Transparent Lifecycle Analysis
OEKO-TEX® Carbon & Water Footprint Tool

HOHENSTEIN

OEKO-TEX® Association

Hohenstein is a founding member & leading provider of OEKO-TEX® services

18

Independent textile/leather research & test institutes

70

Worldwide representative offices
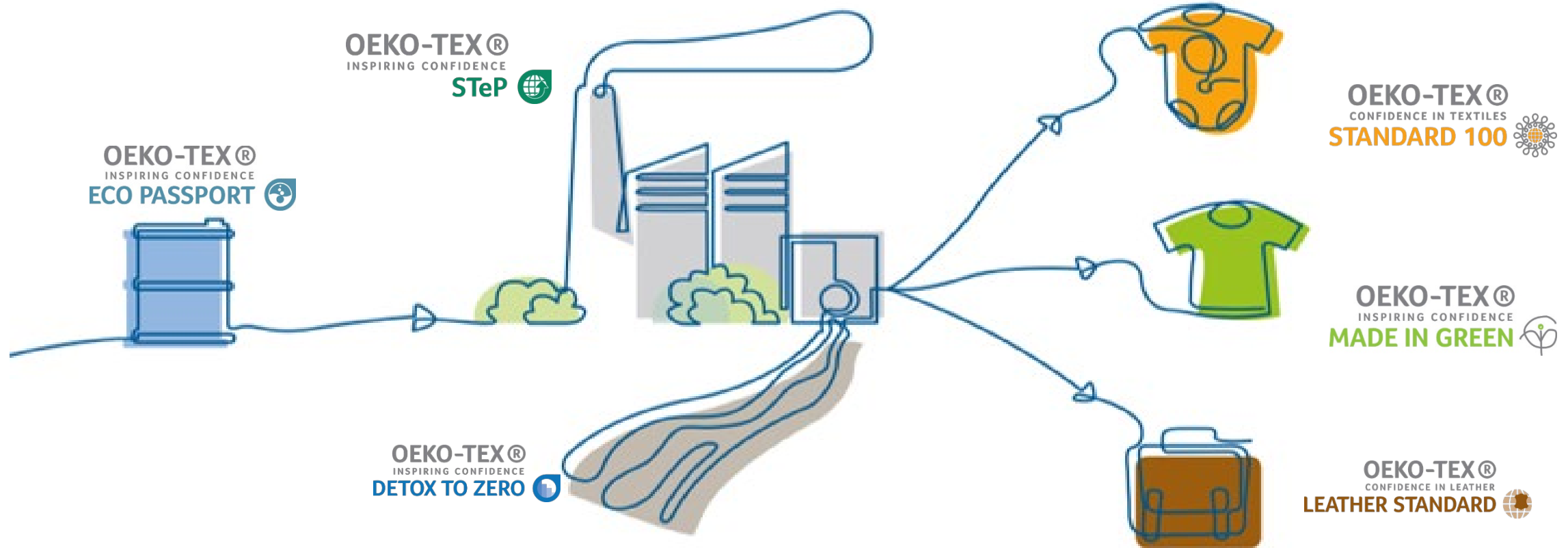
21,000

Companies working with OEKO-TEX®

235,000

Certificate issues & renewals

Input Control

Process Control

Output Control

OEKO-TEX®
INSPIRING CONFIDENCE
STeP

OEKO-TEX®
INSPIRING CONFIDENCE
ECO PASSPORT

OEKO-TEX®
CONFIDENCE IN TEXTILES
STANDARD 100

OEKO-TEX®
INSPIRING CONFIDENCE
MADE IN GREEN

OEKO-TEX®
INSPIRING CONFIDENCE
DETOX TO ZERO

OEKO-TEX®
CONFIDENCE IN LEATHER
LEATHER STANDARD

OEKO-TEX® System

Independent Certifications & Services for Sustainability & Product Stewardship Along the Supply Chain

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Apparel Industry

+20%

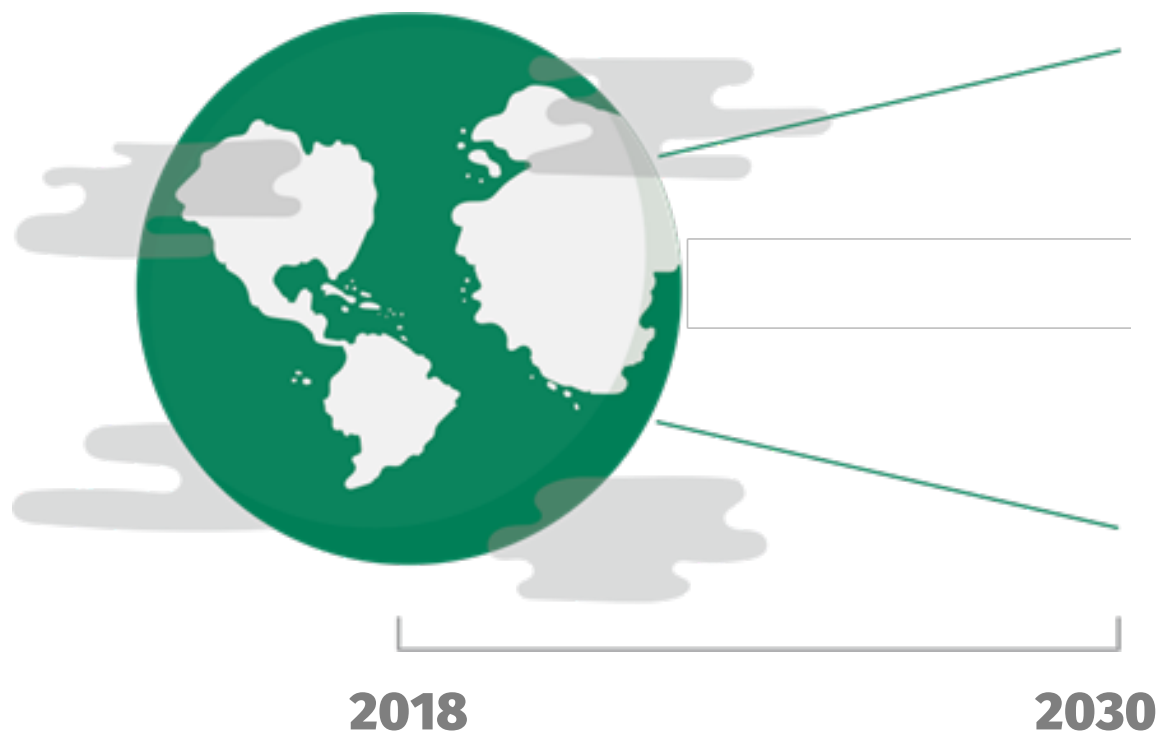The fast fashion segment has grown by >20% in the last 3 years.

