

Circular economy and the textile industry



FOUNDATION FOR
CIRCULAR
ECONOMY

Máté Kriza
Chairman

Foundation for Circular Economy

International workshop about textile waste

12th June, 2018

Budapest

Who are we?

- The FCE was founded as a **private foundation** in 2013
- Main objective is to **promote circular economy in Hungary** and to establish international co-operation and projects
- Involving various **stakeholders** from business, academia, research and education, NGOs
- **Advocacy** towards decision-makers at national, regional and local levels



Our projects



ERASMUS+ program



DEAR program



ERASMUS+ program



CIRCULAR HUNGARY
PROGRAM





of liner



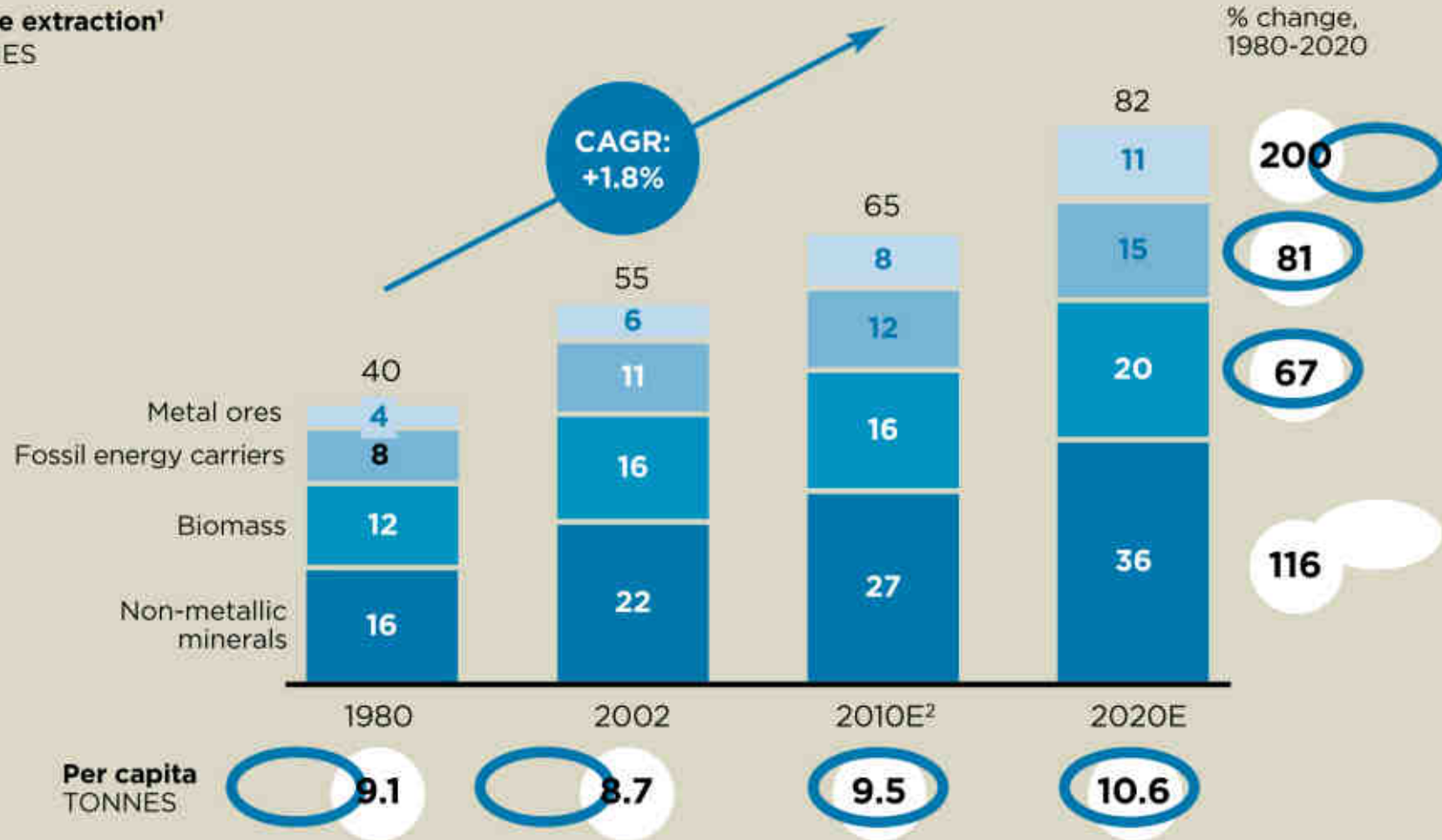


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FIGURE 1

Global resource extraction is expected to grow to 82 billion tonnes in 2020

Global resource extraction¹
BILLION TONNES



1 Resource used: amount of extracted resources that enters the economic system for further processing or direct consumption. All materials used are transformed within the economic system, incl. material used to generate energy and other material used in the production process

2 Forecasted from 2002 OECD figures and OECD extraction scenario for 2020

SOURCE: OECD; Behrens (2007); WMM Global Insight; Ellen MacArthur Foundation circular economy team

FIGURE 4
Sharp price increases in commodities since 2000 have
erased all the real price declines of the 20th century

