



# Collection and Sales of Second-hand Clothes

## Reusing clothes saves a lot of CO<sub>2</sub> emission

We in HPP have an interest in “speaking the same language” about how our work with second-hand clothes contributes to fighting Global Warming and Climate Change. A common way to express such contribution in terms of reduced CO<sub>2</sub> emission is one step in that direction.

The following method answers the question: “How much CO<sub>2</sub> is saved when we collect 1 Kg of clothes?” It recommends a conversion factor, ONE factor, not different factors for different textiles, different HPP units or different ways to do things. The method considers CO<sub>2</sub> emission from the production phase only. The use phase, transport, and how the textiles are discarded in the end will be almost similar for a new item and a reused item.

The CO<sub>2</sub> benefit also depends on the CO<sub>2</sub> emission arising from the collection and sorting of the reused items. This emission is specific for the different actors and is not considered in this calculation method.

The method goes like this:

$$\begin{aligned} \text{CO}_2 \text{ saved} &= \text{quantity of original clothes} \times \text{reuse share} \times \text{replacement rate} \times \text{CO}_2 \text{ factor} \\ &= \text{quantity of original clothes} \times 75 \% \quad \times 48,1 \% \quad \times 16,9 \\ &= \text{quantity of original clothes} \times \text{conversion factor} \end{aligned}$$

1 Kg of clothes collected saves 6,1 Kgs of CO<sub>2</sub> emission or **the conversion factor is 6,1**

This is before considering the CO<sub>2</sub> footprint of the collection itself.

This conversion factor is unique for HPP, taking into account the very high degree of reuse which HPP achieves through cooperation between the different HPP units. The factor cannot be used by other actors without customization.

**The CO<sub>2</sub> factor** is calculated on the basis of data from these sources:

- “A new textiles economy: redesigning fashion’s future”, Ellen MacArthur Foundation, 2017, and
- “Environmental Improvement Potential of textiles (IMPRO Textiles)”, 2014, European Commission Joint Research Centre

The plain CO<sub>2</sub> factor does not reveal the fact that plastic-based fibres make over 60% of all fibres and emit more than twice as much CO<sub>2</sub> per Kg as cotton and other fibres.

**The replacement rate** is a “crossbreed” of the conclusions of the following 5 studies:

1. “Environmental benefits from reusing clothes”, Danish Technical University, Master Thesis by Laura Farrant, 2008
2. “Study into consumer second-hand shopping behaviour to identify the re-use displacement effect”, The Waste and Resources Action Programme (WRAP), 2013 (survey conducted in 2012).
3. “Replacement rates for second-hand clothing and household textiles - a survey study from Malawi, Mozambique and Angola”, Nynne Nørup, Kaj Pihl, Charlotte Scheutz, Anders Damgaard & The Federation & UFF Norway (survey conducted in 2016)
4. “Exports of Nordic Used Textiles - Fate, benefits and impacts”, Nordic council of Ministers, 2016
5. “Replacement rates for second-hand clothing and household textiles - a survey study from Berlin”, HUMANA Second Hand Kleidung GmbH & Kaj Pihl (survey conducted in 2018).