The State of Fashion, 2018

7%

~ 7% of the world's total greenhouse gas emissions come from apparel.

Measuring Fashion, 2018

Our Industry
NOT on Track to Limit Global Warming to 1.5°C

Current pace
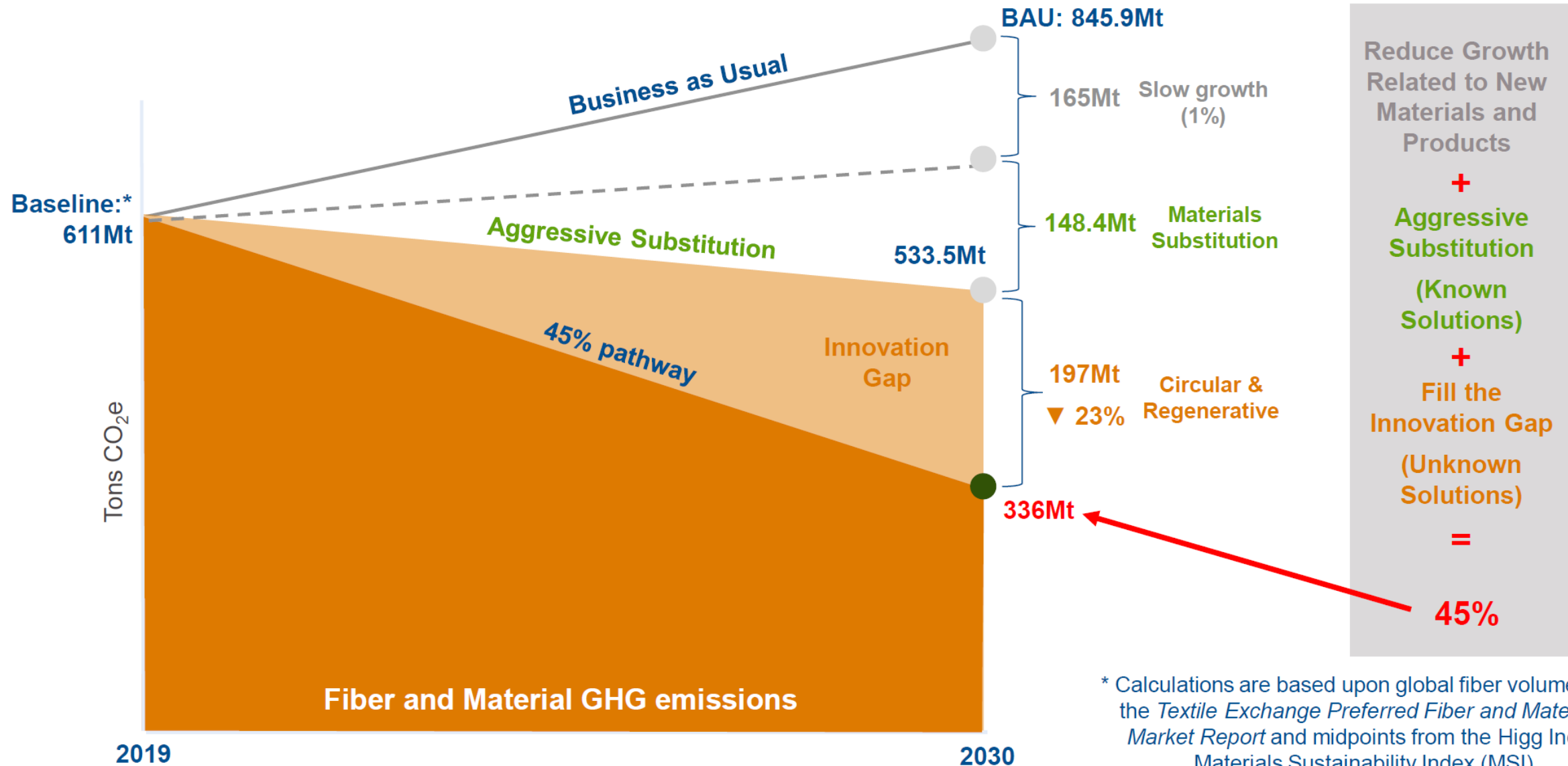**2.1 Billion tons CO_2eq**
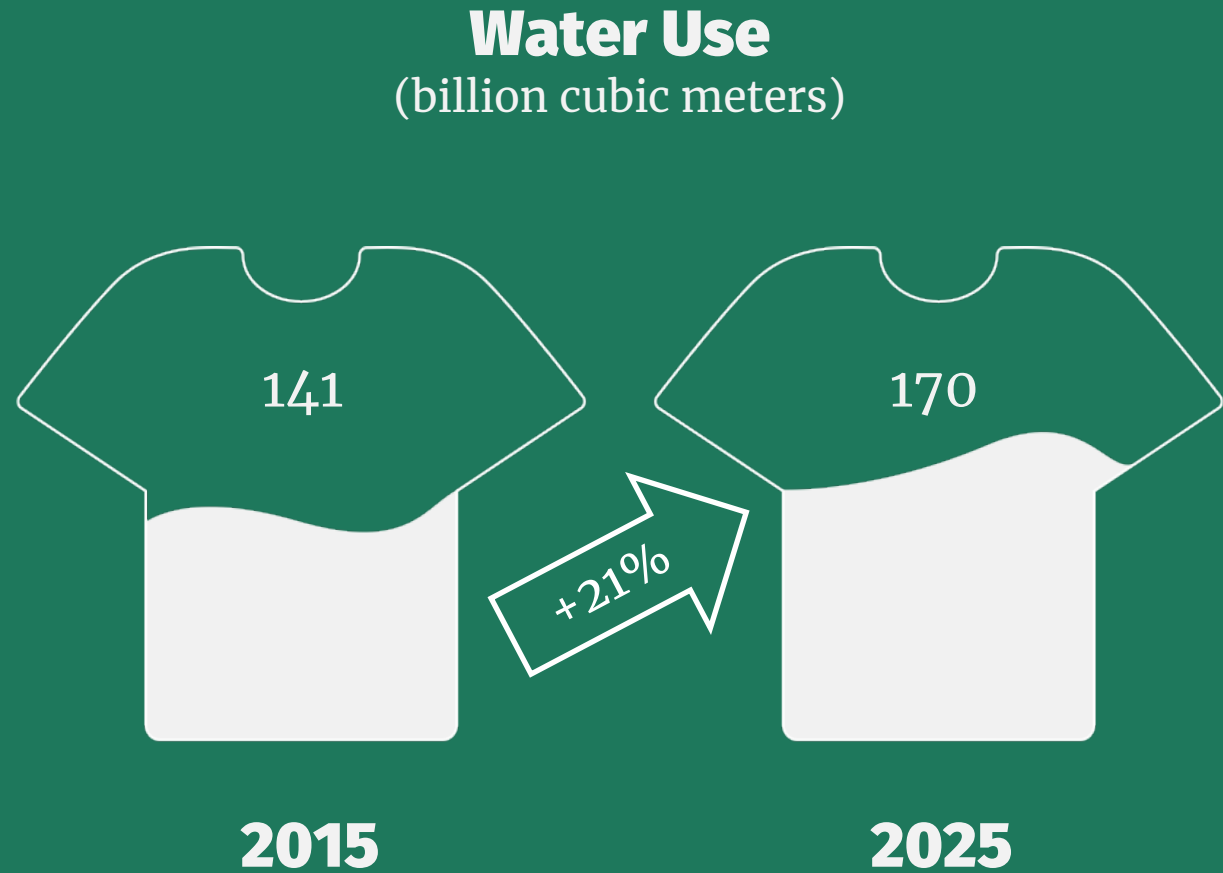
Target[1] on 1.5°C pathway
1.1 billion tons CO_2eq