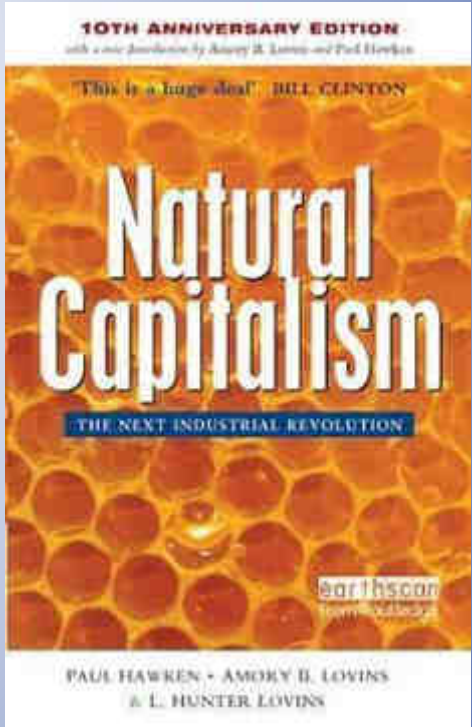
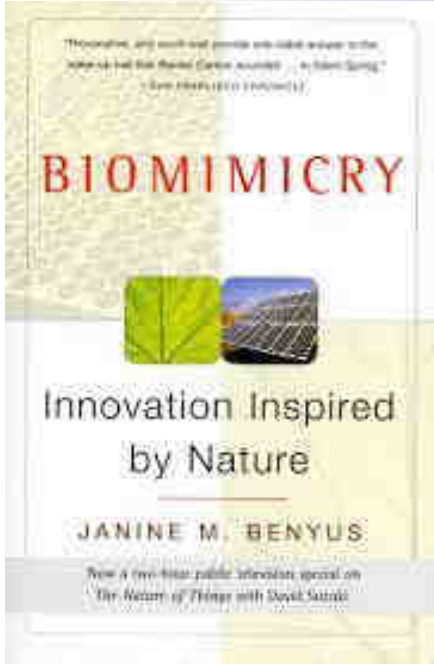
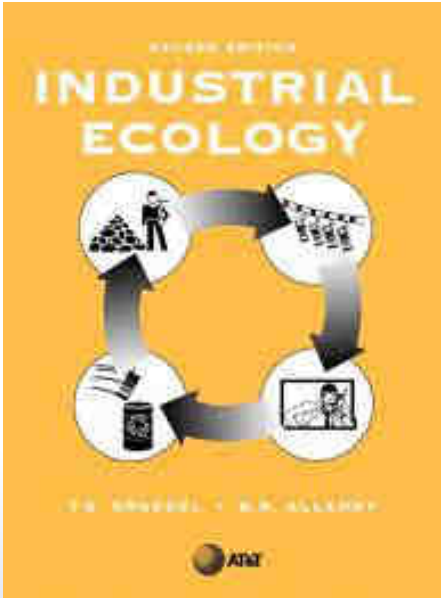
McKinsey Commodity Price Index (years 1999-2001 = 100)¹



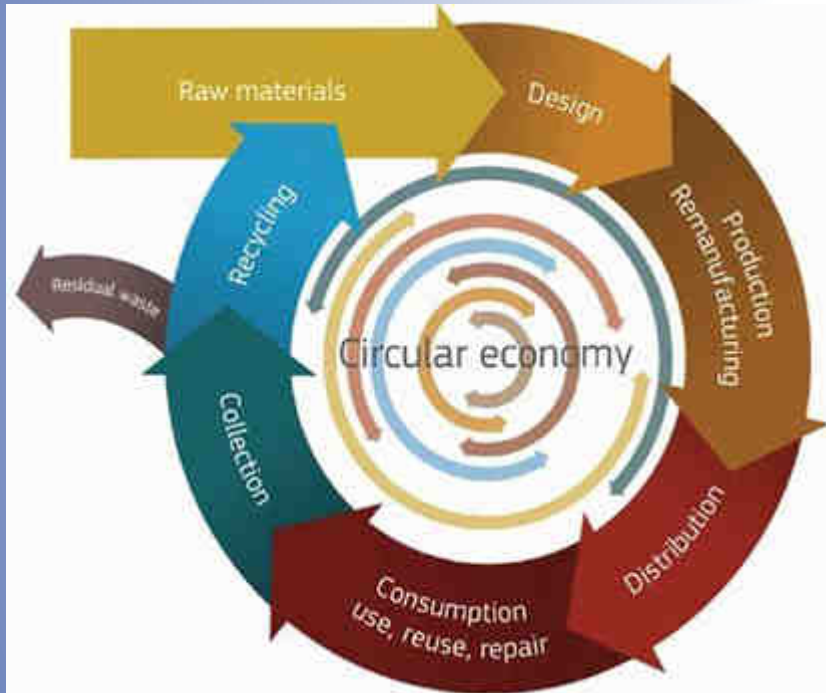
¹ Based on arithmetic average of 4 commodity sub-indices: food, non-food agricultural items, metals, and energy; 2011 prices based on average of first eight months of 2011.

SOURCE: Grilli and Yang; Pfaffenzeller; World Bank; International Monetary Fund; Organisation for Economic Co-operation and Development statistics; UN Food and Agriculture Organization; UN Comtrade; Ellen MacArthur Foundation circular economy team

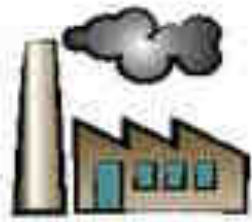
Concepts and schools of circular economy



What is circular economy?



- **Restorative or regenerative** by intention and design
- Replaces the 'end-of-life' concept with **restoration**
- Eliminates the use of **toxic chemicals**, which impair reuse and return to the biosphere
- Aims for the **elimination of waste** through the **superior design of materials, products, systems, and, within this, business models**



