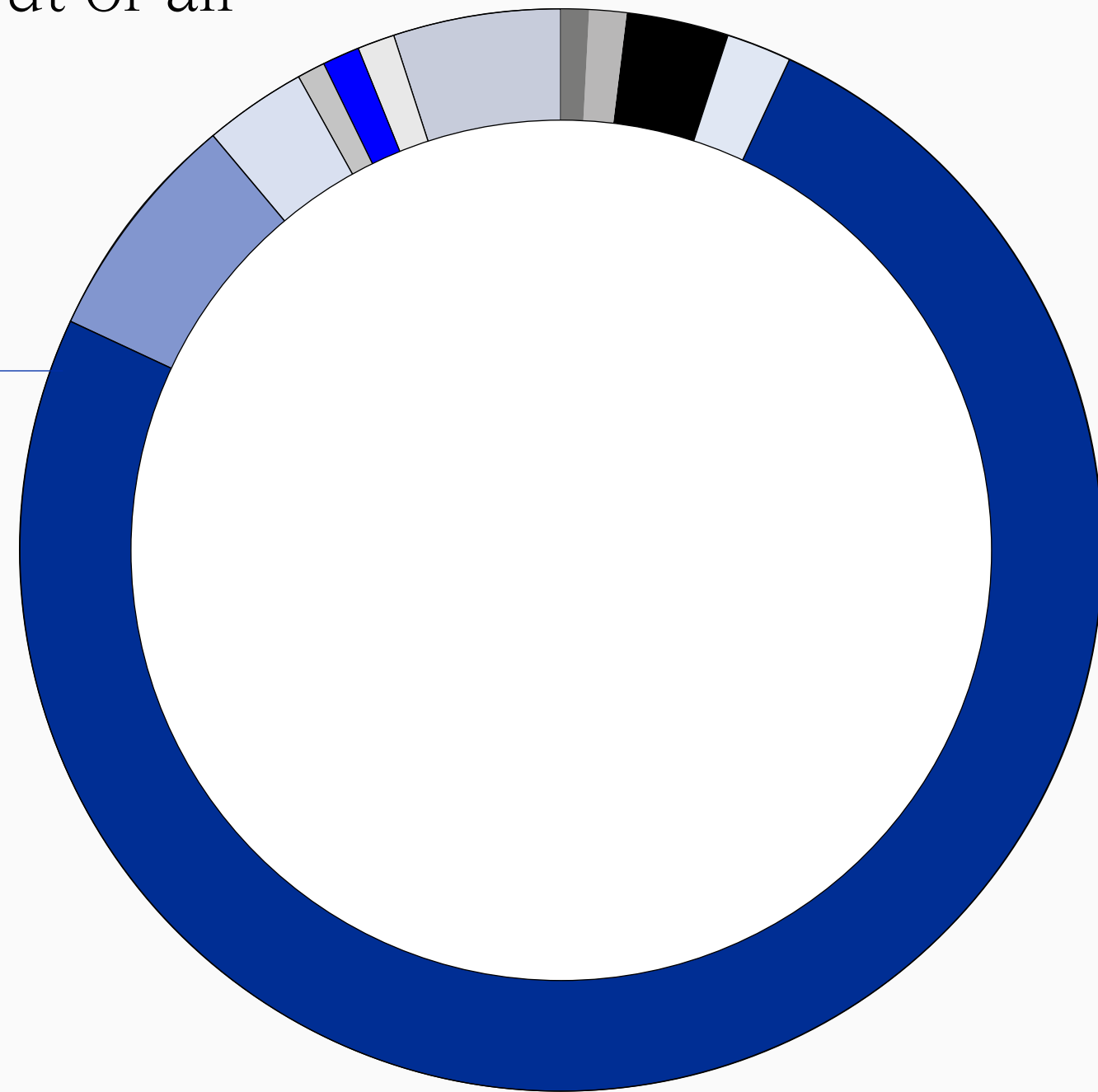
## Purchased Products & Materials

Using primary data from our extensive LCAs, in combination with industry-average material emission factors, we have calculated the emissions resulting from the materials we purchased in 2023.

Cotton contributes the highest percentage of emissions out of all our purchased materials.

% of emissions from purchased materials 2023 (Tonnes CO<sub>2</sub>e)

- Cotton Organic
- Cotton Recycled
- Nylon Biobased
- Cashmere & Wool Recycled
- Cotton Regenerative
- Cashmere & Wool Regenerative
- Misc FLWR Down



## Goods and Services Not for Resale

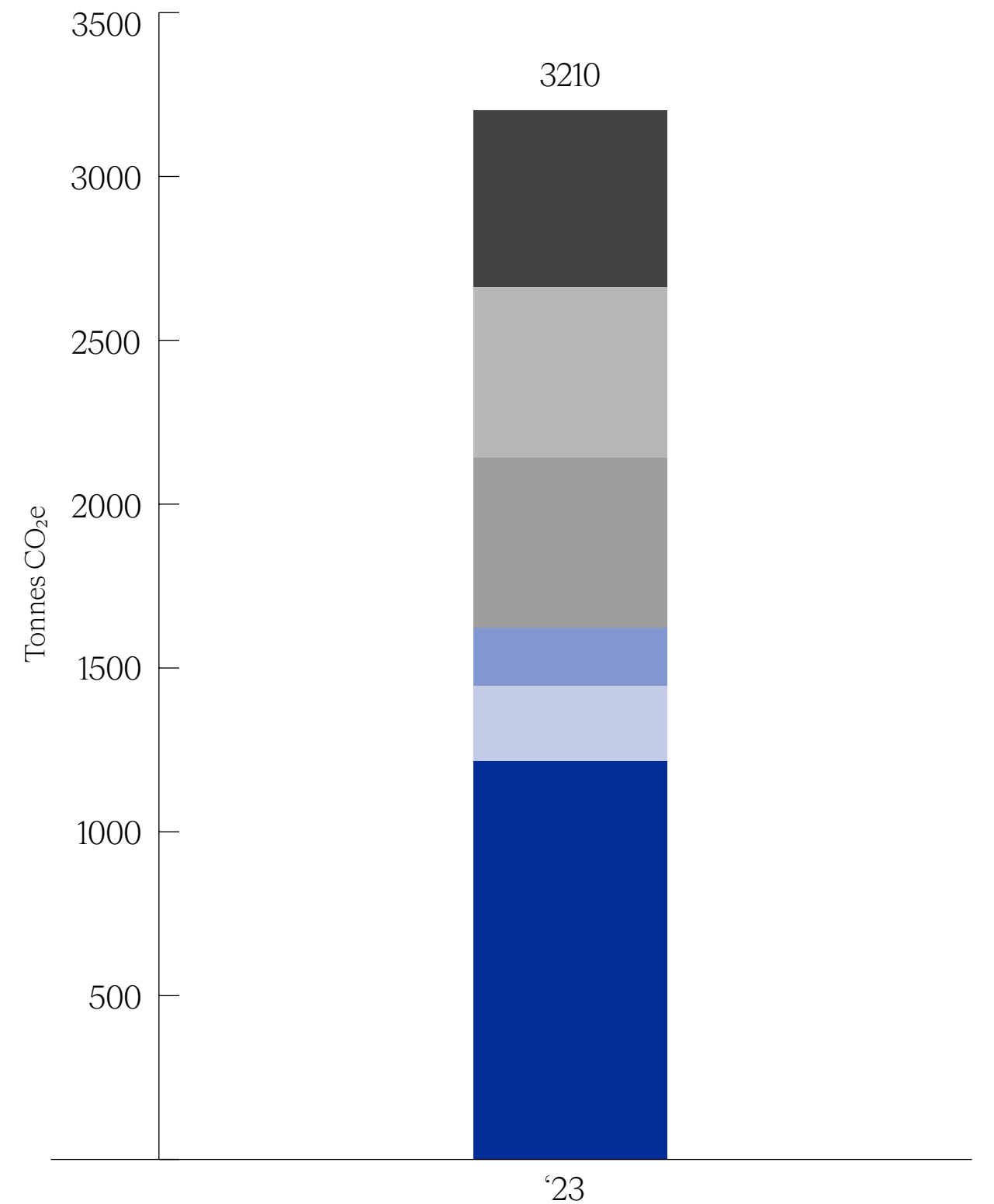
This category makes up 52% of our total carbon footprint and is therefore a real area of focus for 2024. Advertising, PR activities, and related services remain our biggest contributors to this category at 38% of the emissions.



Going forward, we are looking to move away from a spend-based approach for our most material categories. By collecting as much primary data in these areas as possible, we will be better positioned to capture real improvements and pinpoint hotspot areas.

Tonnes CO<sub>2</sub>e from Goods and Services Not for Resale.

- Other
- Warehouse & Storage
- Management Consulting Services
- Facilities & Support Services
- Apparel Manufacturing
- Advertising, Public Relations & Related Services



# Carbon Tax & Climate Transformation Fund

Setting a Carbon Tax is a competitive and pioneering incentive PANGAIA takes to deter from high emissions in our operations. It also gives us the opportunity to invest in some of the latest carbon capture solutions through Milkywire.



For 2023, we landed on a Carbon Tax of \$100 per ton for Scope 1 and 2—the European standard. The Climate Transformation Fund aligns with our belief that to solve the climate crisis, a range of solutions needs to be implemented. The fund supports projects across 3 pillars:

- I Nature protection and restoration
- II Decarbonisation
- III Carbon Dioxide Removal

The fund also supports both seed and scale projects—funding new technologies as well as established solutions such as reforestation and renewable energy. Over the course of 2023, PANGAIA contributed 20k USD—the projects we supported included Octavia Carbon, the Global South’s first Direct Air Capture company.

Octavia Carbon designs, builds and deploys Direct Air Capture (DAC) technologies. DACs refer to technologies that take CO<sub>2</sub> from the air and store it permanently underground. The Kenya-based company has a unique opportunity to promote the uptake of DACs by utilizing the country’s geothermal energy, geology, talent and lower cost of production to bring down the cost curve.