2018   2030

McKinsey, 2020

Getting to 45% in Tier 4

BAU: 845.9Mt

165Mt Slow growth (1%)

148.4Mt Materials Substitution

533.5Mt

197Mt ▼ 23% Circular & Regenerative

Baseline:* 611Mt

Business as Usual

Aggressive Substitution

45% pathway

Innovation Gap

Tons CO$_2$e

Fiber and Material GHG emissions

336Mt

2019

2030

Reduce Growth Related to New Materials and Products

+

Aggressive Substitution (Known Solutions)

+

Fill the Innovation Gap (Unknown Solutions)

=

45%

* Calculations are based upon global fiber volume from the *Textile Exchange Preferred Fiber and Materials Market Report* and midpoints from the Higg Index Materials Sustainability Index (MSI)
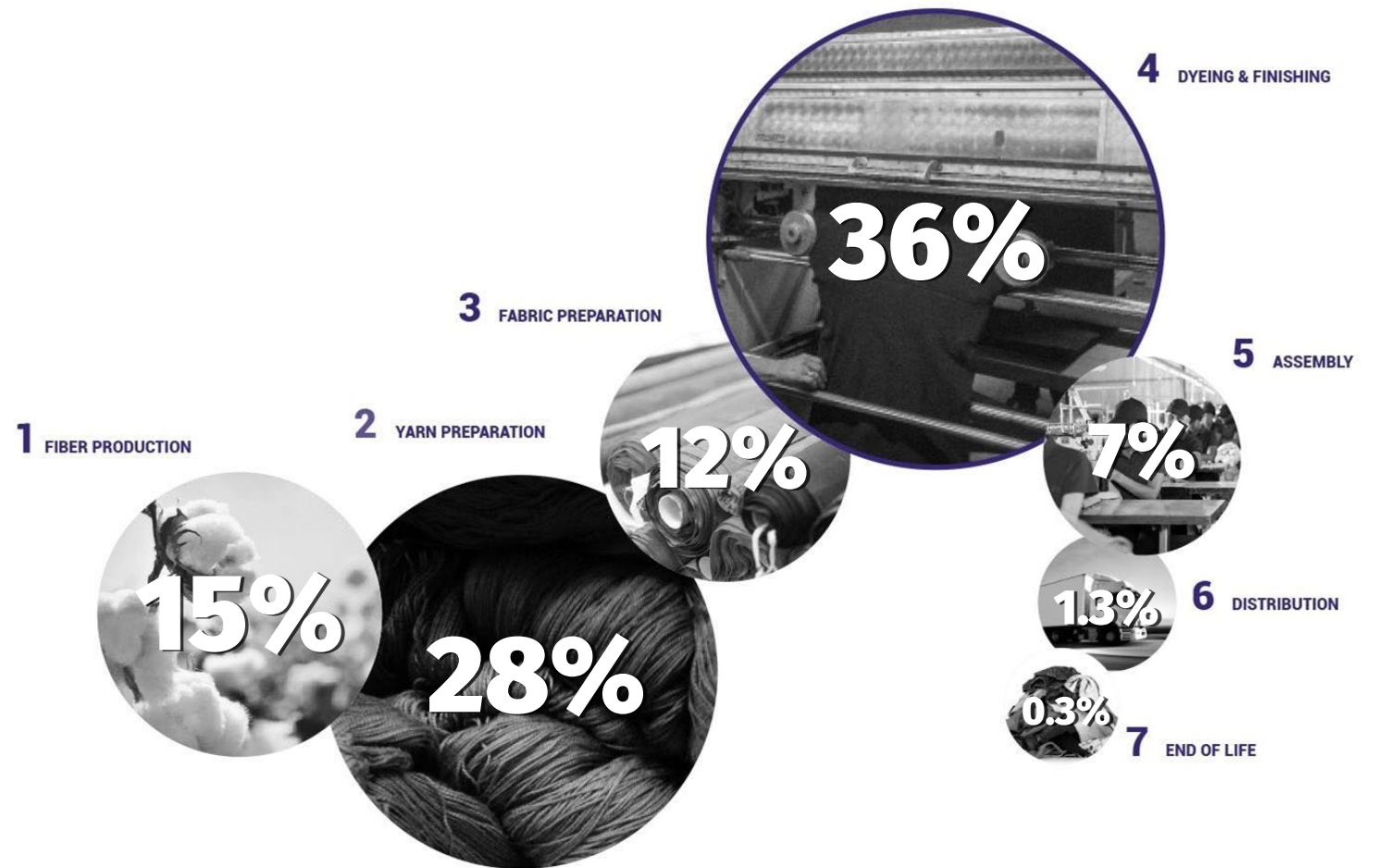
Water Risks Increasing

Water Use
(billion cubic meters)

141

170

+21%

2015

2025

Van der Velden et al., 2014

Role of Production facilities

We need committed action to support value chain participants to reduce carbon emissions & water use

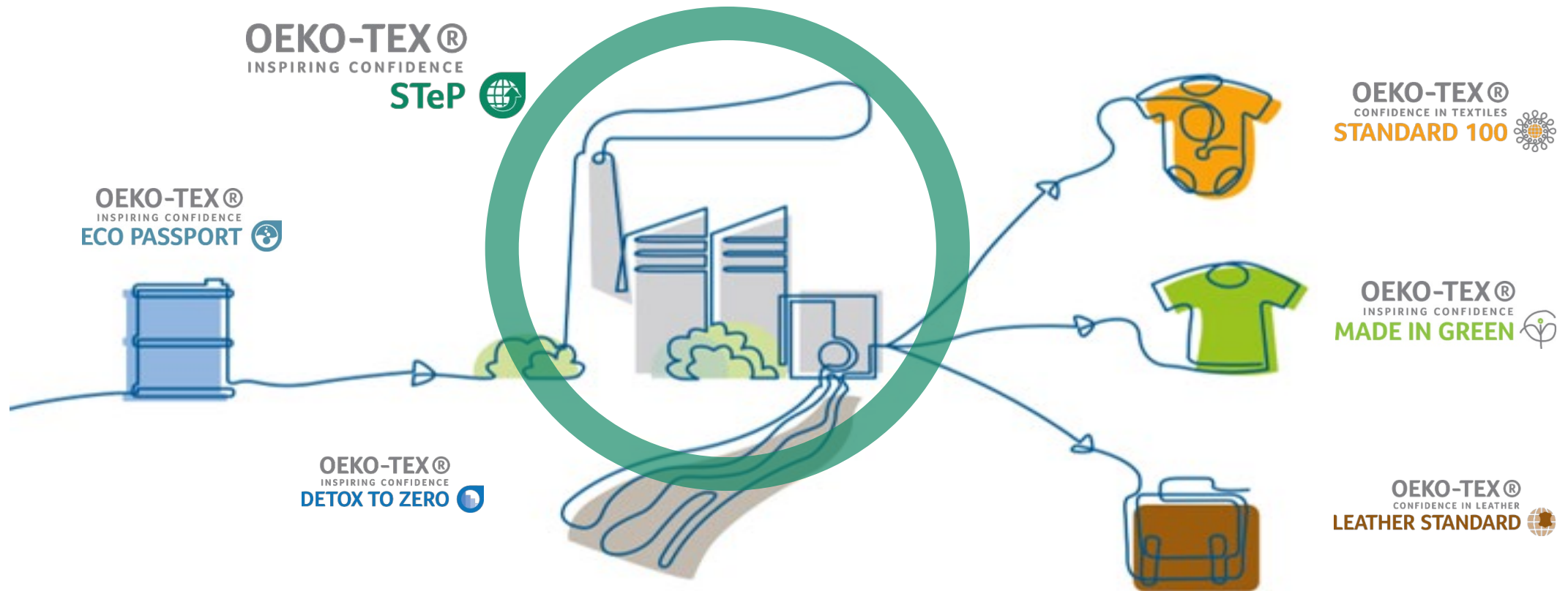## Carbon Emissions in the Fashion Value Chain