Production



Plants

**Biological
Cycle**



Product



Biological
nutrient



Usage



Biological
degradation



Production



Technical
nutrient



Product

**Technical
Cycle**

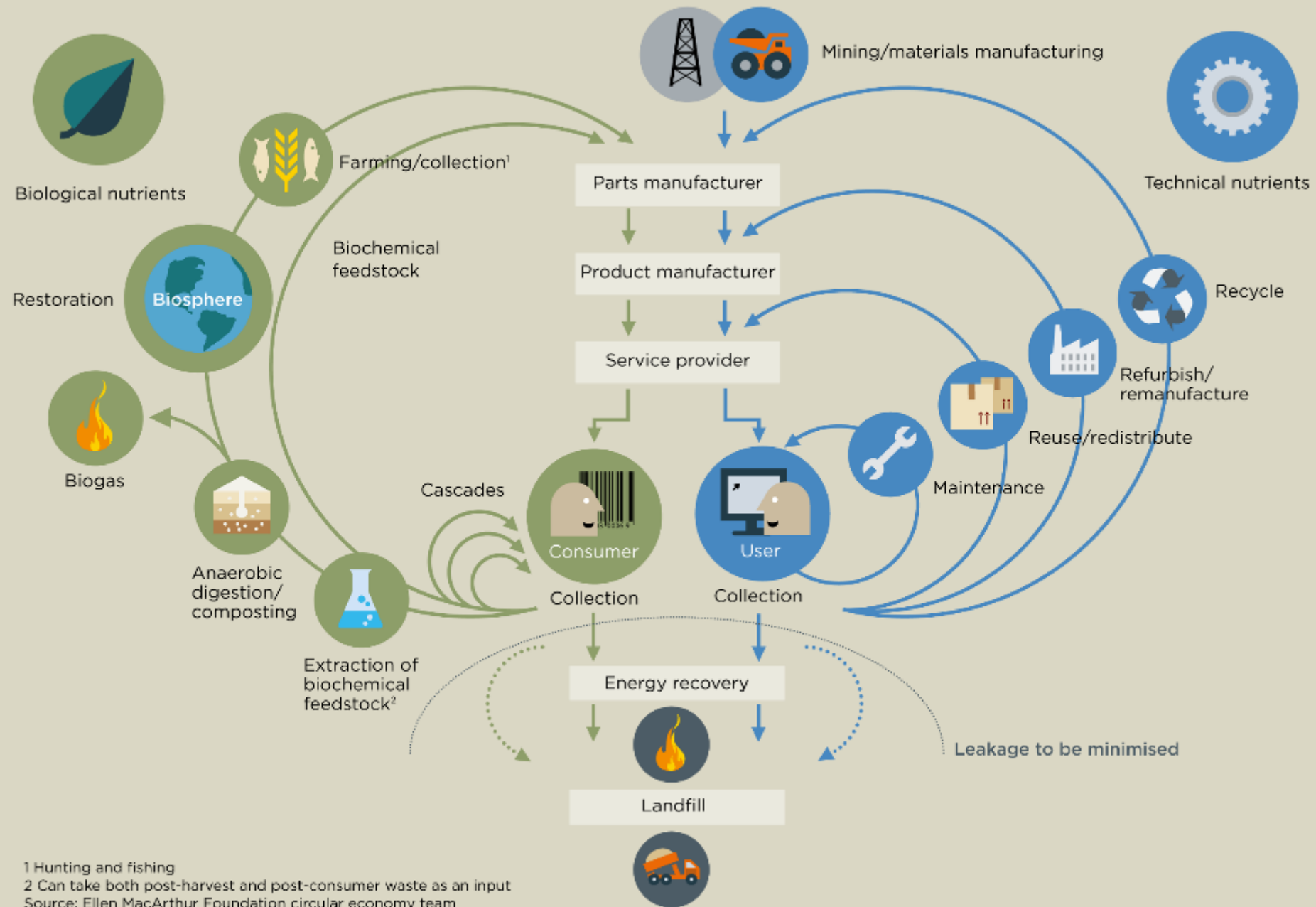


Usage



Return,
disassembly

FIGURE 6 The circular economy—an industrial system that is restorative by design



Five pillars of achieving circular economy



Circular Economy

Technology
&
innovation

Business
models

Regulatory &
market
environment

Consumer
awareness &
consciousness

Financing &
know-how

Technology and innovation

- **Design for repair, reuse, remanufacture, disassembly, recycle, durability**
- **Extended Producer Responsibility (EPR)**
- **Resource efficiency**
- **Substitution of hazardous substances**
- **No mixing and contaminating materials**



Business models

- **Product as a service**
- **Reverse logistics**
- **Sharing platforms**
- **Product life extension**
- **Resource recovery and recycling**



Regulatory & market environment

- Increasing resource use and landfill taxes
- Financial incentives
- Green public procurements
- Market demand for circular products
- Increasing resource use and landfill taxes



Second Hand Mobile Phone

Consumer awareness & consciousness



- Communication
- Consumer choices
- Mindset and attitudes
- Circular product label or certificate
- Reuse centers



Financing and know-how

- EU programmes (now fragmented)
- EFSI
- Circular Economy Investment Platform
- Private funding (venture capital/private equity/crowd-funding)
- Circular hotspots (ie. in the Netherlands)



The linear economy

Extraction \longrightarrow Production \longrightarrow Use \longrightarrow Discard





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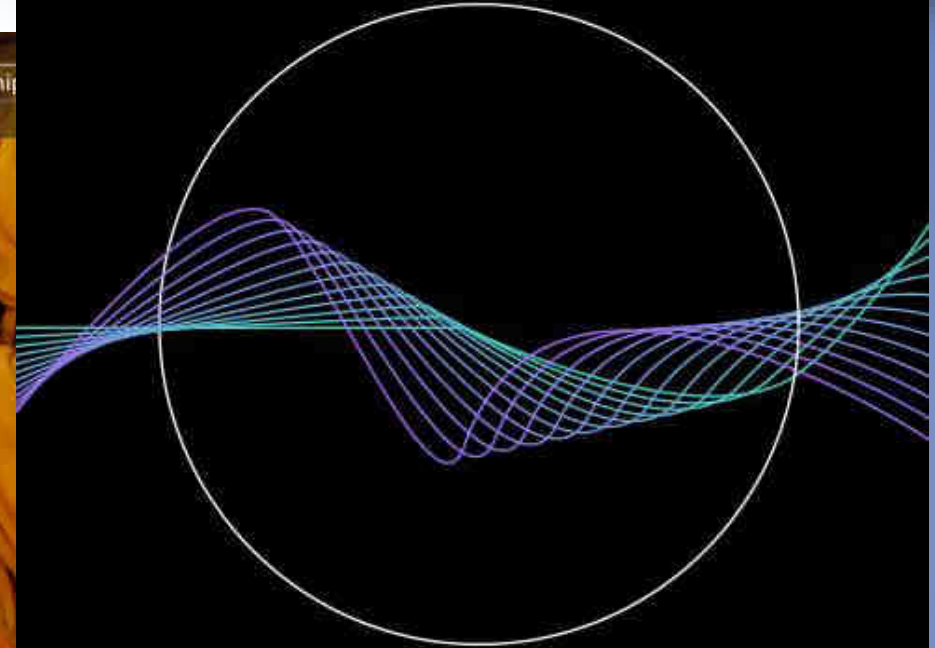
CIRCLE TEXTILES PROGRAMME