## CTF Progress Report 2023

20+  
Countries worldwide

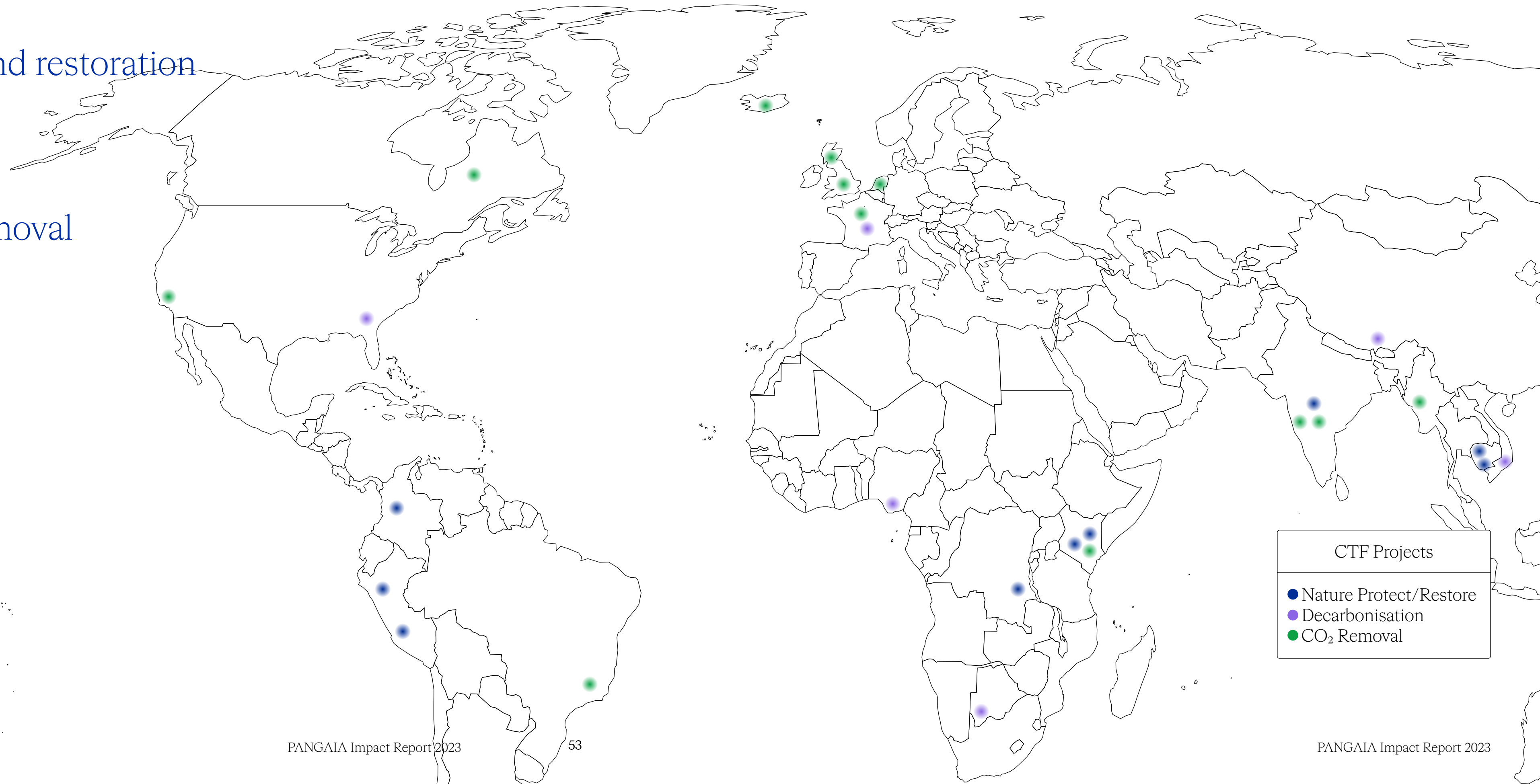
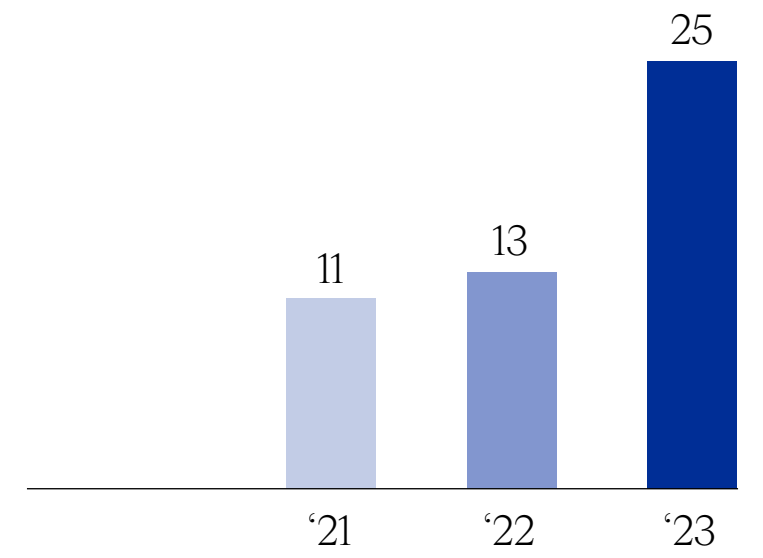
\$8<sub>M</sub>

Funds from partners going into projects in the CTF fund to date

30

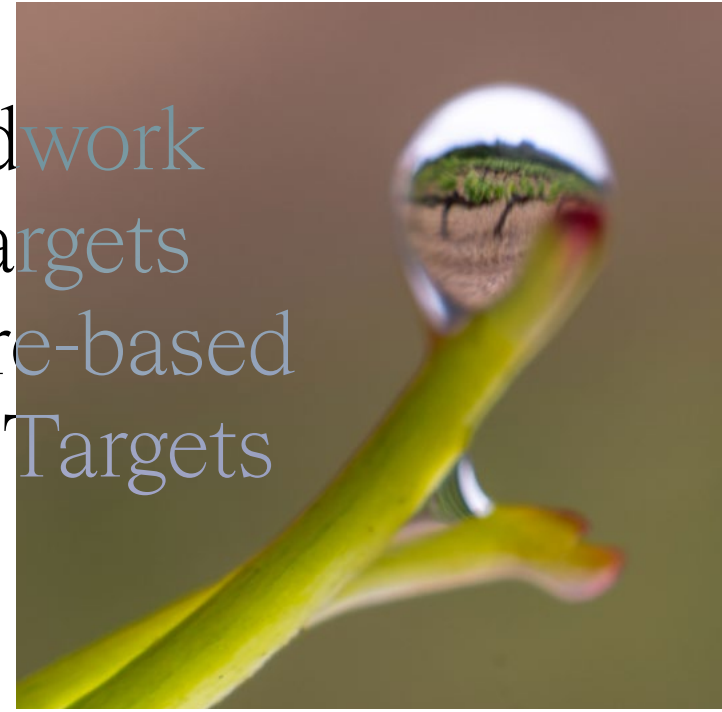
Project locations

No. of projects supported per year



# Our Intentions and Risk Assessment




In 2023, we have been laying the groundwork to be able to align with science-based targets for nature. The first step for setting nature-based targets, according to the Science Based Targets Network (SBTN), is assessment.

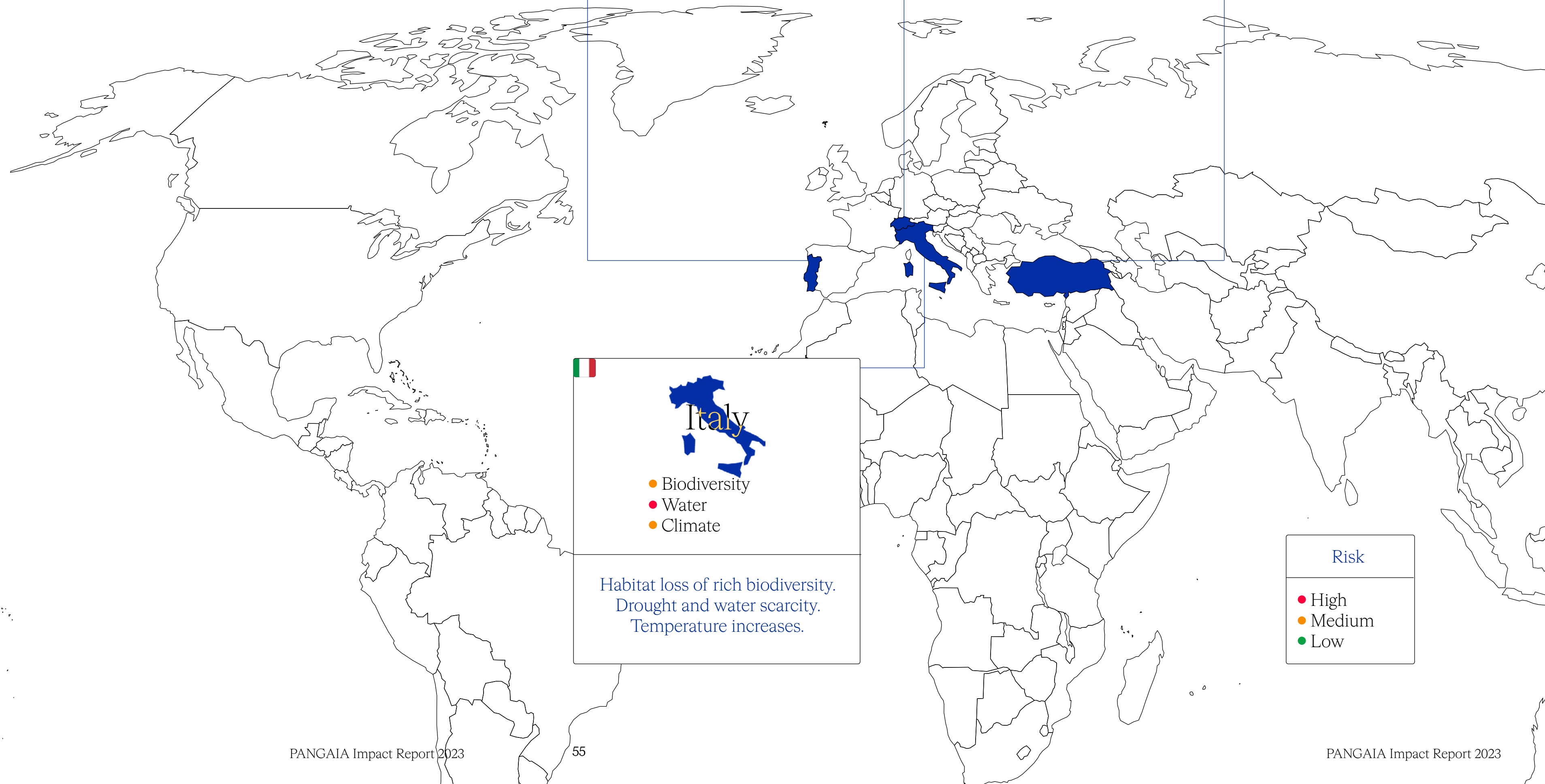


Every year we update our environmental and social risk assessments for the countries in which our supply chain operates.

This allows us to visualize the macro landscape and assist in guiding our strategy for intervention opportunities.

