



SYSTAIN CONSULTING

The Carbon Footprint of Textiles

World Congress on Organic Cotton
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Research project „Carbon Footprint of Textiles“

Project Set-up:



Goal: exemplary evaluation of GHG emissions in the textile supply chain:

- **General information** about the impact of textile products
- **Transparency** about GHG emissions in the textile supply chain
- **Comparisons** among products and sourcing markets
- Identification of **hot-spots** for emission reductions
- **Input** for the methodological discussions by practical experiences

Proposition:

- Accordance with ISO 14040 series, use of PAS 2050:2008 with critical reflection
- High portion of primary data as far as possible
- Scenario modeling
- Assessing practicality vs. accurateness



In total, three textiles have been evaluated



Long shirt $\frac{3}{4}$ sleeve, white
100% cotton

Size 40-42
Net weight 222 grams
Cotton from U.S.
Production in Bangladesh
Offered by OTTO



Sweat-jacket with hood, fuchsia
100% cotton ('Cotton made in
Africa')

Size 40
Net weight 446 grams
Cotton from Benin
Production in Turkey
Offered by BAUR

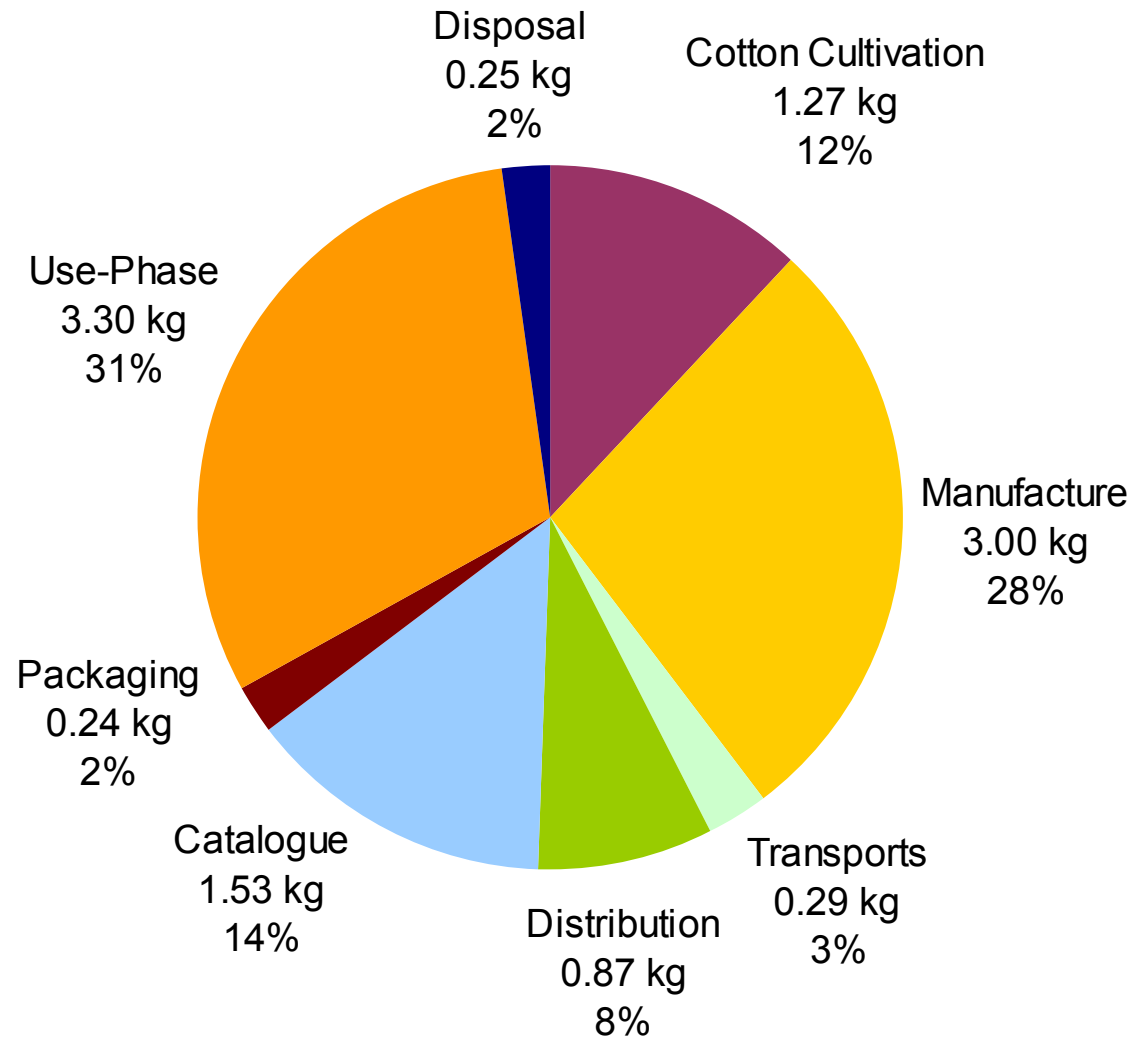


Jacket for kids, red 100%
Acrylic

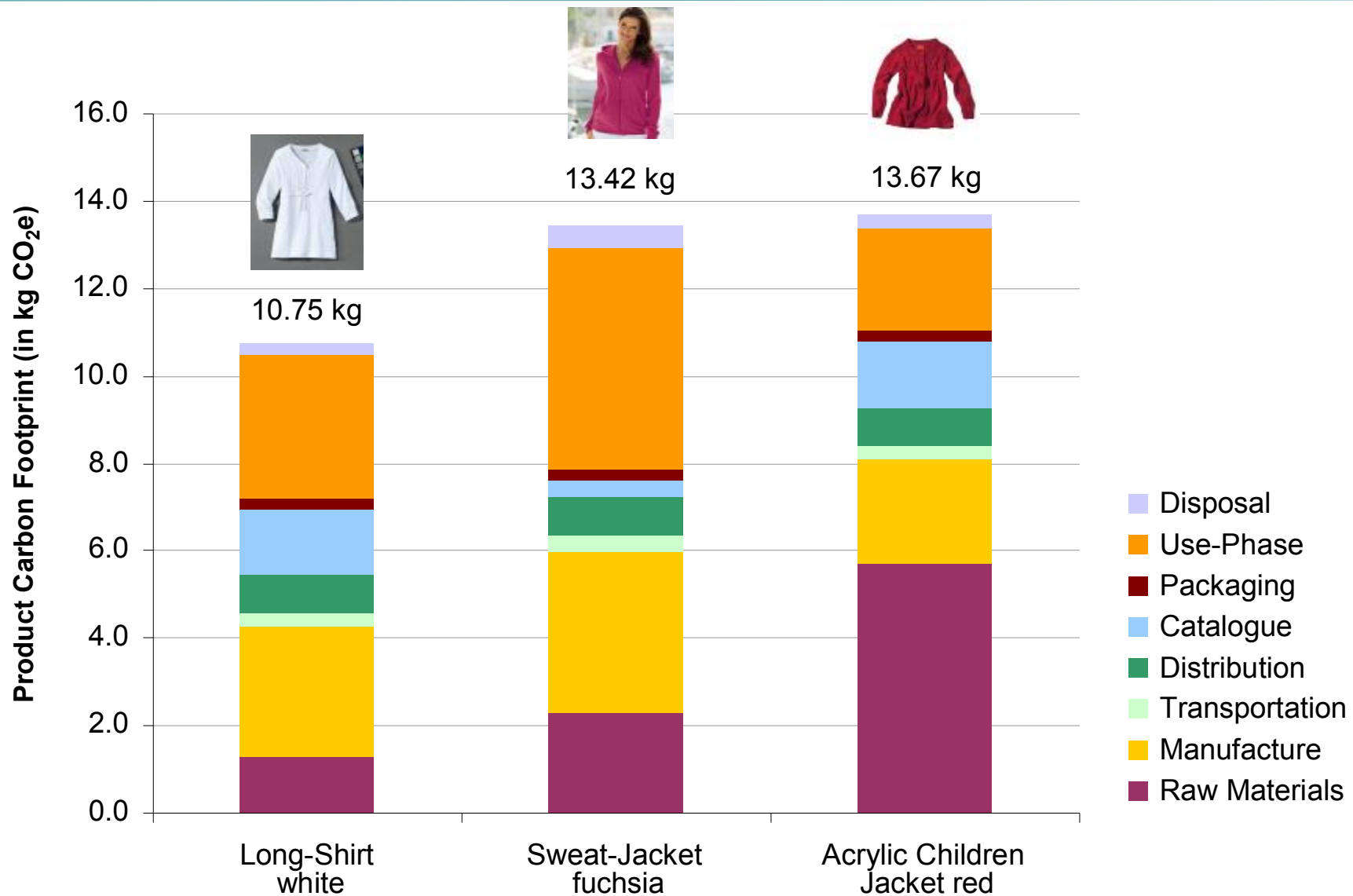
Size 152-158
Net weight 266 grams
Acrylic from China
Production in Bangladesh
Offered by OTTO