Developing the data, tools and projects needed to close the loop



Our Mission

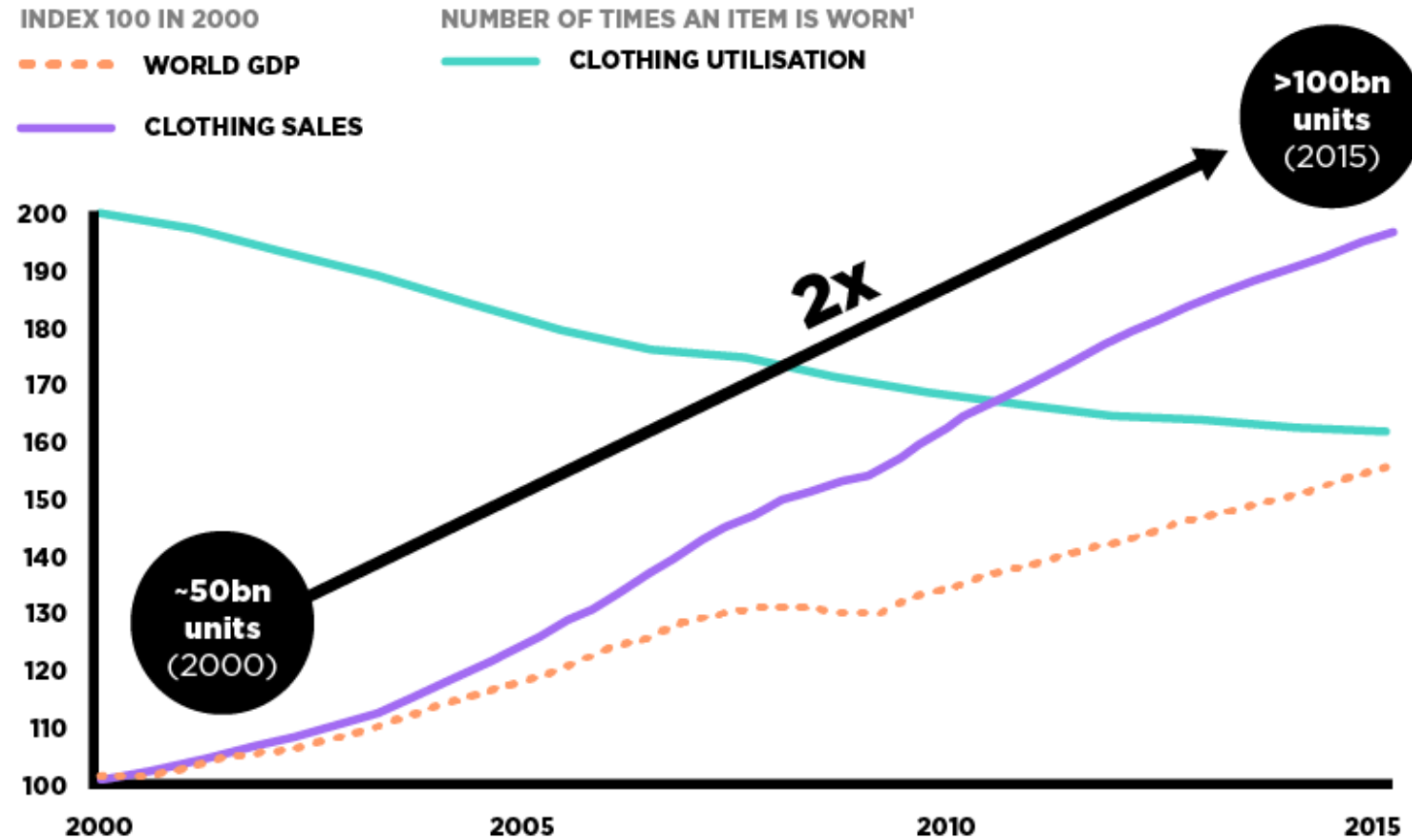
The textiles industry is arguably the most lucrative, creative, consumer facing industry on earth, and we believe it



