

**Speakers:** Michela Balzino, Logistics Cluster (Waste Management and Measuring, Reverse Logistics, Environmentally Sustainable Procurement and Transport, and Circular Economy - [WREC](#)); Carmen Garcia Duro (International Committee of Red Cross - ICRC), David Renard (Medicines Sans Frontières - MSF), Aldo Spainì & Jose Hincapie (World Food Programme - WFP), Tatyana Ageyeva (United Nations High Commissioner for Refugees), Sarah Hayman (Swedish Red Cross), Sonja Schmid (Climate Action Accelerator - CAA), Beatriz Suzo.

**Number of participants:** 73

**Organizations:** Acted, Action Contre la Faim, Arche Consultancy, Aviation Sans Frontiers, Catholic Relief Service (CRS), CAA, Concern, Danish Refugee Council (DRC), Deve Consult, Directorate-General for European Civil Protection and Humanitarian Aid Operations (DG ECHO), Humanitarian Logistics Cooperative (Hulo), ICRC, International Med Corps, MSF, NRS Relief, Oxfam, Solidarities Syria, Swedish Red Cross, United Nations Populated Fund (UNFPA), United Nations High Commissioner for Refugees (UNHCR), UN Women, WFP, Wilderway, Yellow Jackets

#### Agenda:

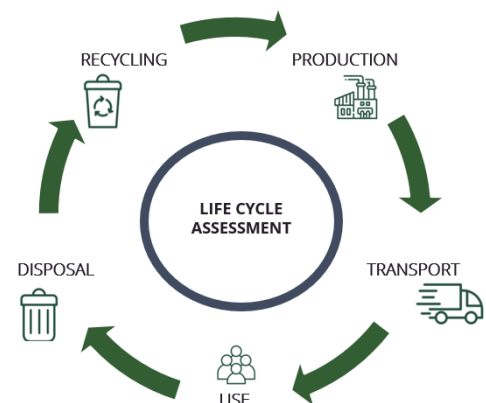
- Fundamentals of LCA
  - What is LCA? And why is valuable for Humanitarian organization?
  - Which are the phases of LCA?
  - Which are the challenges of LCAs for humanitarian worker?
- Applying LCA in the Humanitarian Context
- Getting started with LCAs and building on existing work
- Qualitative findings on LCA Assessment
- Q&A

### 1. Fundamentals of Environmental Life Cycle Assessment (LCA)

The session began with an introduction to the concept of Life Cycle Assessment, focusing specifically on its environmental dimension. LCA is a scientific methodology used to evaluate the environmental impacts associated with all stages of a product or service's life—from production, and transportation, to use, disposal or recycling.

Participants were guided through the four key phases of an LCA:

- **Goal and Scope Definition:** This phase involves determining what is being assessed (a single product, a group of products, or a comparison), the boundaries of the study (e.g., cradle-to-gate, cradle-to-grave, or cradle-to-cradle), geographic scope, and time frame. It also includes selecting relevant impact categories such as carbon footprint, water use, or human toxicity.
- **Inventory Analysis:** Here, data is collected on environmental inputs (e.g., raw materials, energy) and outputs (e.g., emissions, waste) across each stage of the product's life cycle.
- **Impact Assessment:** The collected data is modeled using specialized software to quantify environmental impacts. For example, the carbon emissions associated with producing, transporting, and disposing of a blanket can be calculated.



- **Interpretation:** The final phase involves analyzing the results to draw conclusions and identify opportunities for improvement. This may lead to revisiting earlier phases to refine scope or update data, reflecting the iterative nature of LCA.

The presentation emphasized that LCA supports informed decision-making, helps identify high-impact areas, and enables organizations to align with environmental standards and donor expectations. It also highlighted common challenges such as data availability, technical complexity, and cost, particularly in humanitarian contexts.

## 2. Applying LCA in the Humanitarian Context

To illustrate how LCA is being applied in practice, five humanitarian organizations shared their experiences during the session. These case studies showcased a range of approaches—from detailed product-level assessments to broader strategic frameworks—highlighting both the benefits and challenges of integrating LCA into humanitarian decision-making.

- **International Committee of the Red Cross (ICRC)**  
ICRC presented a comprehensive effort involving 13 LCAs on non-food items, conducted in collaboration with academic and technical partners. The assessments covered items such as blankets, mattresses, solar lamps, and hygiene kits. Findings were used to validate sustainability improvements, measure CO<sub>2</sub> reductions, and explore the feasibility of recycled materials and renewable energy in production. The organization emphasized the importance of durability, supplier engagement, and the need to balance environmental benefits with cost implications. For example, while recycled plastic blankets reduced emissions by 30%, they came with a 12% cost increase. ICRC also highlighted the impact of renewable energy sourcing, showing that using 100% renewable energy in blanket production could reduce emissions by over 30%.
- **Médecins Sans Frontières (MSF)**  
MSF focused on single-use medical items, which represent two-thirds of its medical procurement. Due to data limitations and cost constraints, MSF developed a simplified methodology using material weights and procurement volumes to assess environmental impact. The analysis identified PVC-containing items and examination gloves as major contributors to emissions. Mitigation strategies included switching to lighter, non-latex gloves and promoting behavior change among healthcare workers to reduce overuse. The approach allowed MSF to prioritize high-impact items and propose practical changes without relying on complex software or full-scale LCAs.
- **World Food Programme (WFP)**  
WFP shared its ongoing work on LCAs for rice, beans, and maize meal, developed with support from academia and technical partners. Food was identified as a major driver of emissions in humanitarian operations—accounting for up to 90% of WFP’s footprint. The organization is developing a framework to guide LCA implementation, with a focus on operational decision-making and sustainable procurement. WFP emphasized the need to engage both suppliers and farmers, and to consider agroecological practices and nutritional value alongside environmental impact. The presentation also addressed the challenge of balancing sustainability goals with local procurement policies and social impact.
- **United Nations High Commissioner for Refugees (UNHCR)**  
UNHCR applied LCA to relief mattresses, a high-emission item responsible for approximately 40,000 tons of CO<sub>2</sub> annually. The organization compared various material options, including bio-based polyols, chemically recycled components, and recycled textiles. The analysis revealed that mattresses made from recycled textiles offered the greatest reduction in carbon footprint—up to 80% compared to conventional polyurethane foam.