1 FIBER PRODUCTION

2 YARN PREPARATION

3 FABRIC PREPARATION

4 DYEING & FINISHING

5 ASSEMBLY

6 DISTRIBUTION

7 END OF LIFE

15%

28%

12%

36%

7%

1.3%

0.3%

Measuring Fashion Report, Quantis, 2018

STeP by OEKO-TEX®

Input Control

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INSPIRING CONFIDENCE
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STeP = Sustainable Textile (& Leather) Production

Modular, Wholistic System + Continuous Improvement

Mission:
Maximize Transparency & Sustainability

For the Environment

Long-term eco-friendly production processes

For People

Socially responsible working conditions

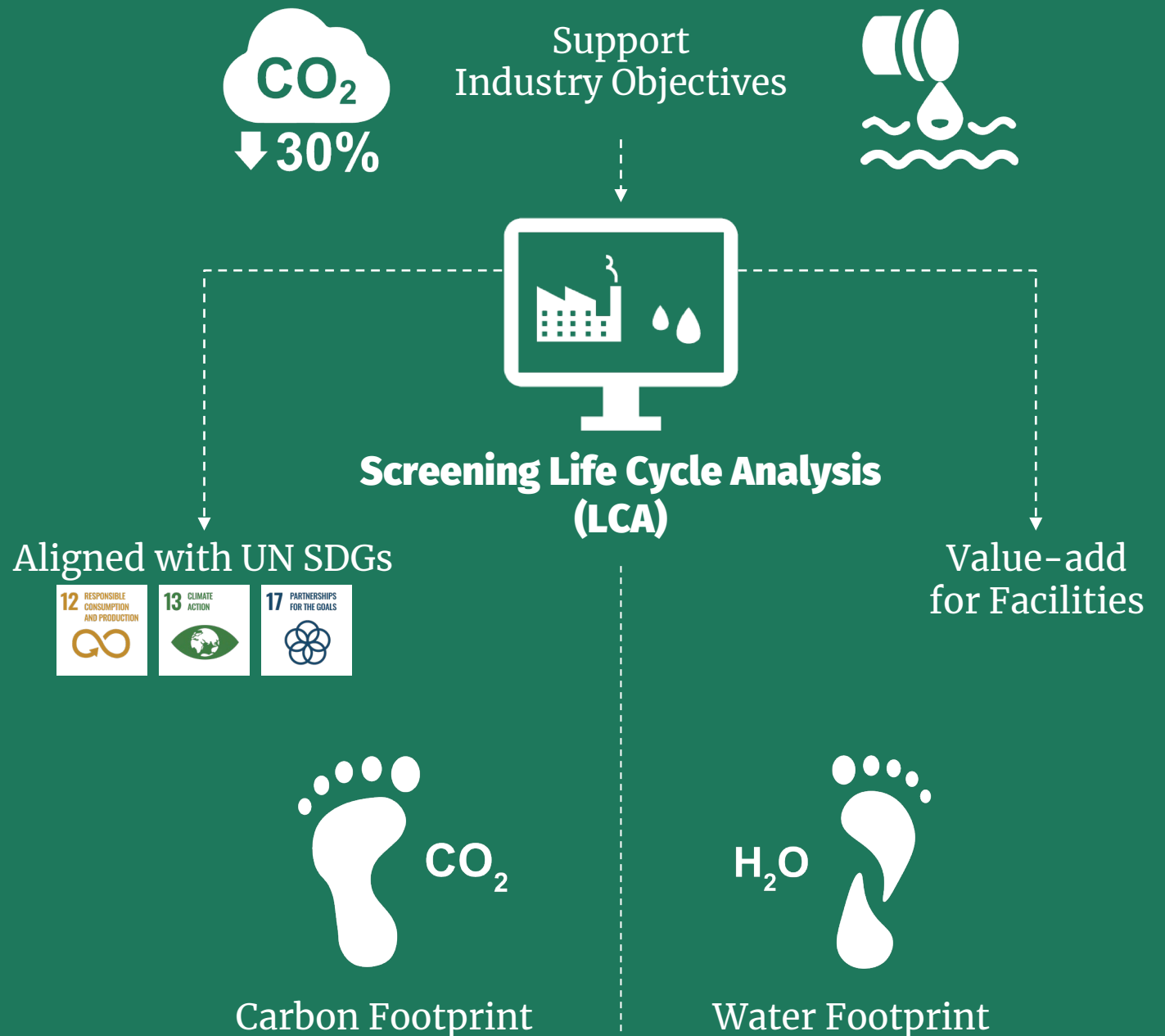**For Companies**

Credible, transparent & simple communication of sustainable production

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Carbon & Water Footprint Tool

New tool within STeP certification

CO_2 ↓ 30%

Support Industry Objectives

Screening Life Cycle Analysis (LCA)