**A NEW TEXTILES ECONOMY:
REDESIGNING FASHION'S FUTURE**

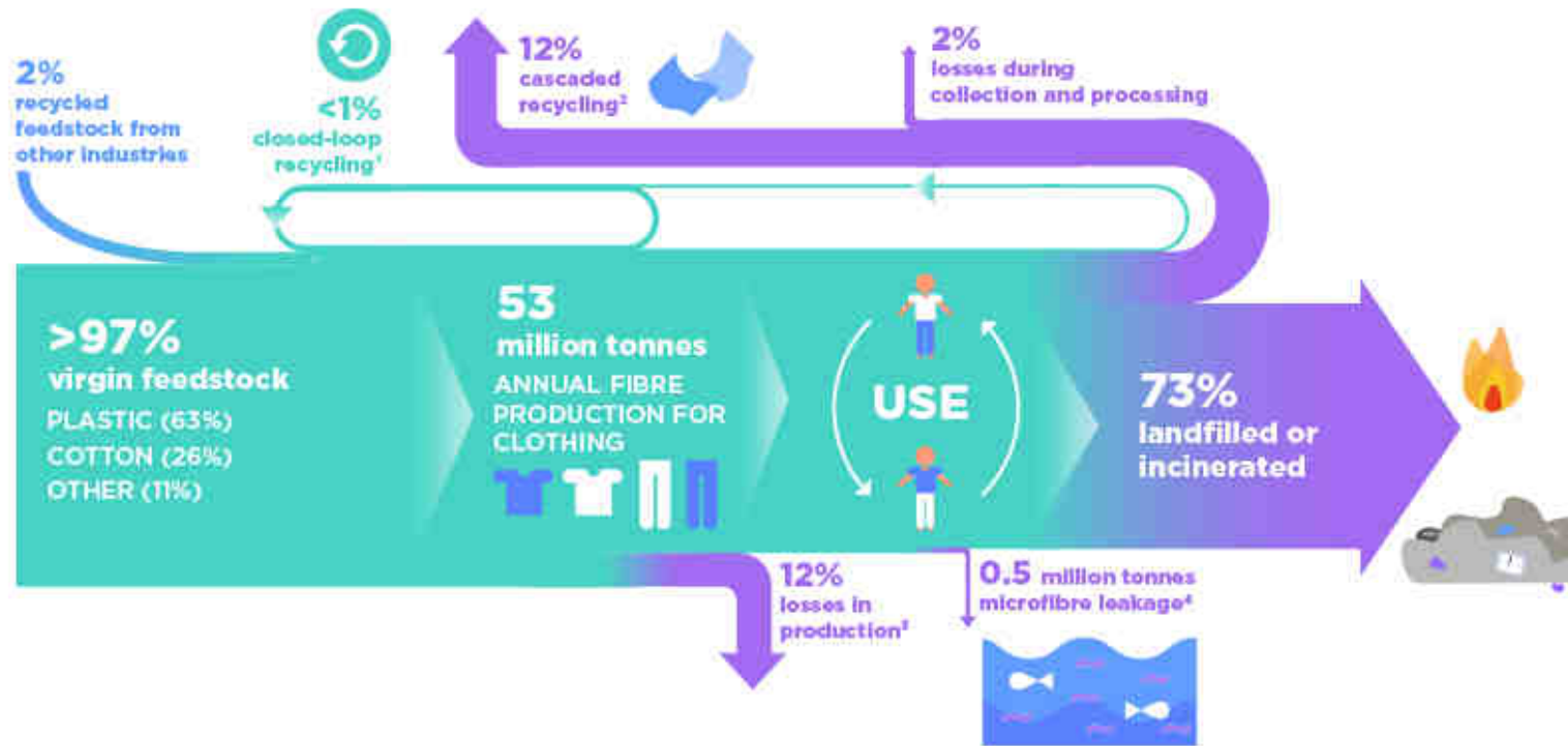


Growth of clothing sales and decline in clothing utilisation since 2000



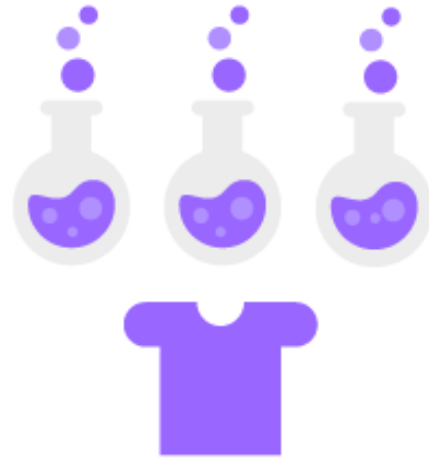
Average number of times a garment is worn before it ceases to be used
Source: Euromonitor International Apparel & Footwear 2016 Edition (volume sales trends 2005–2015); World Bank, World Development Indicators – GD (2017)

Global material flows for clothing in 2015



1 Recycling of clothing into the same or similar quality applications
2 Recycling of clothing into other, lower-value applications such as insulation material, wiping cloths, or mattress stuffing
3 includes factory offcuts and overstock liquidation
4 Plastic microfibres shed through the washing of all textiles released into the ocean
Source: Circular Fibres Initiative analysis - for details see Appendix B of the full report

The textiles industry uses significant amounts of resources



The production of 1 kilogram of cotton garments uses up to 3 kilograms of chemicals.¹



The equivalent of more than 3 trillion plastic bottles is needed to produce plastic-based clothes every year.¹



Textiles production (including cotton farming) uses almost 100 billion cubic metres of water annually, representing 4% of global freshwater withdrawal.

¹ Based on an average weight of 10 gram of a 0.5 litres PET bottle
Source: KEMI, Chemicals in textiles: Risks to human health and the environment (2014), p.33; World Bank, AQUASTAT, and FAO, Dataset: Annual freshwater withdrawals, total (2014); Circular Fibres Initiative analysis

Negative impacts of the textiles industry are set to drastically increase by 2050

