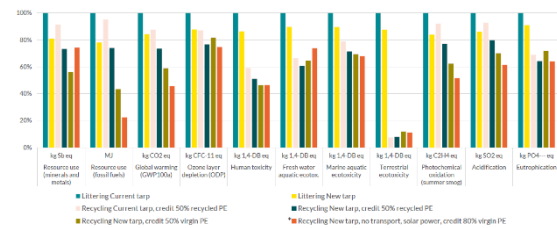


## END OF PROJECT EXECUTIVE SUMMARY

From May 1<sup>st</sup> 2021, to December 31<sup>st</sup>, 2023, the ICRC, UNHCR, and IFRC have conducted a Research and Development project to design a new tarpaulin specification with a lesser environmental impact.

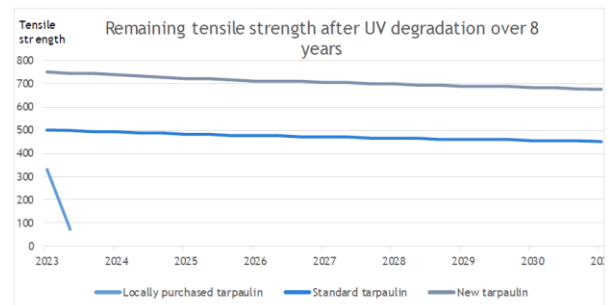
With a thorough Life Cycle Assessment handled by the Research Institute of Sweden (RISE), the different steps of the product life were analyzed. All possibilities to reduce the environmental impact were screened and described in a proposal for enhancing the product specification.

**Comparison of environmental impact of current and new ICRC PE tarpaulin with different end of life scenarios, 1 piece of ICRC tarp (6x4m) - highest value set to 100%**



The research included deep investigation on biodegradable, bio-sourced, and recycled materials. As a result, considering the current context and until further scientific and technical evolution, biodegradable and bio-sourced materials were excluded from the potential alternatives due to too many uncertainties and many negative impacts. Recycled material was approved for its potential impact reduction. However, it is included as an option only, due to the market scarcity of reliable sources of recycled PE.

A long-term laboratory test equivalent to 10 years in real life demonstrated the extremely high UV resistance of the tarpaulin compared to the tarpaulins one can find on every market. This extremely durable UV resistant PE can be collected as a recyclable waste even after decades without degrading into microplastics.



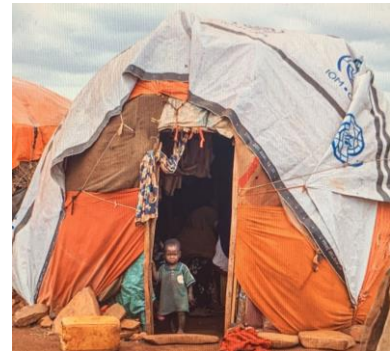
The new product specification includes:

- Introduction of 15% recycled PE = 8% impact reduction on global warming and fossil resources depletion
- Reduction of 14% of the weight = 14% reduction of the overall impact
- Extended life-time with a stronger PE material and high UV resistance = potentially 50% reduction or more of the overall impact
- Recycling at the end of life = up to 78% reduction of the overall impact



The new tarpaulins were sent to the field and to a laboratory for final testing. The laboratory test confirmed the achievability of those specification, with some minor adjustments.

The laboratory test also confirmed that the fire safety is achievable without toxic chemical additives. Test on large samples with and without fire retardant additives demonstrated the same reaction to large fire from all tarpaulin samples. This is supported by real size test on PE tents. This could allow the yearly suppression of at least 1000 tons of harmful chemicals.



The field testing handled by the Shelter Research Unit of the Luxembourg Red Cross in Niger involved 30 volunteer beneficiaries, representing 30 households in 3 locations. The ICRC also distributed 100 tarpaulins in Niger to 50 beneficiaries for a blind test in which recipients were not told specific information about the new tarpaulin. Results came out from both tests with highly positive results (94% satisfaction).

This R&D project is now ending with the release of the final specification for the new tarpaulin including mainly the reduction of material quantity and the increase of durability.

**Technical specifications:** Tarpaulin 4m x 6m with 2 reinforcement bands, fire resistant without FR additives. Full specification [available here](#).

**Conclusion:** Moving to these new specifications for the 3 million of tarpaulins distributed every year will **reduce the CO<sub>2</sub>eq emissions by 69'000 tons** every year in addition to the reduced toxic pollution and a reduced usage of resources. At the same time it will provide a better service to users with a prolonged life span, many re-uses, and possible recycling.

**Further recommendation:** Investigate recycling, and ensure the proper quality of the distributed tarpaulins with a strong and reliable quality management system.

Many thanks to all the stakeholders for their essential contribution.

▶ [VIDEO: Eco-design tarpaulin project](#)

📄 [REPORT: Final project report and all test reports](#)

[ICRC/IFRC Standard Product Catalogue](#)