As well as the data and certifications we collect during our supplier visits, we also have the chance to talk to our suppliers in more depth about what environmental aspects or concerns are impacting them.

 <p><b>Portugal</b></p> <ul style="list-style-type: none"> <li>Biodiversity</li> <li>Water</li> <li>Climate</li> </ul>	 <p><b>Romania</b></p> <ul style="list-style-type: none"> <li>Biodiversity</li> <li>Water</li> <li>Climate</li> </ul>	 <p><b>Türkiye</b></p> <ul style="list-style-type: none"> <li>Biodiversity</li> <li>Water</li> <li>Climate</li> </ul>
<p>Deforestation and habitat loss. Drought and water scarcity. Climate vulnerability.</p>	<p>Deforestation and habitat loss. Drought and water scarcity. Climate vulnerability.</p>	<p>Lack of biodiversity protection. Water pollution and scarcity. Coal air pollution.</p>





# Our Commitment to the People in our Supply Chain

At PANGAIA we are deeply committed to human rights and the welfare of people in our supply chain. Enabling decent work, uplifting people and respecting essential rights is the cornerstone of our programmes of work.

# Acting as an ethical business in our supply chain:

## I. Governance

As a business, we are determined to root out and mitigate any inhumane practices or negative impacts in our supply chain. In 2023, we developed new standards including our [Responsible Business Conduct](#), [Purchasing Practices Framework](#), [Responsible Exit Process](#) and [Migrant Worker Policy](#). To find out more about our policies and Code of Conduct—[explore our webpage](#).

### Fair Wear

In 2023, we formally joined Fair Wear and are aligned with their mission to improve the garment industry and support workers in realizing rights to safe, dignified, fairly paid employment.

We learn from their expertise, share best practices from other members, use their tools and are held accountable for improving labor conditions where PANGAIA products are made.



## II. Supply Chain Visibility & Mapping

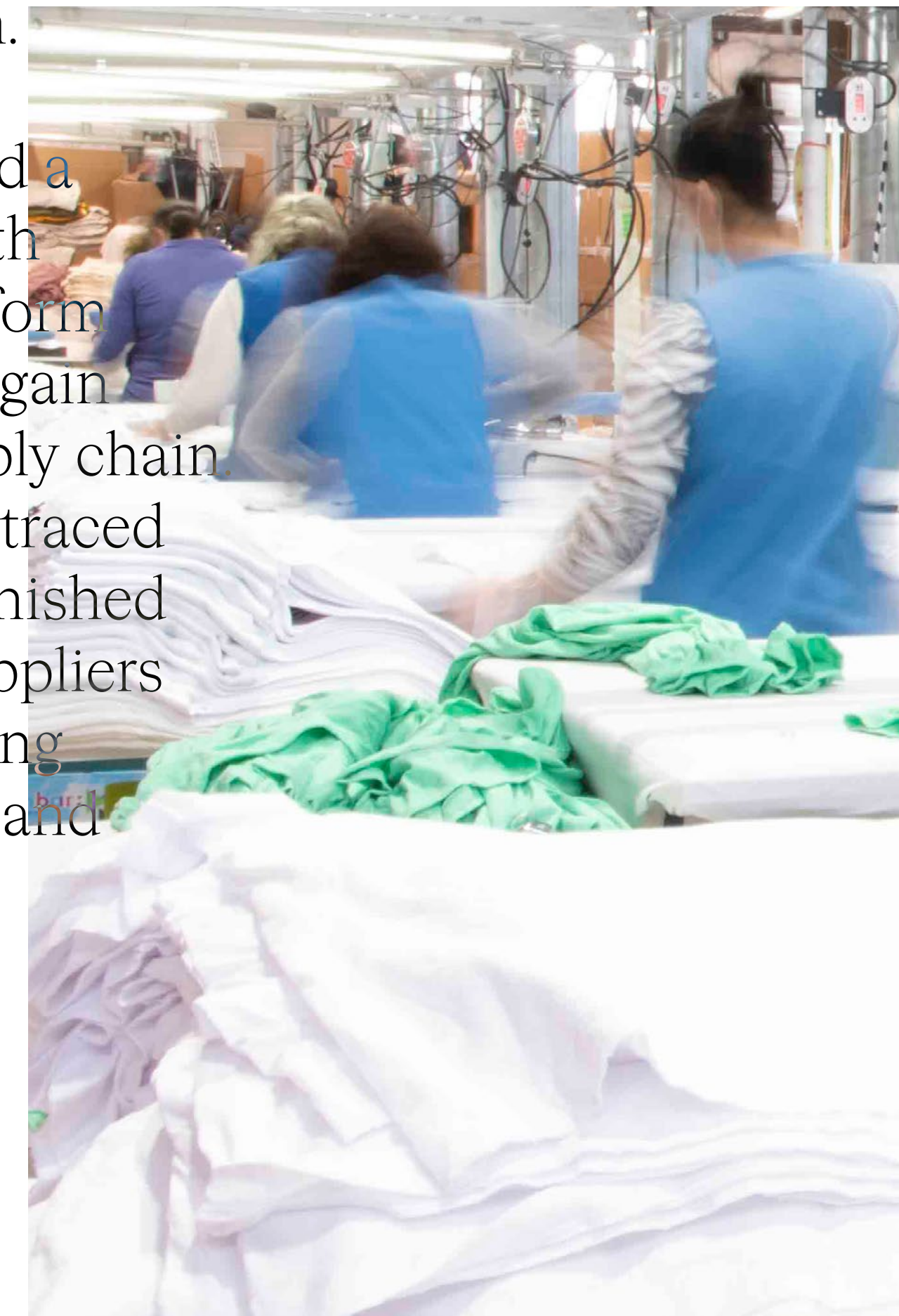
In 2023, we have continued to honor our commitment to the [Transparency Pledge](#) and have taken steps to continuously improve the visibility of our supply chain. We recognize that without visibility of where our products are made, we cannot achieve a responsible production model or be honest with our customers about our impact.

### Retraced: Our new traceability platform.

In 2023, we launched a new partnership with the traceability platform Retraced to help us gain visibility of our supply chain. We launched the Retraced platform with our finished goods and fabric suppliers and rolled out training sessions to support and onboard suppliers.

Suppliers onboarded to the Retraced platform include: Tier 1 finished goods manufacturers & Cut-Make-Trim (CMT) subcontractors, Tier 2 process subcontractors, Tier 3 fabric mills, yarn mills & subcontractors (e.g. fabric dyeing mills).

Suppliers can use their Retraced profile to upload third-party social audits, certifications and complete assessments for data collection.




### III. Supply Chain Partnerships

Partnering with suppliers who share our Earth Positive values is vital to us so that we can progress towards our socially conscious ambitions.

We have a diligent onboarding process to ensure that we continue to partner with suppliers who share our values and align with our commitment to continuous improvement.



 Portugal
8 Manufacturing Factories (Tier 1)
5 CMT Subcontractors (Tier 1)
6 Process Subcontractors (Tier 2)
1,956 Workers

 Romania
2 Manufacturing Factories (Tier 1)
557 Workers

 Türkiye
1 Manufacturing Factory (Tier 1)
68 Workers



# 11

Manufacturing Factories Tier 1

# 5

CMT Subcontractors Tier 1

# 6

Process Subcontractors Tier 2

# 3

Sourcing Countries

# 2,581

Total Workers Tier 1 - Tier 2

# 24%

Men in Manufacturing Factories



# 93%

Of our finished goods sourced from Portugal

# 76%

Women in Manufacturing Factories

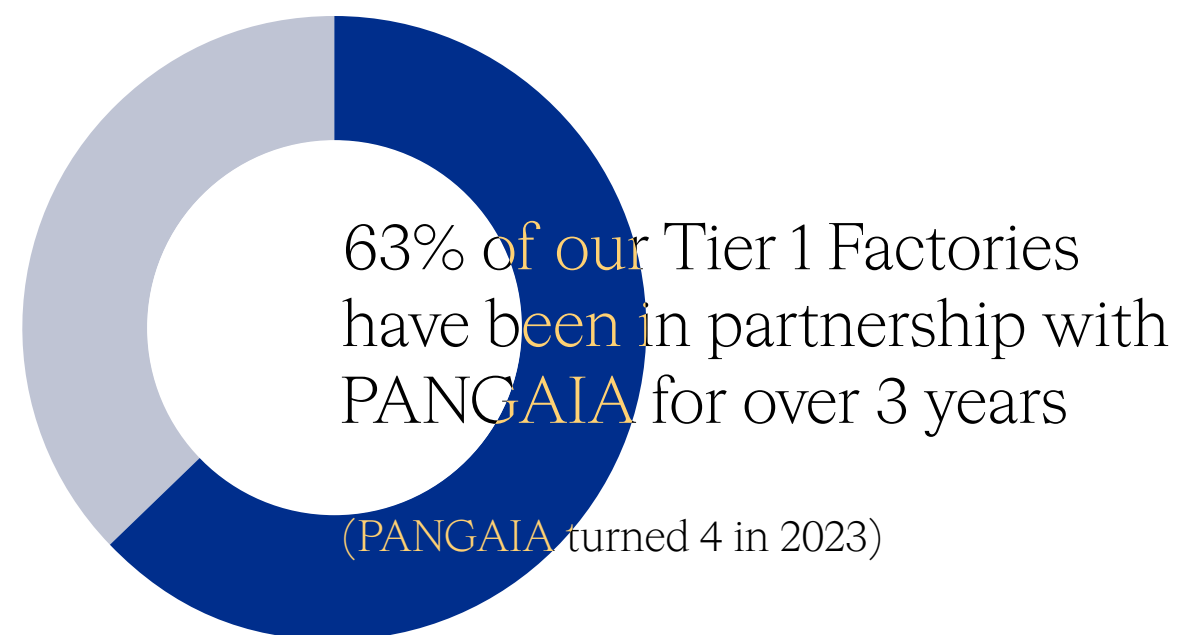
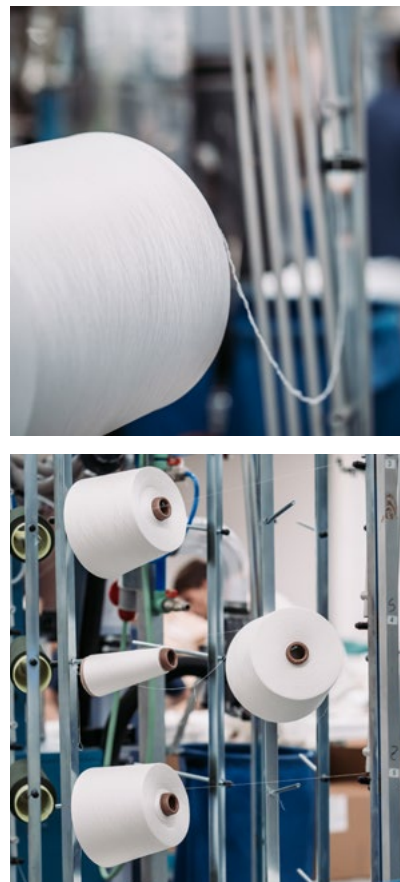
## Learning & Implementation Community

Over the past year, we have been an active member of the Learning and Implementation Community, which is organized by the MSI Working Group of the Common Framework for Responsible Purchasing Practices. In 2024, we will continue our engagement with the Responsible Purchasing Practices working group to test and roll out its recommendations for industry best practices—including launching an anonymous supplier feedback survey.