Aligned with UN SDGs

| 12 RESPONSIBLE CONSUMPTION AND PRODUCTION | 13 CLIMATE ACTION | 17 PARTNERSHIPS FOR THE GOALS |

Value-add for Facilities

CO_2

Carbon Footprint

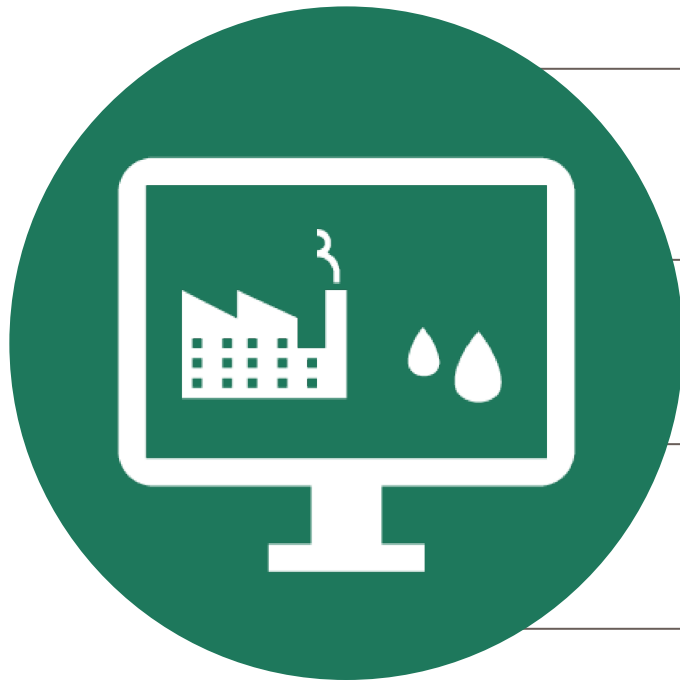H_2O

Water Footprint

© Hohenstein

Industry Goals

Support Paris Agreement in limiting global temperature rise to below 2°C + move towards net-zero emissions by 2050

30% aggregate GHG emission reductions by 2030 by drawing on methodologies from the **Science-Based Targets** Initiative of the Greenhouse Gas Protocol Corporate Standard

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Why did we develop this tool?

To help production facilities:

UNDERSTAND carbon emissions & water usage at different stages

IDENTIFY which processes have the highest environmental impacts

ACT to reduce carbon & water usage in the future

REPORT results & reduction measures to customers

Tangible Value for Producers

✓ Demonstrate Leadership

✓ Strengthen Trust

✓ Grow Business

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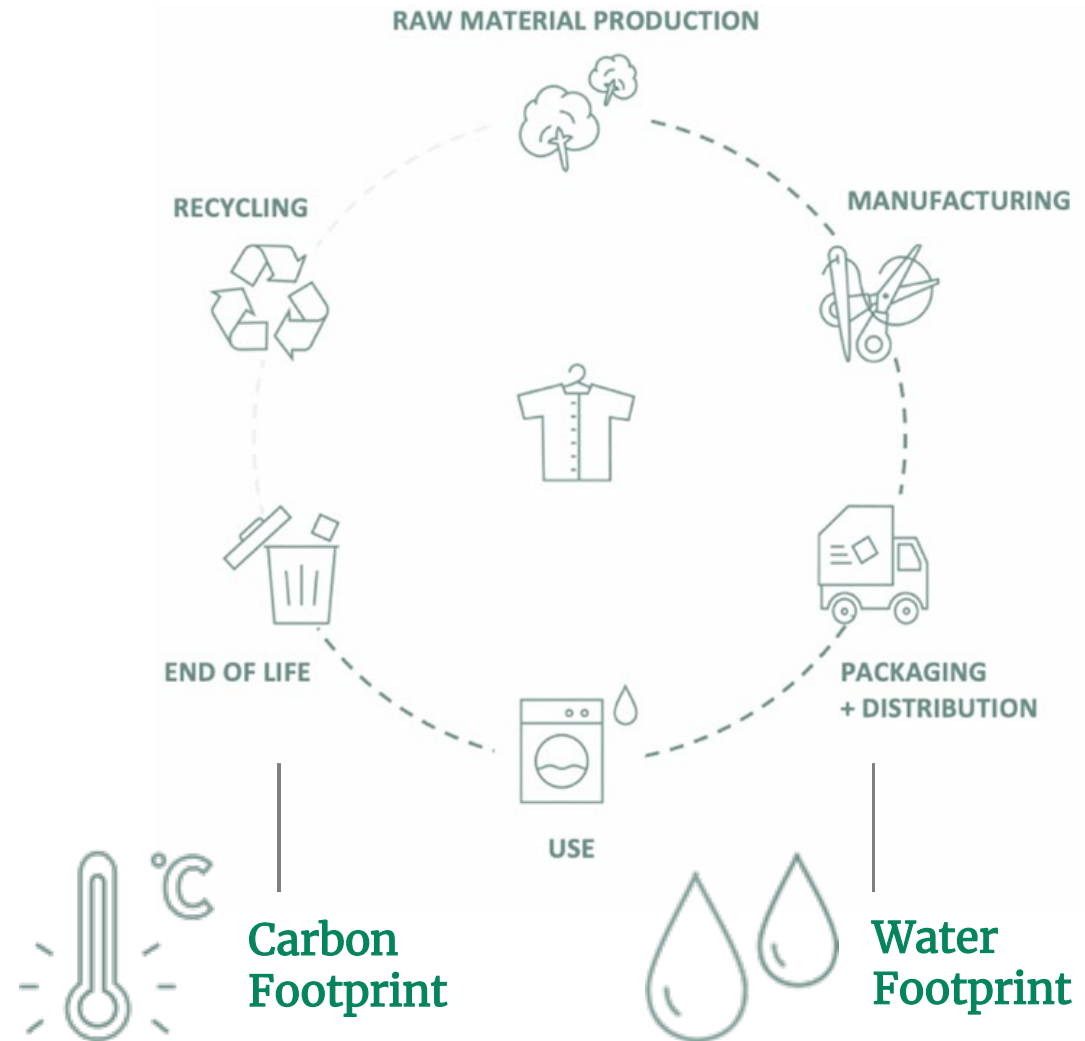
Various LCA Approaches

Many based on
ISO 14040 & 14044

- Product LCA
- Corporate carbon footprint
- Water footprint
- Facility assessment

