

WP7 update - May 2026

Circular economy – Economic, social and environmental impact assessment

Deliverables

- D7.1 – Definition of goal & scope, assessment methodology ✓
- D7.2 – LCA, LCCA and SLCA screening studies, data gaps ✓
- D7.3 – Set of circularity indicators as proxy for environmental impact for RPP ✓
- D7.4 – Full circularity, economic and social assessment of all business cases ✓

Objectives

- Carry out for each business case a two-step (screening then full assessment) environmental, social and economic impact assessment
- Enable a simple circularity assessment of reusable packaging
- Support environment, social and economic performance improvements in other WPs

Key Activities

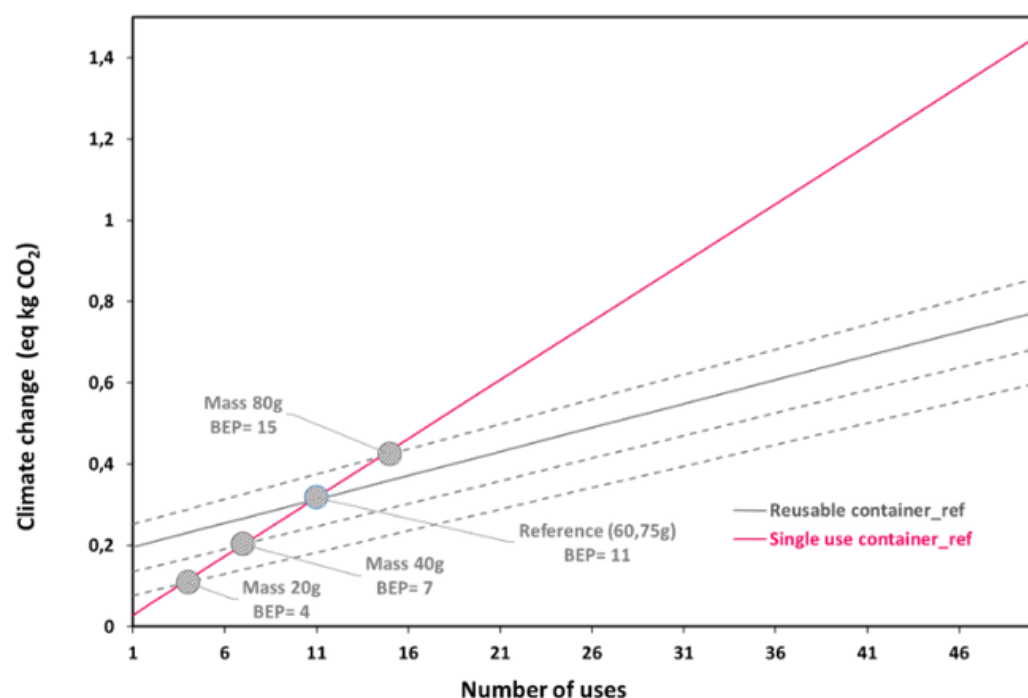
- Methodology and scope definition for all studies
- Data collection within the project and in databases/literature
- Impact assessment and interpretation
- Circularity tool development

? Key Research Questions

- Is it possible to provide a robust insight into potential impact of a developed reusable packaging without primary data?
- How do we find trade-offs between environmental and economic results if they don't give the same conclusions?
- How can a simple sustainability and circularity analysis can be provided to assess the benefits of switching to a reusable system?