### IV. Due Diligence

In 2023, we continued our programme of monitoring and managing our supply chain to promote better working conditions and welfare. To help us prevent negative impacts on people, we assess the human rights risks by territory (country and region), supplier, and product and/or material type. Regular supplier visits and an ongoing dialogue bolster our monitoring, along with third-party social audits which we use to verify conditions in the top tiers of our supply chain. It is our goal to have 100% third-party audit coverage of suppliers (where appropriate) in our supply chain—however, at this time, we focus on our Tier 1 suppliers who directly handle the manufacturing of our finished goods.

In 2023, we kicked off an exciting new project with our partner Nest to create a more robust due diligence approach to non-traditional supply chains and align on how to navigate the informal employment that exists outside traditional factory walls. Nest is a non-profit supporting the responsible growth and creative engagement of the maker economy to build a world of greater equity and economic inclusion.



## Positively Impacting Lives in our Supply Chain:

### I. Wages & Livelihood

Legal minimum wages are paid in all the production locations where PANGAIA is made and we are happy to share that the minimum wages have been rising to reflect the increasing cost of living— however, we know that the legal wage is not always reflective of a living wage. Instead of chasing the lowest price around the world, we negotiate fair and equitable prices to promote living wages.

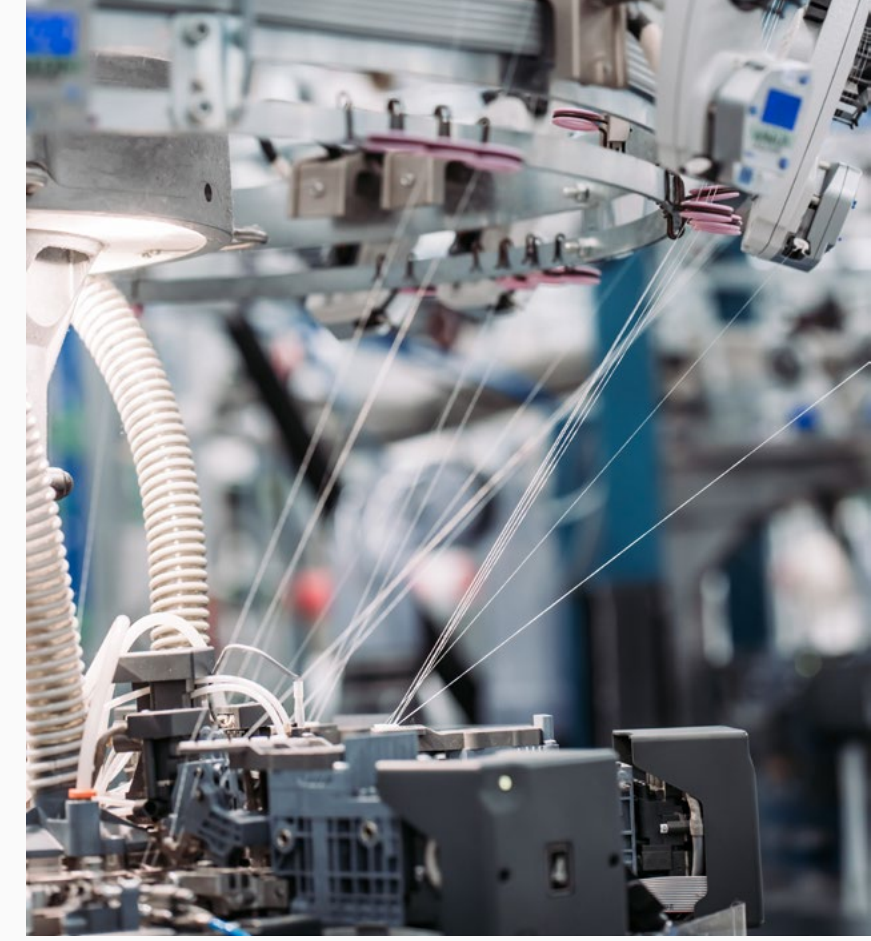
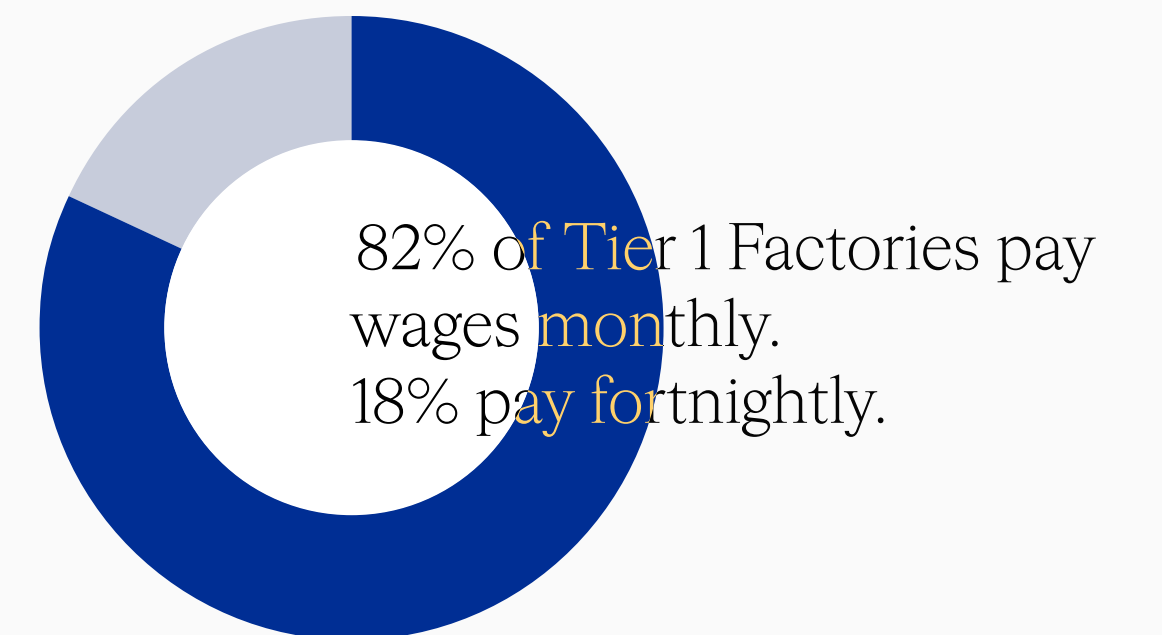
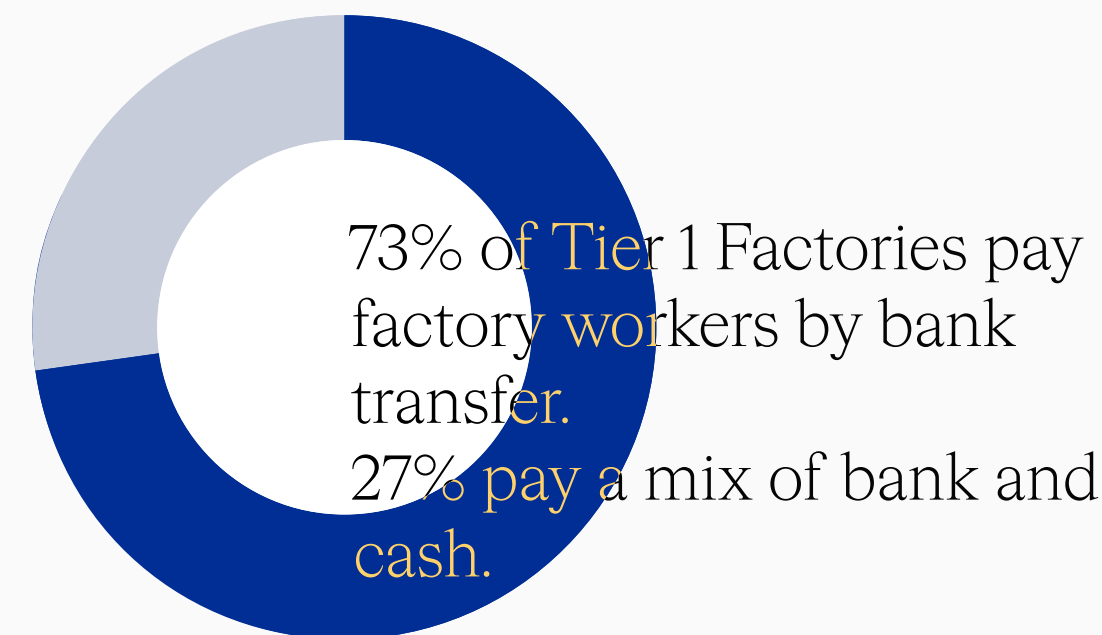
Since 2022, we have worked with WageIndicator to procure local Living Wage data. This provides us with accurate information to benchmark the gaps between what is paid to the workers producing PANGAIA and the wage needed for a decent standard of living. 100% of our factories pay the legal minimum wage or the wages according to a Collective Bargaining Agreement.

### Living Wages in Portugal:

In Portugal, where most of our products are produced, the legal minimum wage in 2023 was 760€ per month, compared to the individual living wage which is 19% higher in the regions where our factories are based. For a typical family, this difference increases to 34%.<sup>9</sup>

All our Portuguese suppliers have an active Collective Bargaining Agreement in place which includes wages. Additionally, all our main suppliers provide additional benefits that help with the cost of living—for example, free transport, free meals, low cost medical care or a yearly bonus.

In the coming two years, we aim to co-create action plans with our main suppliers to monitor wages more closely and make progress towards closing the gap.





## Fair Trade Pilot

In 2023, we started exploring the Fair Trade US factory program. Each factory is assessed by Fair Trade standards and each brand that partakes must commit to supporting workers beyond product payments through the Fair Trade Premium. In 2024, PANGAIA will launch a pilot Fair Trade factory project which we hope to report on in the near future.



