

Description of Items

Hygiene Kits contain a variety of essential household items meant to be consumed by one person per kit.

PRODUCT	OLD KIT	NEW KIT
Washing Powder	1 x 450g	1 x 225g concentrate
Sanitary Pad	1 x 10pcs	No Change
Hair Shampoo	1 x 275ml bottle	1 x 70g bar
Body Soap	2 x 100g	paper packaging
Razor	1 x 5 pc	1 x 2 pc
Tooth Paste	1 x 75g	No Change
Tooth Brush	1 pce 100% PP	1 pce 50% PP + 50% straw
Toilet Paper	2 x virgin paper	2 x recycled, unbleached

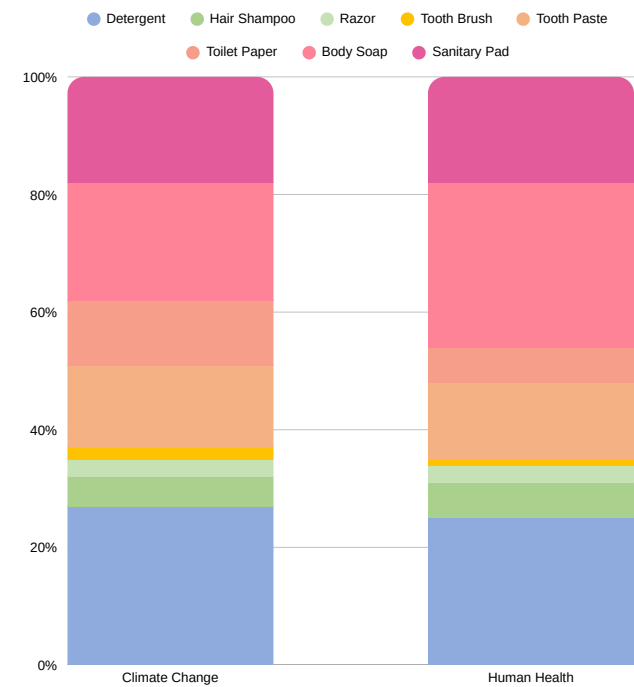
Functional unit

Complete Use of a Hygiene Kit

Item	Usage	Reference Flows
Old Kit	1	1
New Kit	1	1



Results of the computation



Assumptions

The ICRC updated the makeup of their hygiene kits to fulfil the same functions for their beneficiaries with reduced volume

These updates include changing of the product in some cases, and reducing the number of pieces in other cases. This study standardizes the function of each product in the hygiene kit – and then assesses the change in environmental impact from the older version of the kit to the newer version, as well as what can be done to further improve the kit’s overall impact.

Product	Environmental Impact	
	Climate Change	Human Health
Detergent	1.5781	1.04E-04
Hair Shampoo	0.3108	2.50E-05
Razor	0.1708	1.23E-05
Tooth Brush	0.13	5.18E-06
Tooth Paste	0.8038	5.49E-05
Toilet Paper	0.62	2.46E-05
Body Soap	1.1884	1.19E-04
Sanitary Pad	1.0856	7.60E-05

Impact of Components

Detergent is the biggest contributor of GHG emissions in the new kit, consisting of 27% of the total GHG Emissions with soap being second at 20%.

Soap Bars, mainly due to their water consumption, **are the biggest contributors for impact on human health**, making up 28% of the total impact on human health, with detergent being the second highest at 25%.

Other notably high impact items are **sanitary pads**, accounting for about 18% of the impact in both the old and new kits.

Analyses

With the changes made to products inside the kit, the **new hygiene kit has an overall 30% reduction in GHG Emissions & 24% reduction in impact on human health** as compared to the previous kit.

The greatest reduction in emissions on a product level was seen in **razors (59%), detergent/washing powder (50%) and toilet paper (45%)**. The greatest reduction in impact on human health on a product level was seen in **razors (61%), detergent/washing powder (50%) and hair shampoo (27%)**.

For further impact reduction for future revisions of the kit, additional impact reductions of the most impactful products within the hygiene kit would need to be addressed, such as **washing powder, sanitary pads, and soap bars**.

Emission factors

The values displayed here are not per functional unit but per item. These values can be used to compute a carbon footprint of an organisation and can be adapted to a specific case using the tool

Name	GHG Protocol Categories	kgCO2e/unit	
		Old Kit	New Kit
Cradle-to-grave	N/A	8.4	5.9
Cradle-to-gate	3.1 Purchased Goods	5.2	3.4

References

Wernet, G., Bauer, C., Steubing, B., Reinhard, J., Moreno-Ruiz, E., and Weidema, B., 2016. ‘The ecoinvent database version 3 (part I): overview and methodology’. The International Journal of Life Cycle Assessment, [online] 21(9), pp.1218–1230. Available at: <http://link.springer.com/10.1007/s11367-016-1087-8>.

Rajput, A., Tobin Greene, C. and Schmid, S. (no date) ‘Life Cycle Assessment (LCA) Methodology’. Available at: https://climateactionaccelerator.org/wp-content/uploads/2025/06/EPFL_LCA_methodology_v1.0.pdf.

Repository of life cycle assessments – Climate Action Accelerator (2025). Available at: <https://climateactionaccelerator.org/repository-of-lifecycle-assessments/>.

About this project

Designing methodologies and performing life cycle analyses of high-impact items to build a GHG emission factor and environmental impact database adapted to the humanitarian sector with the goal of identifying key strategies to reduce environmental impacts.

EPFL EssentialTech Center:
Dr. Grégoire Castella, Dr. Cara Tobin, Emeline Darçot

EPFL LEURE:
Dr. Sascha Nick, Ashima Rajput

International Committee of the Red Cross (ICRC):
Anna Maria Liwak, Carmen Garcia Duro

Climate Action Accelerator:
Bruno Jochum, Sonja Schmid, Paolo Sévègnes

Associated expert:
Dr. Damien Friot