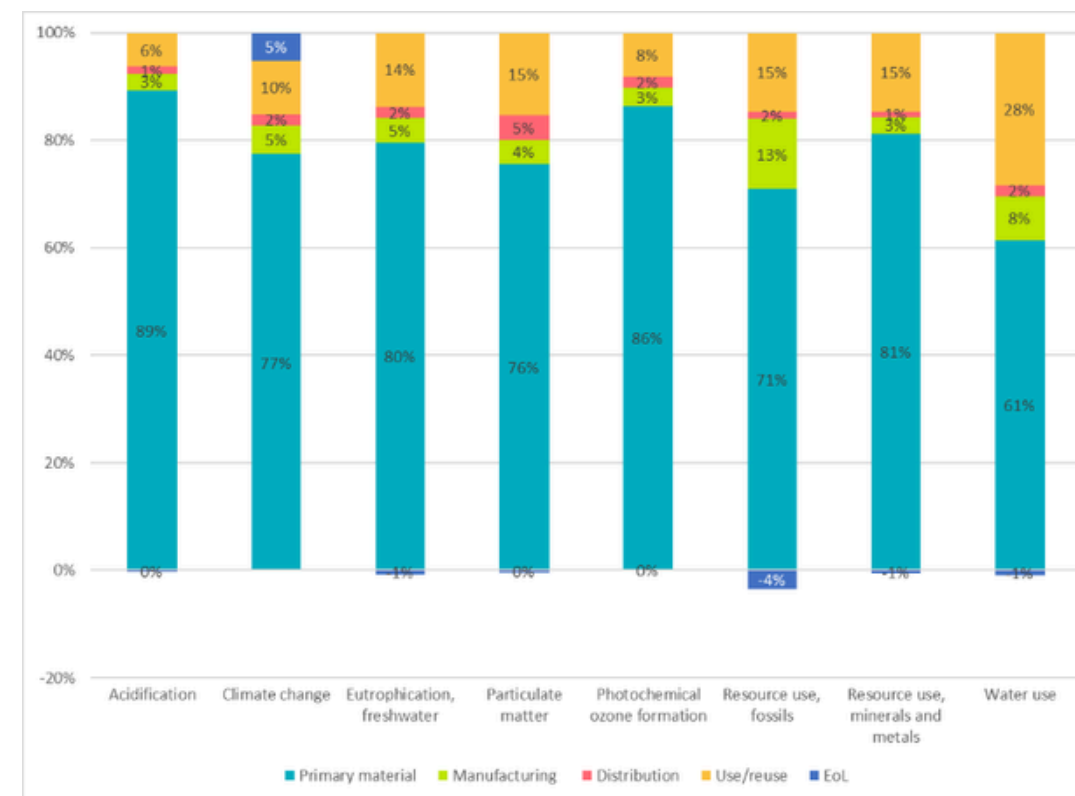
Results

- Screening results: Break-even point (number of reuses necessary to be better than single-use) on climate change, water-use and cost for all business cases. Enabled to identify the most influencing parameters and hypotheses to refine.



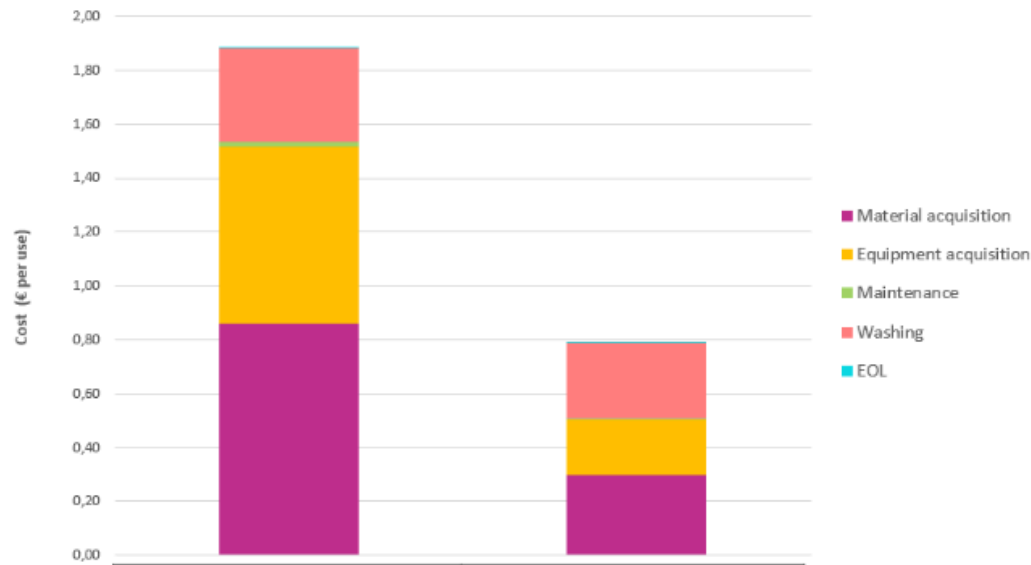
Example of BEP evolution on Climate Change based on packaging mass.