## II. Voice and Dialogue

Giving workers a voice is integral to empowering employees so that they feel comfortable and confident to raise concerns without the fear of suffering any prejudice or retaliation of any kind. Collective Bargaining Agreements and Freedom of Association are essential to the improvement of other labor rights.

The Fair Wear Hotline is a complaints mechanism on top of existing internal grievance mechanisms such as complaint boxes, worker representatives and worker committees. This gives workers an avenue to express their complaints if internal systems fail. It is posted in all our factories in a prominent place for workers to see and has the support of all our factories' management.

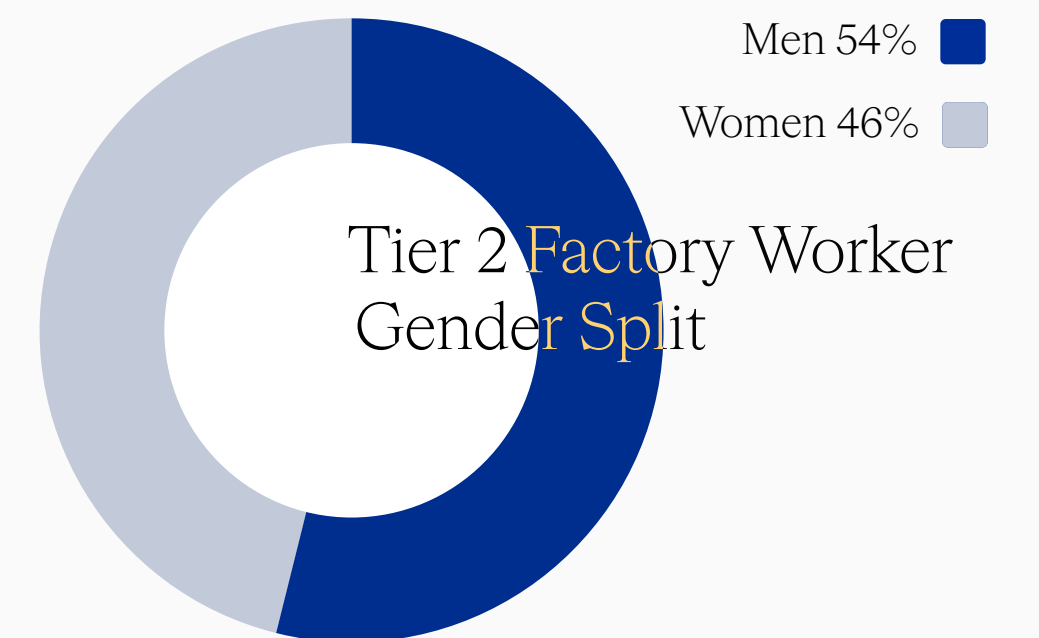
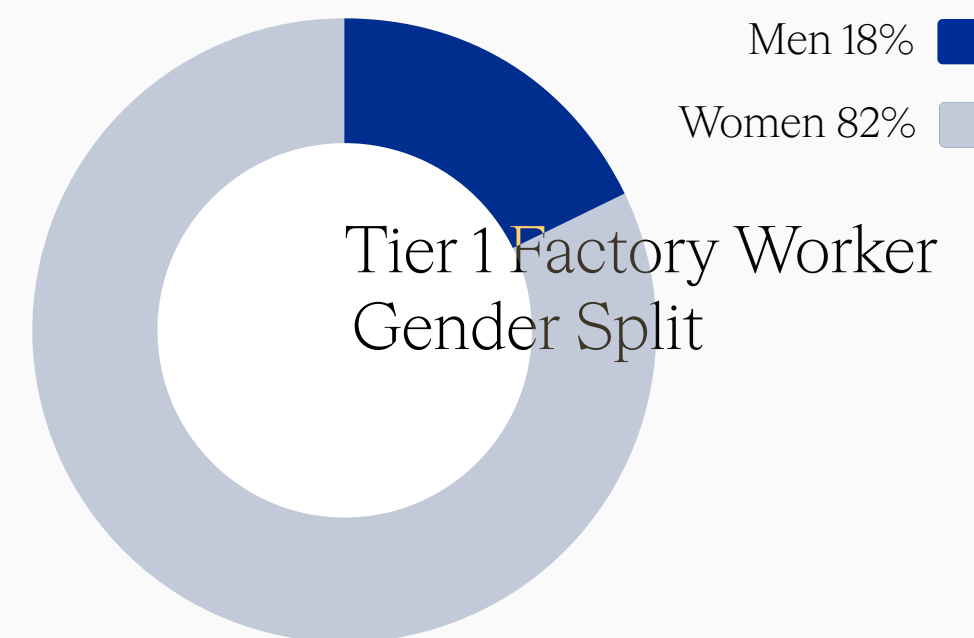
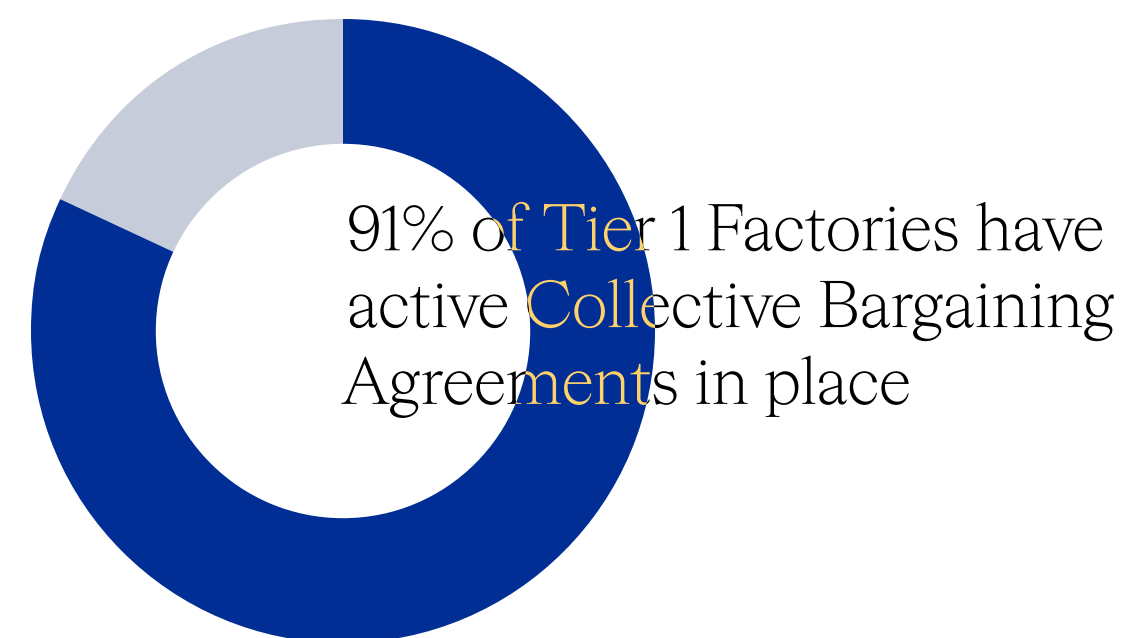
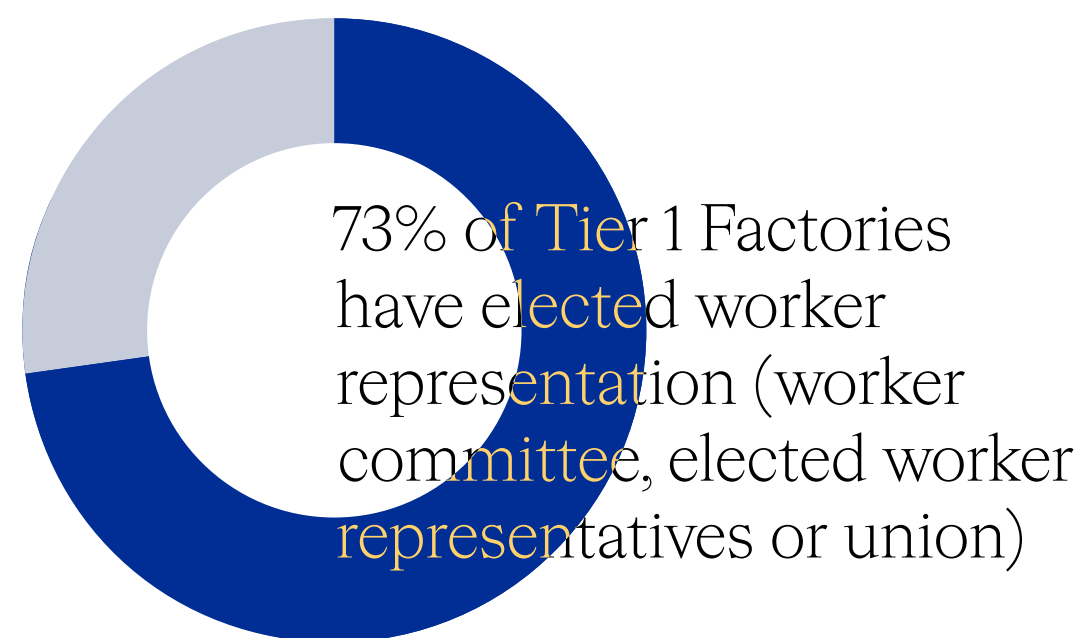
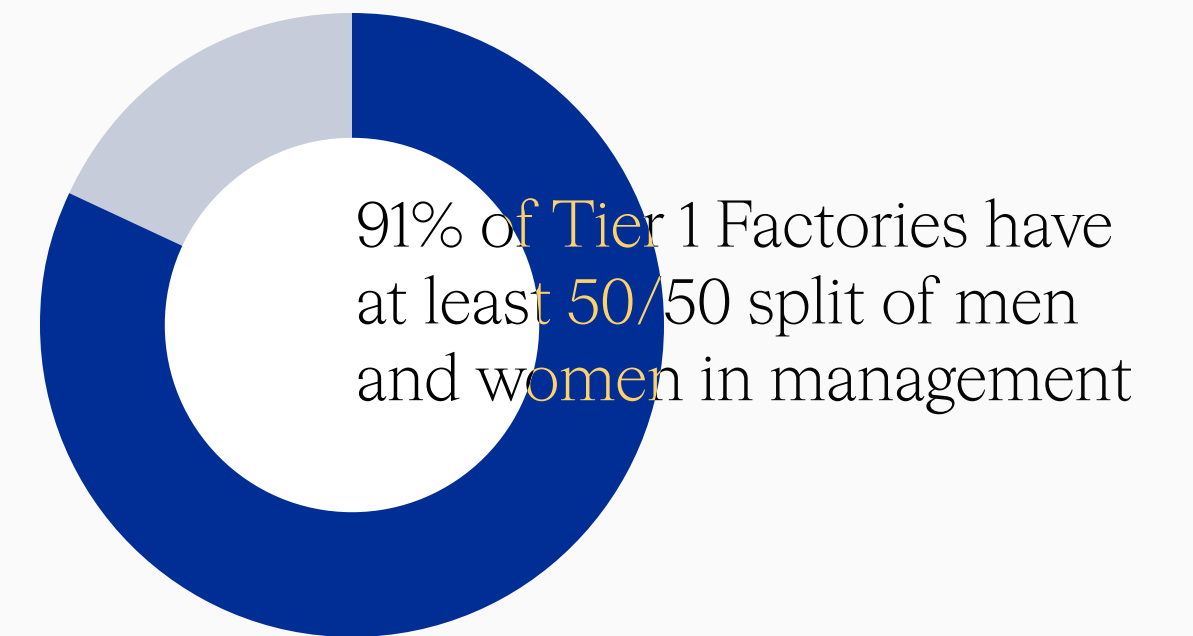
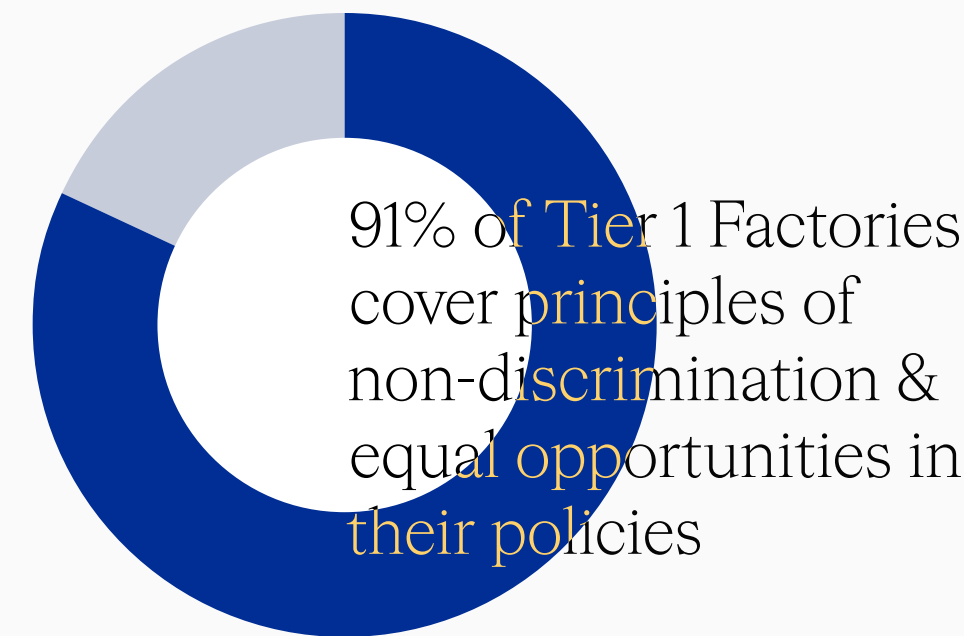
## Fair Wear Worker Hotline