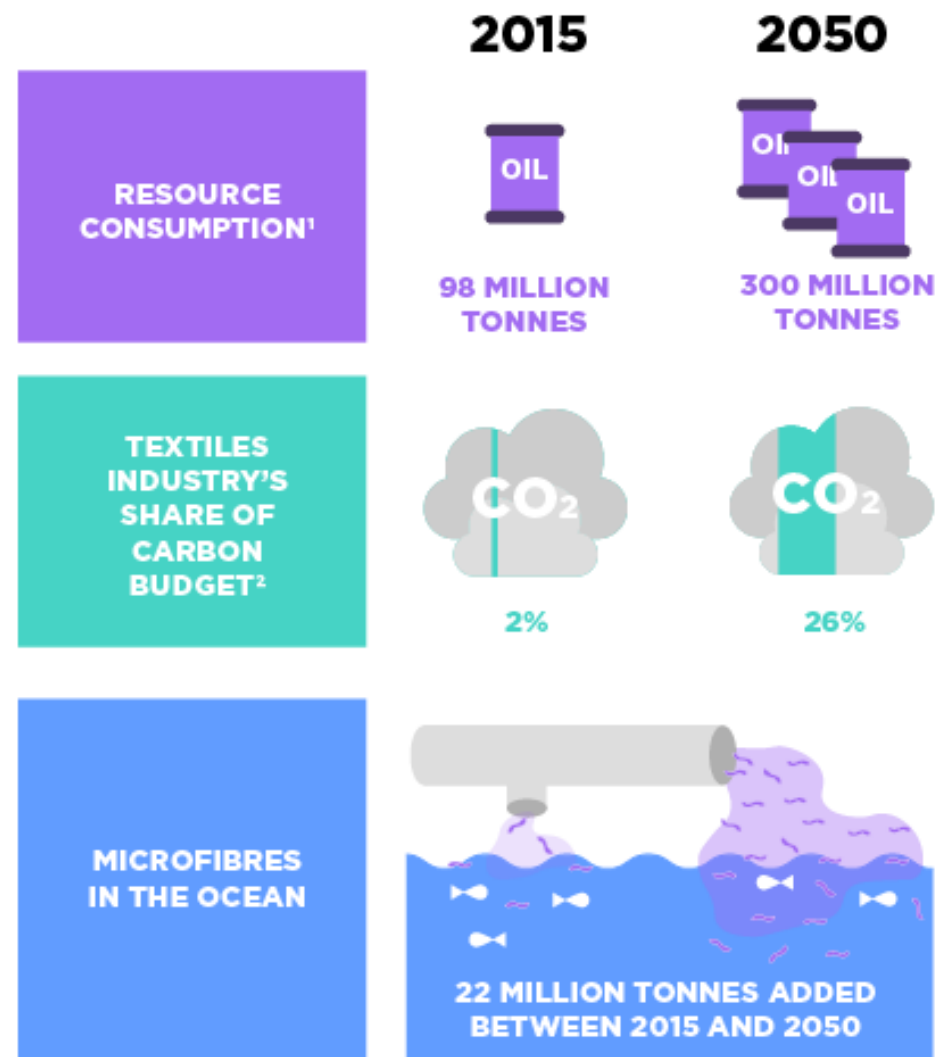


1 Consumption of non-renewable resources of the textiles industry, including oil to produce synthetic fibres, fertilisers to grow cotton, and chemicals to produce, dye, and finish fibres and textiles

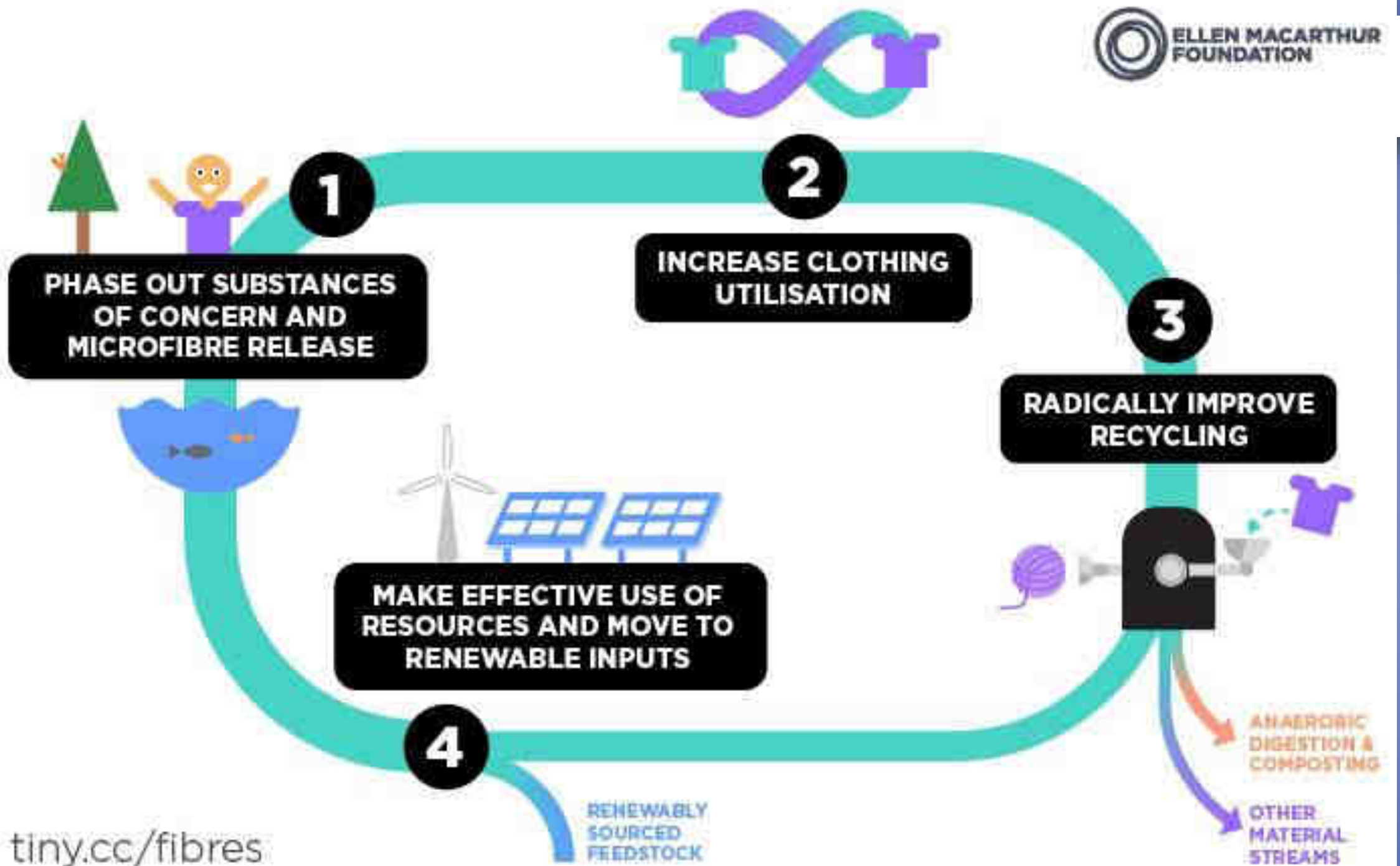
2 Carbon budget based on 2 degrees scenario