UNHCR used these findings to guide procurement decisions and explore market feasibility, demonstrating how LCA can support product innovation and strategic planning.

- **Swedish Red Cross**

The Swedish Red Cross presented an LCA conducted on an emergency water treatment module deployed in Uganda. The assessment, carried out as part of a university thesis, identified water trucking as the highest-impact activity, followed by equipment production and international travel. The results informed operational improvements, such as exploring decentralized water treatment and gravity-fed systems. The organization also used the LCA to enhance monitoring practices, including diesel consumption tracking and waste management documentation. The case highlighted how even small-scale LCAs can promote environmental awareness and drive practical changes in field operations.

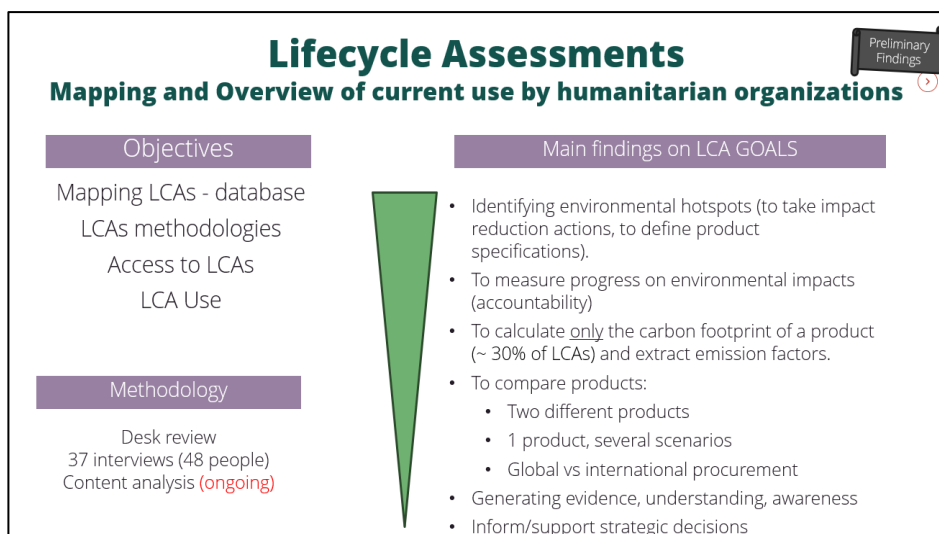
### 3. Getting started with LCAs and building on existing work

The Climate Action Accelerator provided actionable guidance for organizations looking to integrate Life Cycle Assessment (LCA) into humanitarian supply chains. Emphasizing a pragmatic approach, they advised using existing LCA data and focusing on high-impact products and levers—such as recycled materials, product durability, and renewable energy—rather than conducting new assessments for every item.

Key messages included avoiding “precision paralysis,” improving planning and forecasting to reduce emissions, and simplifying complex LCA findings for field-level use. The presentation also highlighted the need for harmonized formats and better comparability across LCA results to support decision-making.

### 4. Qualitative findings on LCA Assessment

Preliminary findings from an ECHO-funded consultancy were shared during the session. The study focused on mapping existing Life Cycle Assessments (LCAs) of humanitarian items, identifying gaps, common methodologies, and barriers to access—rather than conducting new assessments.



## Lifecycle Assessments

**Mapping and Overview of current use by humanitarian organizations**

Preliminary Findings

<p style="text-align: center; background-color: #808080; color: white; padding: 5px;">Main findings on LCA limitations</p> <ul style="list-style-type: none"><li>✓ Complexity (process and results)</li><li>✓ Context based - difficult to extrapolate</li><li>✓ Data quality and access</li><li>✓ Resources consumption (cost and time)</li><li>✓ Translation to actionable steps</li><li>✓ End-of-life difficult to assess</li><li>✓ Confidentiality/Accessibility</li></ul>	<p style="text-align: center; background-color: #808080; color: white; padding: 5px;">Main findings on LCA use and LCA results</p> <ul style="list-style-type: none"><li>• <b>No need to conduct an LCA for each humanitarian product</b></li><li>• LCAs results are useful to confirm and/or understand environmental impacts and trends.</li><li>• Production and durability (quality) as the major contributors to impact.</li><li>• Relevance of transportation impacts. Local vs. international procurement.</li><li>• Accessibility conditioned by: LCA purpose, reporting, external verification, reputational impact, legal implications.</li></ul>
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### Recording

[WREC Coalition - "Applying Life Cycle Assessment in the Humanitarian Sector", Info Session, Sep 2025](#)

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