To make sure that labor standards are met in our factories, a complaint mechanism has been put into place as a safety net with our partner Fair Wear.

## III. Equity and Empowerment

We recognize that achieving equity for all marginalized groups in the garment industry is of critical importance. We conducted a review of country-level risk assessments to incorporate a more in-depth gender analysis and collected gender-disaggregated data at factory level in order to foster a better understanding of gendered implications at our production locations.

In 2023, we continued to be committed to the Women's Empowerment Principles agenda—to advance gender equity and women's empowerment in the workplace, marketplace and community. We conducted the Women's Empowerment Principles self-assessment tool and developed a business-wide improvement action plan.



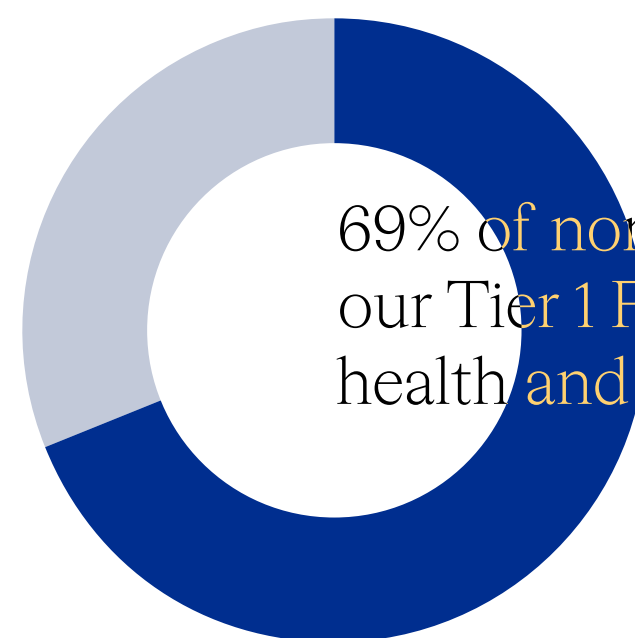
#### IV. Health & Well-being

Enabling better health and safety is an ongoing journey to improvement, and it is our most frequently cited non-compliance found in audits and on supplier visits. It is also often the most quickly remediated non-compliance and an area where we see some good practices of enhanced benefits to workers.

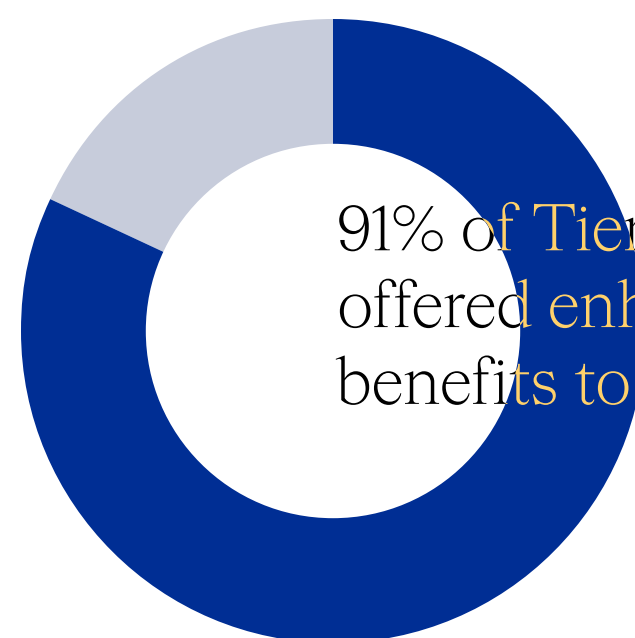
In 2023, we continued to analyze risks to worker well-being and safety at country-level and monitor any health and safety issues at factory-level.

We created a new guide for our suppliers to advise them on the best practices and also a checklist for better management, practices and behaviors on health, safety and well-being.

During our visits to approved subcontractors, we focused our assessment and feedback on improving health and safety practices.



69% of non-compliances in our Tier 1 Factories related to health and safety

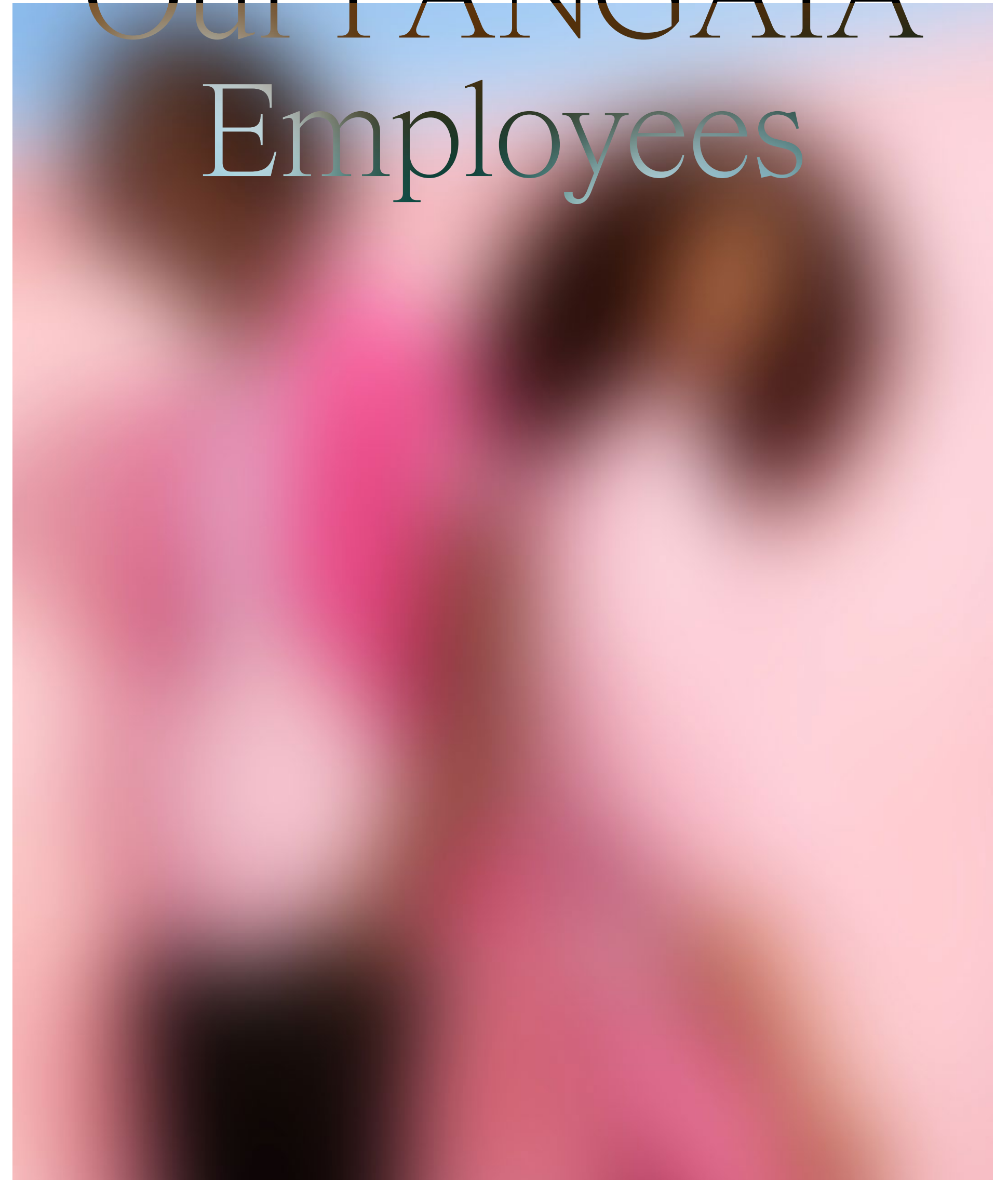


91% of Tier 1 Factories offered enhanced well-being benefits to workers





# Our PANGAIA Employees



At PANGAIA, we are a global collective of individuals bound by a common desire to use business as a force for good.