Source: Circular Fibres Initiative analysis - for details see Part I of the full report

tiny.cc/fibres







Reuse & repair

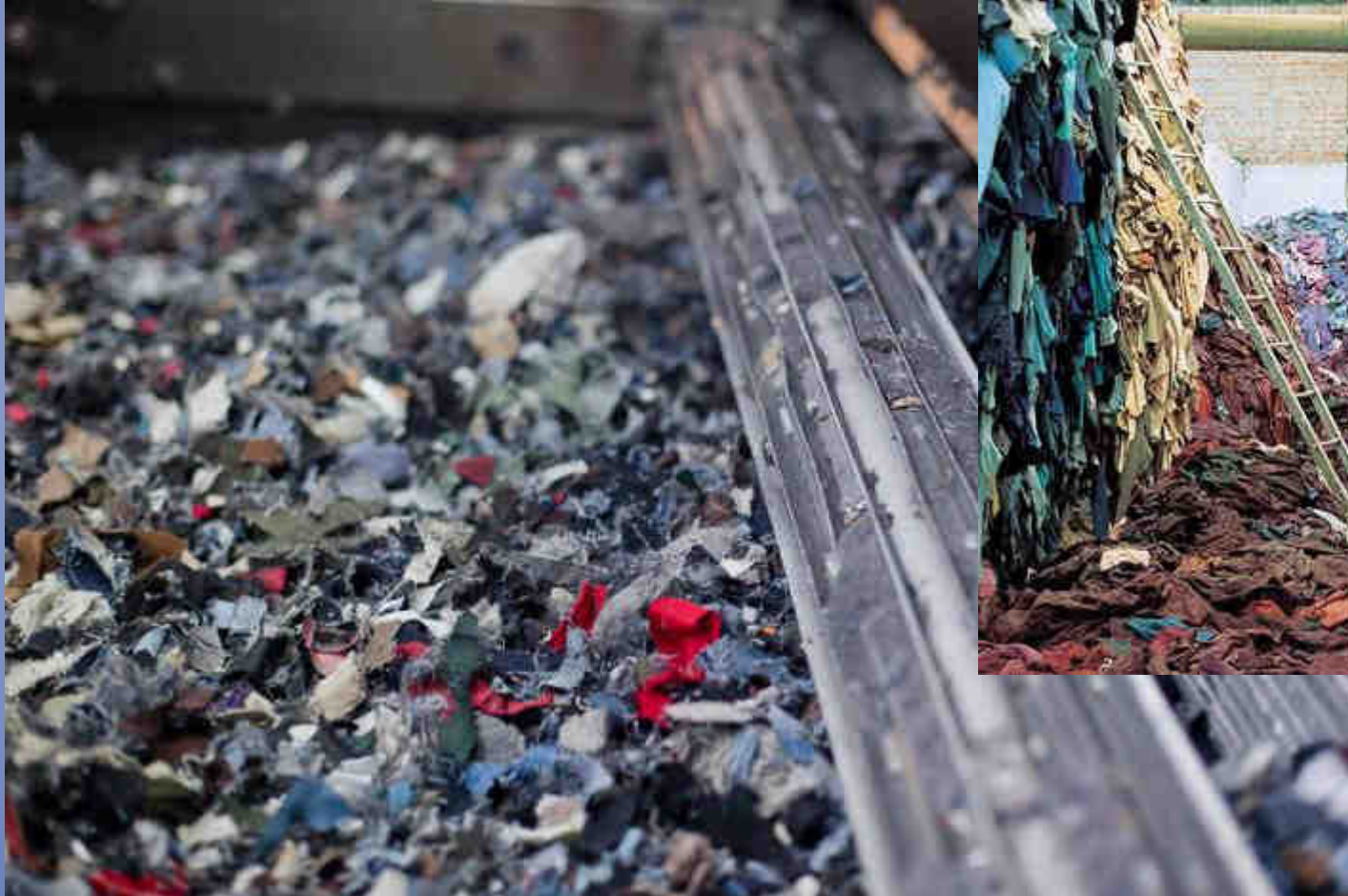


Upcycling

Old Blue



Recycling (downcycling)



AHLMA

AHLMA circularity

- 80% materials from leftover fabric
- Open source design
- Lean inventory
- Reusable shipping boxes
- Instructions for extending life
- Non-toxic cleaning
- Repair lab for maintenance and remodelling
- Subscription model available in concept store





**DON'T BUY
THIS JACKET**

patagonia
patagonia.com



COMMON THREADS INITIATIVE

REDUCE

WE make useful gear that lasts a long time
YOU don't buy what you don't need

REPAIR

WE help you repair your Patagonia gear
YOU pledge to fix what's broken

REUSE

WE help find a home for Patagonia gear
you no longer need
YOU sell or pass it on*