- Full assessment: Environmental, economic and social assessment of the developed packaging use cases. For LCA and LCC, the assessment gives the main contributors for each impact category, life cycle step and process, then provides guidelines to lower these impacts. As in the screenings, a break-even point is calculated compared to a SUPP.
- For SLCA, based on the questionnaires developed throughout the project, a social performance score has been calculated for all partners involved in the packaging value chain, then the normalised score for the RPP and the SUPP is compared.



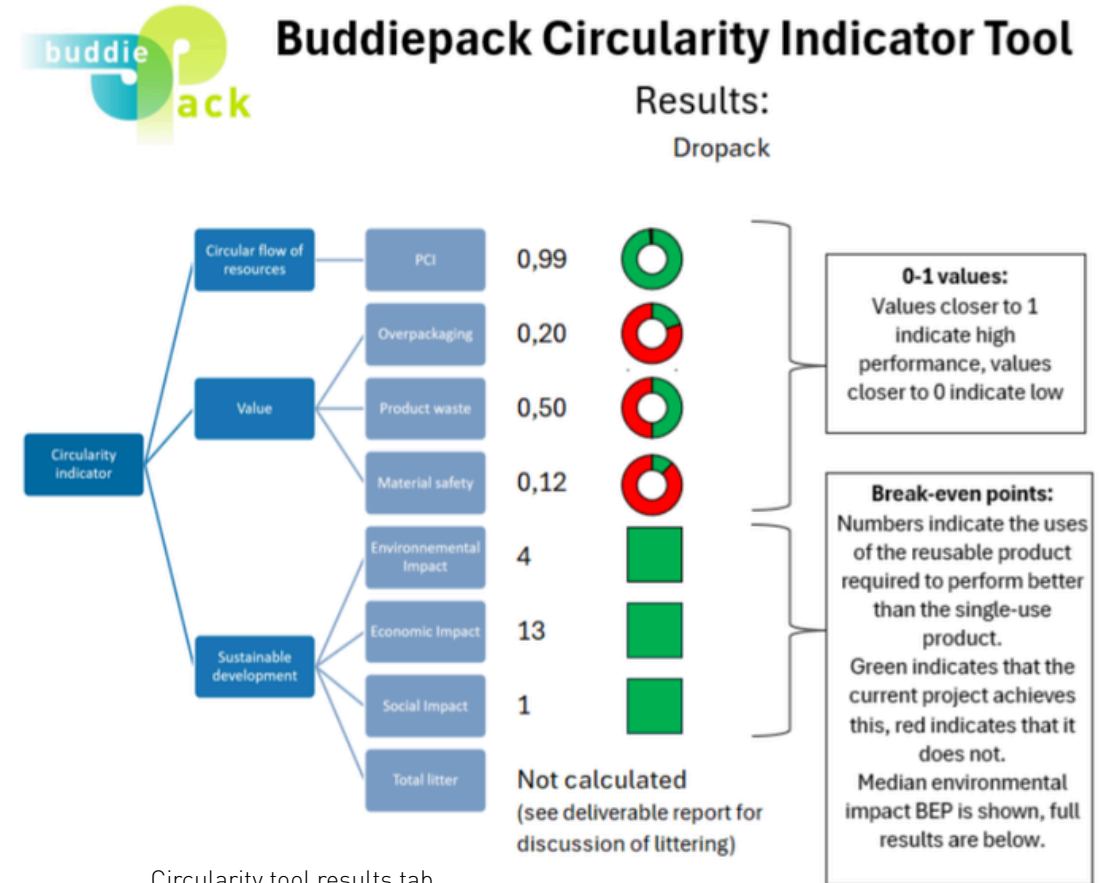
LCA contributor analysis of the RPP

Development of a circularity indicator tool: Excel tool based on ISO59004 definition of Circular Economy, enabling to give a simplified yet comprehensive outlook of the circularity of a reusable packaging compared to a single-use option.



	Uzaje Worst Case	Uzaje Best Case
Material acquisition	0,858	0,298
Equipment acquisition	0,660	0,205
Maintenance	0,016	0,005
Washing	0,350	0,28
EOL	0,001	0

LCC evaluation of cost reducing guidelines



Circularity tool results tab

Stakeholder group	Indicator	SUPP (normalised)	RPP (normalised)	Direction of change
Workers	Freedom of association	0.750	0.750	No change
	Forced labour	0.917	0.994	Increase
	Occupational health	0.625	0.789	Increase
	Security and benefits	0.250	0.208	Decrease
	Working hours	0.875	0.991	Increase
	Equal opportunities	0.917	0.994	Increase
	Fair wages	1.000	0.857	Decrease
	Safety management systems	1.000	1.000	No change
	Skills, knowledge and employability	0.750	0.750	No change
Local community	Safe and healthy living conditions	0.833	0.708	Decrease
	Access to basic needs	0.542	0.551	Increase