OEKO-TEX® Tool = Screening Life Cycle Approach

RAW MATERIAL PRODUCTION

MANUFACTURING

RECYCLING

PACKAGING + DISTRIBUTION

END OF LIFE

USE

Carbon Footprint

Water Footprint

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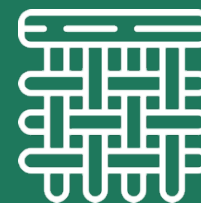# Data for STeP Certified Facilities

Carbon Footprint CO_2

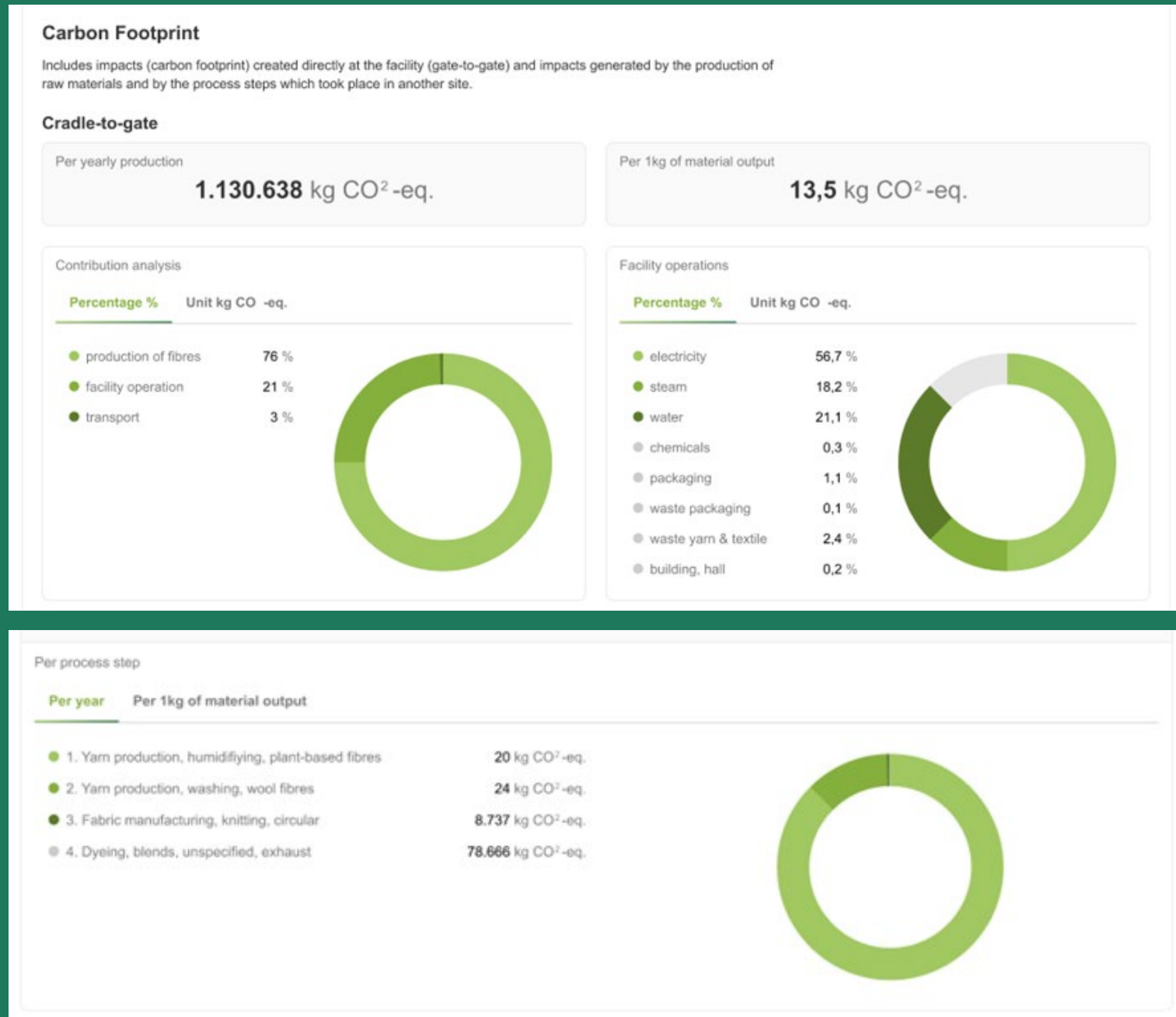**Water Footprint** H_2O

Per Facility

Per Process Step

Per 1K Material

Real Data

- Required data
  - Electricity (kWh)
  - Water (m^3)
  - Fiber type & amount

- Global default data available if real data is unknown

- Constant tool updates
  - Testing data
  - Averages
  - Internal QA process

Carbon Footprint

Includes impacts (carbon footprint) created directly at the facility (gate-to-gate) and impacts generated by the production of raw materials and by the process steps which took place in another site.

Cradle-to-gate

Per yearly production	Per 1kg of material output
1.130.638 kg CO^2 -eq.	**13,5** kg CO^2 -eq.

Contribution analysis

Percentage %   Unit kg CO -eq.

- production of fibres   76 %
- facility operation   21 %
- transport   3 %

Facility operations

Percentage %   Unit kg CO -eq.

- electricity   56,7 %
- steam   18,2 %
- water   21,1 %
- chemicals   0,3 %
- packaging   1,1 %
- waste packaging   0,1 %
- waste yarn & textile   2,4 %
- building, hall   0,2 %

Per process step

Per year   Per 1kg of material output

- 1. Yarn production, humidifiying, plant-based fibres   20 kg CO^2 -eq.
- 2. Yarn production, washing, wool fibres   24 kg CO^2 -eq.
- 3. Fabric manufacturing, knitting, circular   8.737 kg CO^2 -eq.
- 4. Dyeing, blends, unspecified, exhaust   78.666 kg CO^2 -eq.