Carbon Footprint of the white longshirt: 10.75 kg CO₂e, 50 times the net-weight



Three products - three Footprints – and lots of information



Consumers can contribute significantly to reduce the Product Carbon Footprint

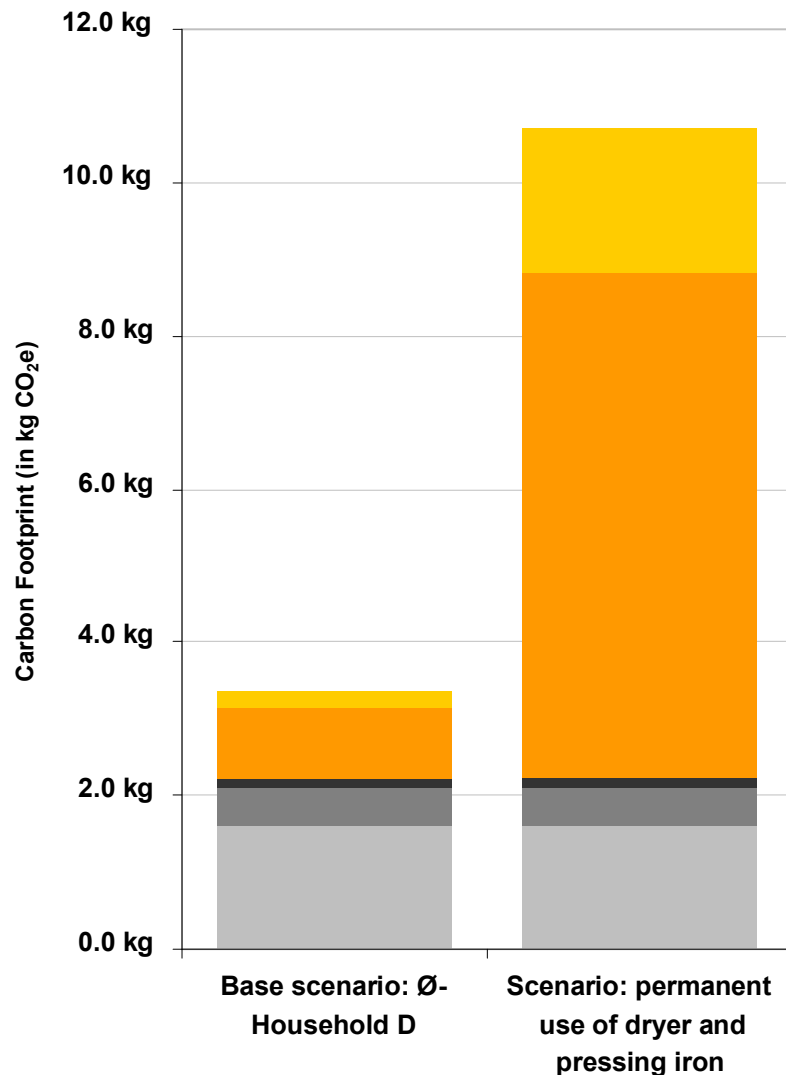
Carbon Footprint for use phase (55 laundries)

Scenario 1: base scenario with shared usage of dryer and iron according to the statistical average

Scenario 2: permanent usage of dryer and iron after each laundry

The Carbon Footprint of the use-phase is also determined by:

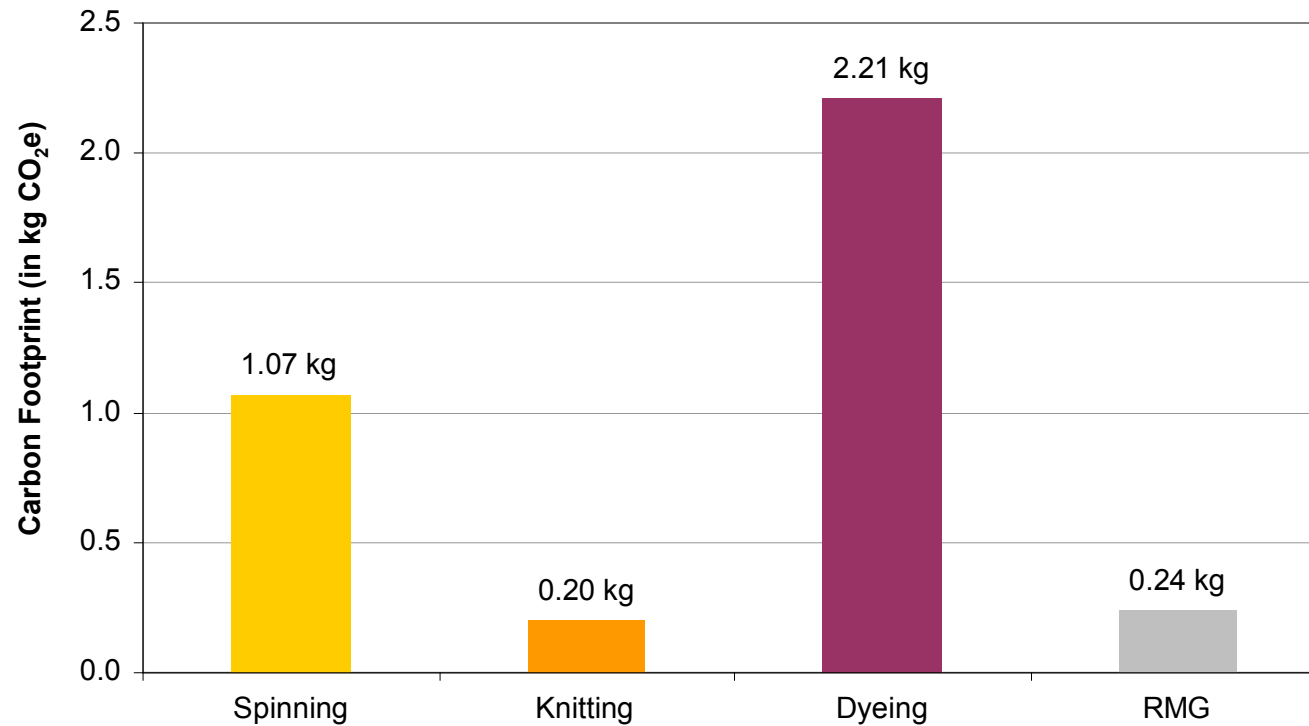
- Energy efficiency of devices
- Washing temperature
- Actual loading of appliances



Devices with improved energy efficiency reduce the Carbon Footprint of use-phase by almost one third. A washing temperature of 40°C instead of 60°C reduces the Carbon Footprint of the use-phase by 45%, 30°C instead of 40°C by 40%.

- Washing machine
- Water supply
- Pressing iron
- Washing agent
- Dryer

Energy efficiency and national grid factor reduce the carbon footprint in manufacture in Turkey



CO₂e-emissions in the production spinning - RMG (excl. transportation)

- 40% less GHG-emissions for manufacture compared to the longshirt produced in Bangladesh (mass equivalence)
- But 90% more GHG-emissions for dyeing due to: waste water treatment, color intensity, thickness of knit-fabric, energy sources (natural gas + lignite)
- Dyeing I: exclusive use of natural gas: 1.43 kg CO₂e; exclusive use of lignite: 2.30 kg CO₂e
- Dyeing II: elasticity of carbon footprint due to volatile production – doubling emissions per output

Carbon Footprint results in gain of knowledge through transparency

Capabilities of the PCF:

- **Transparency** in the sphere of influence of the company
- Identification of **Hot-Spots**
- Derivation of **alternatives**
- Addressing carbon emissions **outside the company**
- Addressing climate protection in **emerging markets**
- **Illustration** and **education**
- Utilization of findings for **management instruments**

Incapabilities of the PCF:

- Not a sole indicator of eco-performance
- No comparison just by indicating the Carbon-Footprint
- No exact, universal result



Lessons Learnt



Ecological responsibility for companies and consumers

PCF- Accounting

- Meaningful results by PCF-evaluation
- Primary data reveal potentials better than generic data
- Impulses already through data collection
- Economies of scale

PCF-Communication

- Primarily awareness raising, information and illustration
- Additional information essential for comparison of PCF
- Use for b2c-communication but also b2b



Systain Consulting – 10 years of passion for sustainability

Systain Consulting is an experienced CSR consultancy. Together with our clients, we develop tailor-made and pragmatic solutions for sustainable management – with main focus on the supply chain. Our clients range from brands, retailers, importers and producers.

Systain’s Approach to CSR



The diagram 'Four Areas of Applied CSR' is structured as follows:

Four Areas of Applied CSR		
1 Sustainable Products	2 Social Responsibility	3 Climate Protection
Communication		

The photographs show: 1. A worker at a sewing machine. 2. A factory floor with rows of sewing machines. 3. A close-up of a sewing machine stitching a yellow fabric. 4. A worker in a white shirt walking in a factory. 5. A modern office building with a glass facade. 6. Workers in a factory setting, one in an orange shirt.

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