RECYCLE

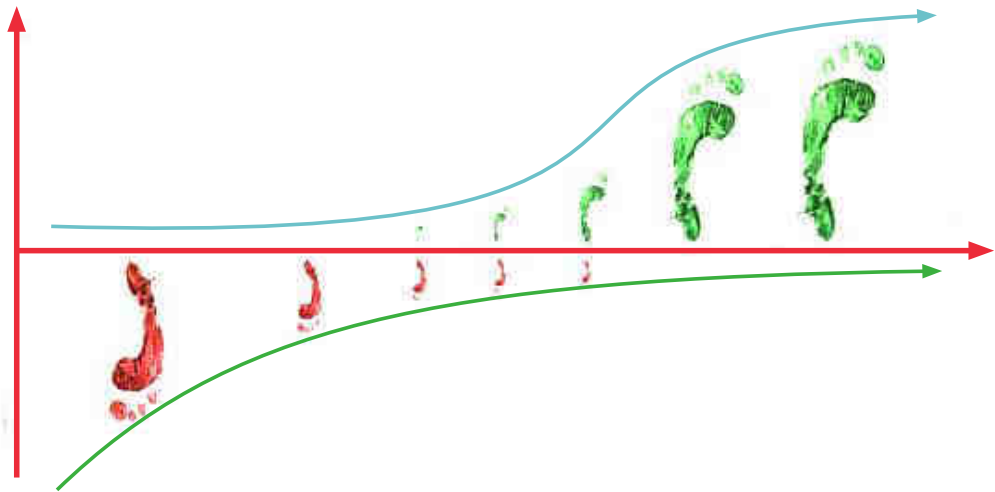
WE will take back your Patagonia gear
that is worn out
YOU pledge to keep your stuff out of
the landfill and incinerator



REIMAGINE

TOGETHER we reimagine a world where we take
only what nature can replace

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reworx[®]



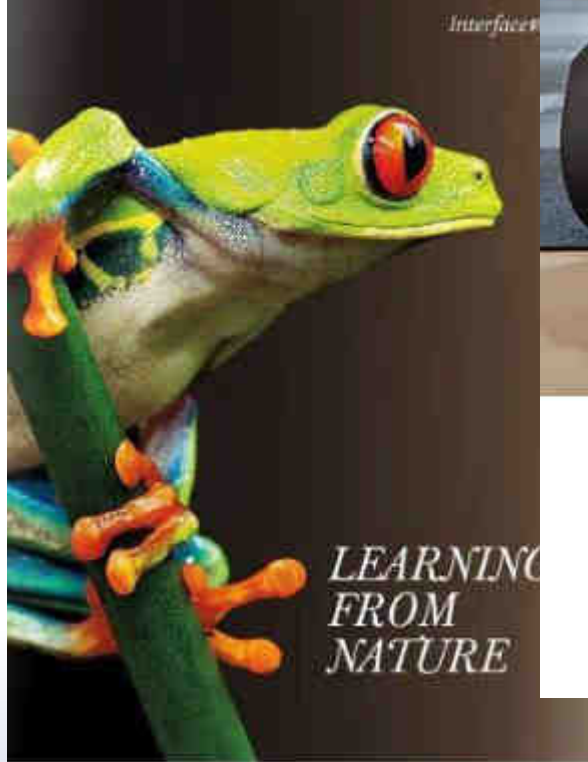
[[Wolford]]



WOLFORD CONSORTIUM



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Interface®
LEARNING
FROM
NATURE

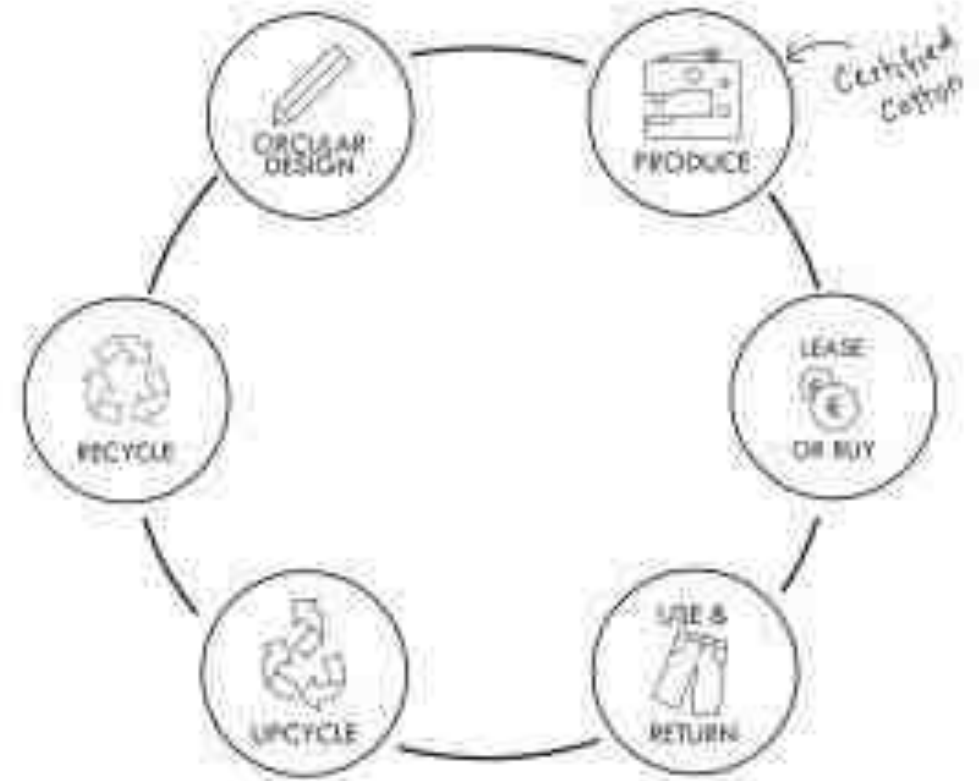




MUD JEANS[®]
for people who care



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Thank you for your attention!



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