# The Team

PANGAIA is headquartered in London, with colleagues in Italy, France, the USA and Switzerland.

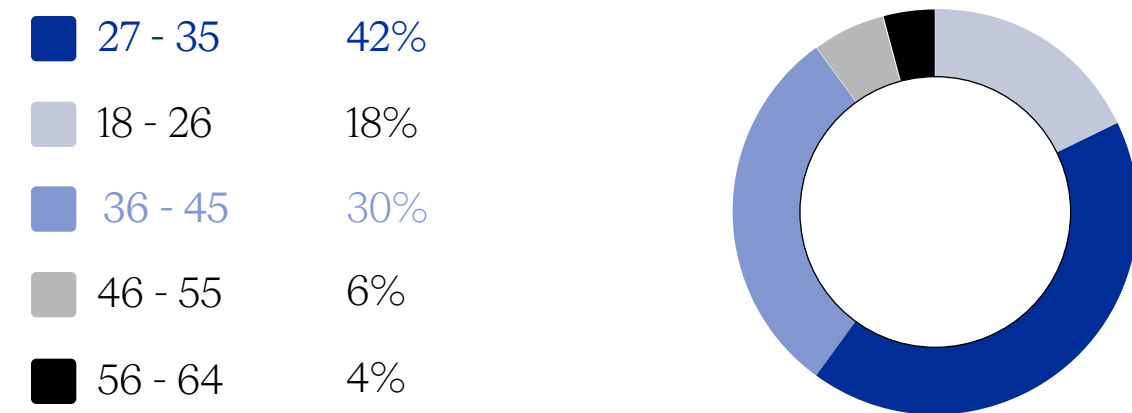


We are continuously reflecting on our practices and ways to welcome a more diverse team, build a more inclusive culture and improve the employee experience. We appreciate that we can do better and look forward to sharing our updates with you.

We aim to have a positive impact and enhance livelihoods so that everyone can thrive to their fullest potential. Upholding our commitment to supporting Justice, Equity, Diversity and Inclusion (JEDI) is at the centre of empowering our Global Collective.

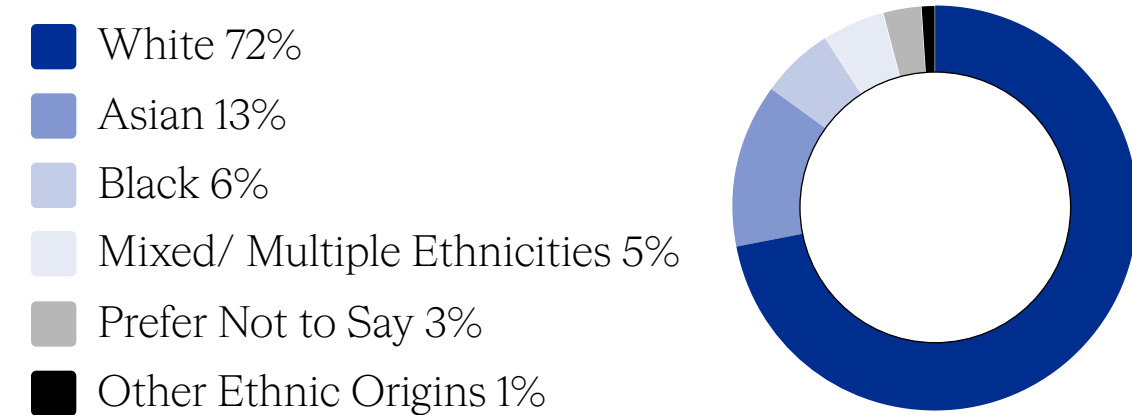
## Age

27-35 & 36-45 make up the majority of employees.



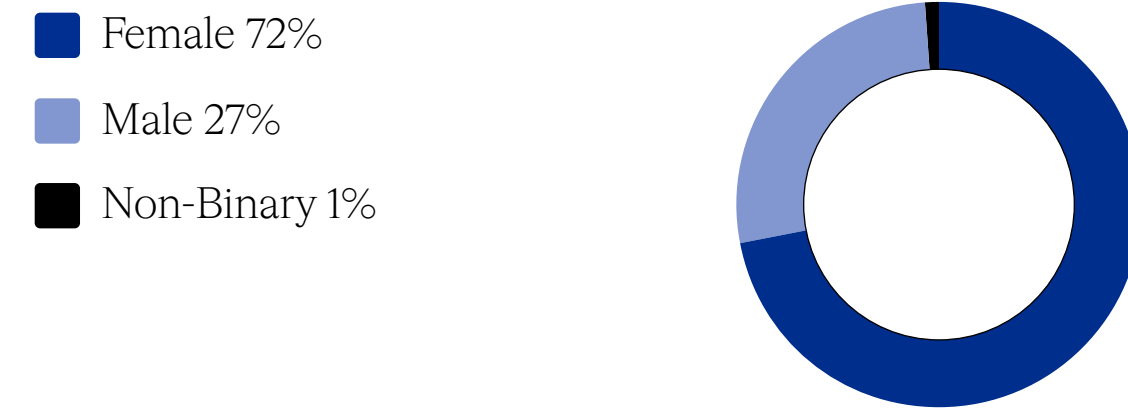
## Ethnicity

Although our overall ethnic diversity has fallen since 2022, the diversity of our managers has increased to 26% and of our leadership team to 25% (+4% and +1% compared to 2022 respectively).



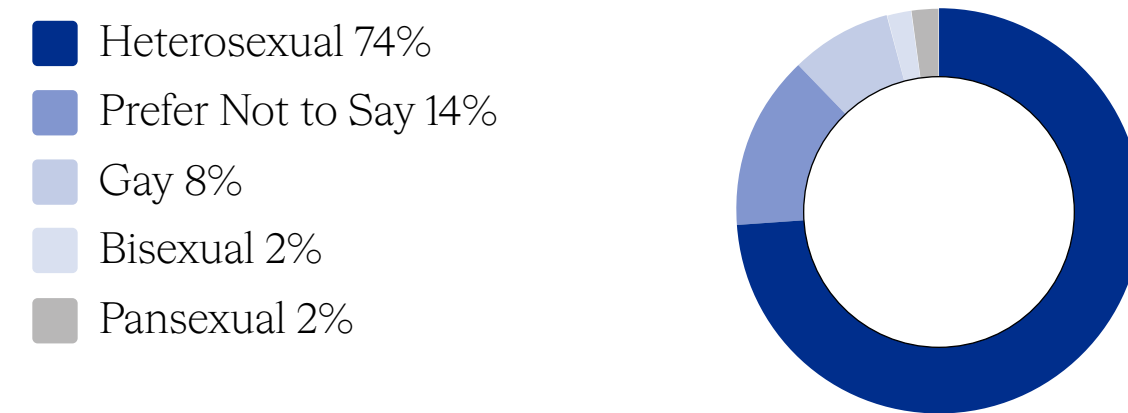
## Gender Identity

64% of managers identify as female. 47% of our leadership team (Directors and C-Suite) identify as female.



## Sexual Orientation

13% of our managers identify as part of the LGBTQ+ community.



## Religion & Beliefs

37% of our team observe and celebrate a religion or belief—including Buddhism, Christianity, Humanist, Islam and Judaism.



## Fair Pay & Treatment

In 2023 we:

Continued our fair pay commitment by implementing the new Living Wage in the UK announced in October 2023 - this will be fully implemented by February 2024.

Continued annual salary review processes including benchmarking.

In April 2023, we identified the need to reorganize the business in order to increase efficiency and meet strategic needs.

To ensure fair decision making about matters that impacted our teams and fair treatment, we embarked on a collective consultation which resulted in some redundancies that we were unable to mitigate.

All employees were paid their statutory entitlements and were offered additional redundancy pay, extended medical benefits and the opportunity to keep IT equipment in order to aid job searches.



We conducted an assessment of how our business supports the UN Women's Empowerment Principles and created a roadmap of improvements, including conducting a gender pay review.

## Amplifying Voices

In 2023, we:

Held an employee feedback survey that gave us a sense of what we do well;

- Equal treatment of team members from all backgrounds.
- Our team is aligned with our purpose and culture.
- Strong talent within our 'middle' management.

It also allowed us to focus on what we could improve on;

- Internal communication, especially around strategy.
- Benefits and perks we offer our team members.

Following the feedback from our teams through the survey we implemented the following;

- Introduced a travel ticket loan and the opportunity to buy and sell holidays to better meet the needs of our teams.
- Bi-monthly 'listening' sessions during which employees meet with Executive team to discuss important topics such as feedback on our strategies and culture.
- Our Executive team underwent a 360 performance review, focusing on core behaviors related to the following themes: 'Impact', 'Innovation', 'Ownership' and 'People Leadership'.

## Learning & Development

In 2023 we:

Launched a new framework for performance reviews enabling our managers to give goal and behavior focused feedback.

Completed over 300 hours of training as a team—over 60% of this was for our managers and 46% was attended by female managers.

Continued our commitment to creating an inclusive culture by offering training on 'understanding bias', listening skills and a neurodivergence-focused workshop.