Benefits
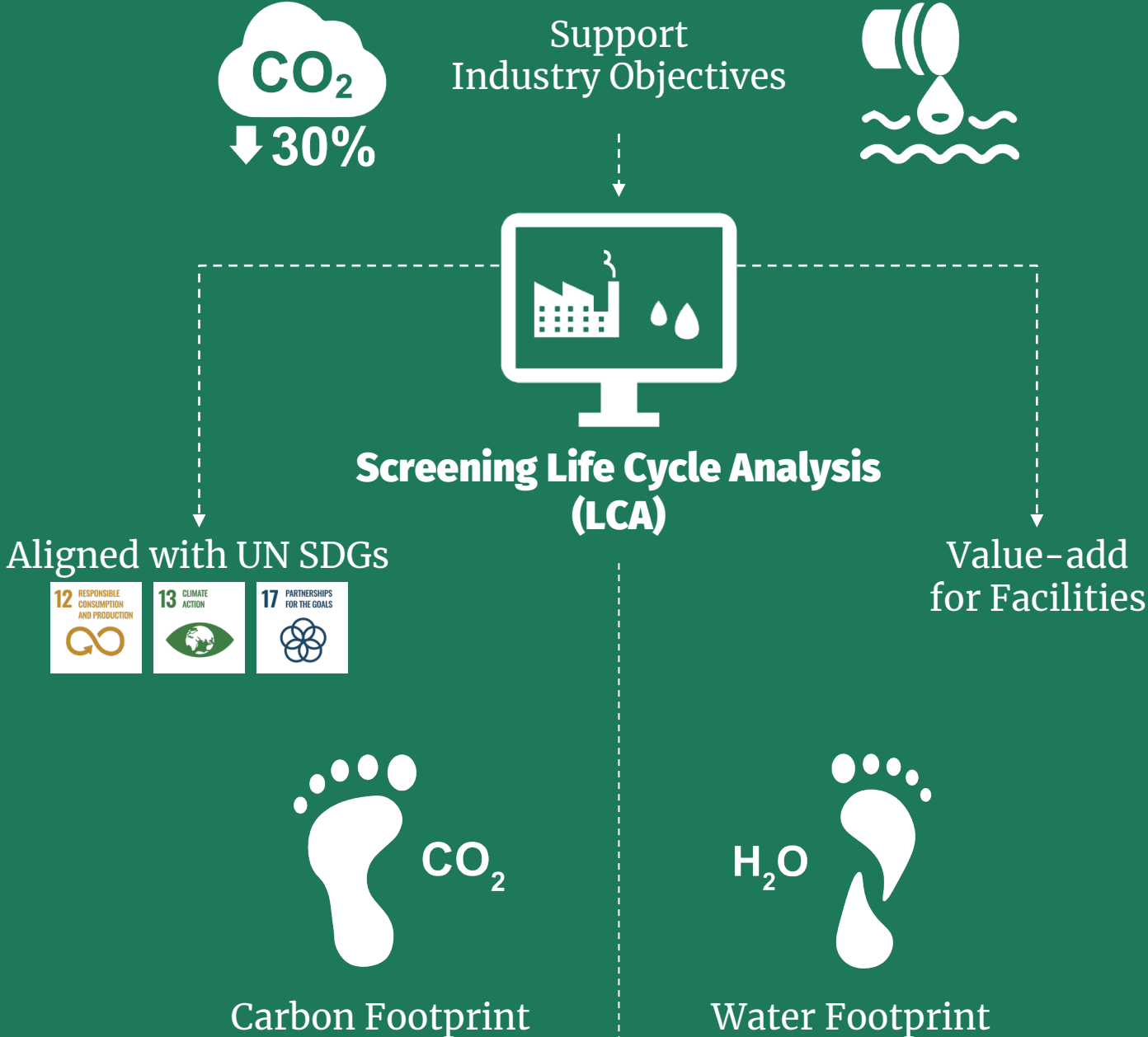
✓ Credible, comparable data → Targeted action

✓ Quick insights into "hot spots" → Cost savings

✓ Calculated impact of each step → Continuous improvement

✓ Comparability → ID real environmental costs

Timeline

2020: Pilot

2021: IT development & beta testing

2022: Available to all STeP facilities

CO_2 ↓ 30%

Support Industry Objectives

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Aligned with UN SDGs

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

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17 PARTNERSHIPS FOR THE GOALS

Value-add for Facilities

CO_2 Carbon Footprint

H_2O Water Footprint

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Carbon & Water Footprint per Product

FUTURE: Integration into MADE IN GREEN

- OEKO-TEX® Label Check:
  Display the carbon & water footprint of
  MADE IN GREEN labeled products

- Guide:
  Develop method guideline
  & robust calculation process

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Hohenstein Helps Make Textiles...

...fresh
- Odor management
- Microbe protection
- Ease of care

...comfortable
- Quantitative comfort
- Breathability
- Moisture management
- Heating & cooling analysis
- Skin sensorial properties
- Range of motion

...safer
- Chemical testing
- Flammability testing

...fit
- 3D/4D scanning
- Sizing
- Fit analysis
- Pattern making
- Digitized materials
- 3D fitting

...sustainable
- GMO cotton testing
- Biodegradability
- Microfibers
- OEKO-TEX®

...work
- Protection against wind & rain
- Abrasion resistance & strength
- Reduced noise, enhanced visibility
- UV protection

...better
- Comparative testing
- Supply chain communications
- Quality labels
- Marketing claim support

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Hohenstein Worldwide Support
1000 Employees

Thank you

HOHENSTEIN ●

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Booth 320

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