Consumers	Consumer health and safety	0.833	0.988	Increase
	Feedback mechanisms	0.833	0.988	Increase

SLCA reference scale evaluation

Summary

Across the seven assessed categories, Dropack achieved a good score for Circular flow of resources, and a poor score for Value.

Based on 20 uses, the reusable case performed better than single-use in 7 of 8 environmental impact cases and performed better than the single-use case for economic impact, and better than the single-use case for social impact.

Break-even points were between 1 and 2101 uses.

Impact & Outcomes

- Methodological improvement in LCA/LCCA/SLCA and modelling reuse
- Decision-support on the durability of a change towards a reusable packaging system
- Publication of 2 papers expected

FOLLOW OUR PROGRESS



www.buddie-pack.com

CONTACTS

IPC - The Industrial Technical
Centre for Plastics and Composites

Florence Isnard
Project coordinator

florence.isnard@ct-ipc.com /

+33 (0)4 26 61 90 87

2 rue Pierre-et-Marie-Curie

01100 Bellignat - France

www.ct-ipc.com



ACTIA - The French Network
for Food Technology Institutes

Gemma Cornuau
Dissemination leader

g.cornuau@actia-asso.eu

+33 (0)6 18 69 52 13

149 rue de Bercy - 75012 Paris - France

www.actia-asso.eu



ACTIA

PARTNERS

COORDINATOR

IPC (FRANCE)

PARTNERS

- 1 FRANCE (ACTIA [CTCPA, LNE], ETERNITY SYSTEMS, IPC, KNAUF INDUSTRIES, UZAJE)
- 2 GERMANY (PLASMION, VYTAL GLOBAL)
- 3 IRELAND (DAWN GROUP, TECHNOLOGICAL UNIV. OF THE SHANNON)
- 4 NETHERLANDS (SEARIOUS BUSINESS)
- 5 SPAIN (AIMPLAS - TECH. INST. OF PLASTICS, AUZO LAGUN S. COOP, ASEVI, CHRISTEYNS ESPANA, SMURFIT KAPPA PLASTICOS VICENTE)
- 6 UNITED KINGDOM (ECHO BRAND DESIGN, UNIV. OF SHEFFIELD)