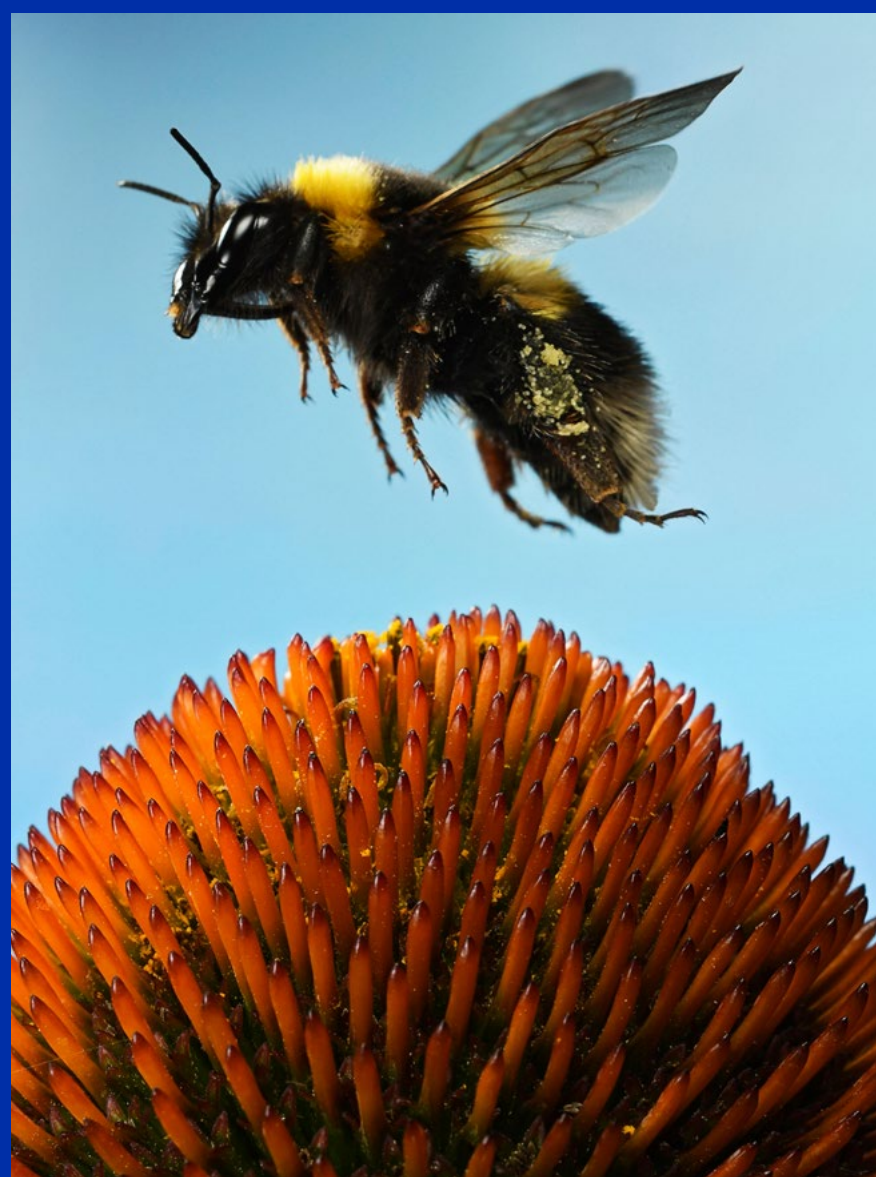
Offered development workshops on facilitation skills and learning from failing.

Committed to the Women's Empowerment Principles and offered the opportunity for team members to attend 'assertiveness' training aimed at encouraging underrepresented voices to feel confident in speaking up.

Our team had the opportunity to volunteer at 3 different events throughout the year—two opportunities in partnership with Choose Love and an opportunity to give back to our community in London by litter picking along the canals. This equaled over 530 volunteering hours.



We launched our 2023 employee survey to benchmark our employee engagement.



# Our Commitment to Giving Back to Communities & Nature

At PANGAIA we want to give back more than we take. Our giving-back initiatives focus on forest protection & restoration, fostering biodiversity, oceans & water health, humanitarian relief and supporting equity.

## Tomorrow Tree Fund

The Tomorrow Tree Fund<sup>10</sup>, powered by Milkywire, supports a holistic approach to the conservation and restoration of forests. In an approach that goes beyond tree planting—the fund supports organizations that focus on the following three priorities.

- Supporting indigenous stewardship of forests.
- Leveraging advocacy to combat deforestation and uphold indigenous and local communities' rights.
- Empowering community-led forest protection and conservation.

### 2023 Highlights

Amazon Frontlines launched an innovative Land Defense School uniting Indigenous land patrols from the Upper Amazon, with the goal of creating territorial defense strategies to protect 1 million hectares of rainforest.

Acción Andina was awarded the Earthshot Prize in the “Protect and Restore Nature” category for their commendable endeavors in reforesting the Andes. To win the Earthshot Prize is a great receipt of the organization’s work and accomplishments.

In October 2023, Arbio Peru received the acknowledgement of OSINFOR, forestry authority of the government, for their outstanding management in the rainforest and their abiding of the forestry laws.

With support from TTF, Miti Alliance has constructed a tree center where reforestation and education activities are carried out—providing insights into techniques, benefits and challenges in tree planting while at the same time restoring a degraded landscape previously covered with lush forests.



## Bee The Change Fund

The Bee the Change Fund<sup>11</sup>, powered by Milkywire, supports 4 grassroots organizations around the world: Buglife (United Kingdom), Bumblebee Conservation Trust (United Kingdom), Milgis Trust (Kenya), and Nordens Ark (Sweden).

### 2023 Highlights

Buglife trained 412 people in pollinator and botanical identification and surveying, delivered 52 land management training sessions and supported six farmer clusters to coordinate their delivery for pollinators in B-Lines.

2 rare bumblebee species have returned to Bumblebee Conservation Trust project sites after four years of restoration.

In 2023, PANGAIA decided to expand the scope and impact of Bee The Change fund by turning the initiative into a global citizen campaign.

By onboarding other courageous businesses and organizations, we formed a non-profit, science-led coalition with the mission to secure a world where pollinators thrive to sustain healthy ecosystems and well-being of people and nature.

The movement seeks to engage civil society to spark awareness, to turn concern into action, to inspire hope for change, and raise funds for nature.

PANGAIA and a significant group of partners used the momentum of COP28 to present the upcoming initiative. We engaged over 2,000 delegates and visitors in co-creating art installation SWARM, presented by artist Leonie Bradley. SWARM is a metaphor for people coming together to create a positive change.



# Ocean Fund with Coral Gardeners

A global collection of activists, scientists, gardeners and engineers—Coral Gardeners use innovation and creativity in service to coral reefs. In 2023 we launched a partnership with Coral Gardeners and launched a capsule collection that paid homage to one of the planet’s most valuable ecosystems.

Created in collaboration with the organization—we took two of our iconic styles and dedicated them to a cause that unites us all.

In 2023, Coral Gardeners progressed towards their goal to plant one million corals around the world, achieving the following key milestones supported by PANGAIA and other partners<sup>2</sup>:



100<sub>K</sub>

corals planted since 2017

26<sub>K</sub>

corals in nurseries

445<sub>M</sub>

people reached globally since 2017

455<sub>M</sub>

people reached globally since 2017



# Humanitarian Fund with Choose Love

In 2023, we continued to support Choose Love—a global aid organization supporting refugees and displaced people all over the world.

2023 Spotlight — Earthquake in Türkiye and Syria.

Following the devastating news of the earthquake in Türkiye and Syria, we felt compelled to support Choose Love’s aim to raise awareness of the situation and funds to help. Choose Love used funds from our donation to work with partners on the ground to provide medical aid, offer essential humanitarian assistance, distribute tents, blankets, and meals—as well as offer shelter and safe spaces.

In April 2023, we held a pop-up sample sale fundraiser in London from March 9<sup>th</sup> to 12<sup>th</sup> with 100% of net proceeds made on discounted PANGAIA items going towards Choose Love.

In total, throughout 2023 over \$55,000 was raised to support the appeal.

2023 Spotlight — Earthquake in Morocco.

Following the 6.8 magnitude earthquake that struck Morocco on September 8<sup>th</sup> impacting over 300,000 people, we supported Choose Love who responded to the immediate needs on the ground with local organizations.

These included rescue efforts, providing food and clean water, caring for children who lost their parents, creating safe places for people to sleep and much more.

Choose Love also featured in our campaign powered by POGO—during which customers could receive a promotional code after donating to one of our charity partners.

In 2023, over \$14,000 of funds were raised through staff sample sales and the POGO campaign to support the appeal.





## Product donations with Smart Works and In Kind Direct

During 2023, as part of a warehouse reorganization project, PANGAIA was able to donate products to two UK-based charities—In Kind Direct and Smart Works, to support local communities based in the UK.

Smart Works:

Smart Works is a UK charity that dresses and coaches unemployed women for success at their job interview. In 2023, we donated over 550 products to Smart Works, including clothing and footwear products for women. In October 2023, we raised over \$10,000 through our London office sample sale fundraiser.

In Kind Direct:

In Kind Direct is a UK charity who believes everyone deserves access to life's essentials and that no usable product should go to waste. They receive donated consumer products, which they sort, store and distribute directly to their network of over 6,000 charitable organizations across the UK. In 2023, we donated over 3,200 products to In Kind Direct, including clothing, notebooks and water bottles.



## Closing Remarks

We are proud of the progress we made in 2023 and look forward to continuing this journey towards a Earth Positive future.

Our achievements are a testament to the dedication and collaboration of our team, partners and stakeholders.

As we look ahead, we remain unwavering in our commitment to innovate and lead by example, ensuring that our actions today pave the way for a positive future where we contribute to the prosperity of both present and future generations, in harmony with people and the planet.

Thank you for your ongoing support and commitment to our shared vision.



## Endnotes

1 Richardson et al. (2023); Earth beyond six of nine planetary boundaries. Available at: <https://www.science.org/doi/10.1126/sciadv.adh2458>

2 Centre of Sustainable Fashion (2021); Fashion Values Nature: From the Age of Extraction to the Age of Regeneration. Available at: [https://ualresearchonline.arts.ac.uk/id/eprint/19329/1/logos%20FashionValues\\_ExecutiveSummary\\_2021\\_final\\_2\\_partner\\_logos.pdf](https://ualresearchonline.arts.ac.uk/id/eprint/19329/1/logos%20FashionValues_ExecutiveSummary_2021_final_2_partner_logos.pdf)

3 Material Innovation Initiative (2023); 2022 State of the Industry Report: Next-Gen Materials. Available at: <https://materialinnovation.org/wp-content/uploads/MIC-23-Report-230127-1.pdf>

4 Amended definition from Biomimicry Institute. Available at: <https://d4d.biomimicry.org/>

5 As per PANGAIA definition on page 10

6 Manteco (2022); MWOOL Life Cycle Assessment. Available at: <https://manteco.com/wp-content/uploads/2022/05/LCA-MWOOL-full-study-PDF.pdf>

7 Cotton, Wool & Cashmere = Readily Recyclable  
Cotton = Chemical Recycling Now  
100% Nylon = Chemical Recycling Future  
Blends and products with contaminants = Not Recyclable

8 Ellen MacArthur Foundation (2017); A new textiles economy: Redesigning fashion's future. Available at: <http://www.ellenmacarthurfoundation.org/publications>

9 Wageindicator (2023). Part of the WageIndicator Foundation. Available at: <https://wageindicator.org/>

10, 11, 12. Impact achieved by these organizations and funds are a result of combined contributions from many partners.

Photos by supplier partners Clothius, Erius, Petratex and cause-related partners Amazon Frontlines (Milkywire), Milgis Trust (Milkywire), Coral Gardeners, Choose Love and In Kind Direct.



