



LCA ELEMZÉS A KÖRFORGÁSOS MEGOLDÁSOK GYAKORLATÁBAN: ESETTANULMÁNY ITALCSOMAGOLÁSOKBÓL

Flora D'Souza et al. (Sphera)

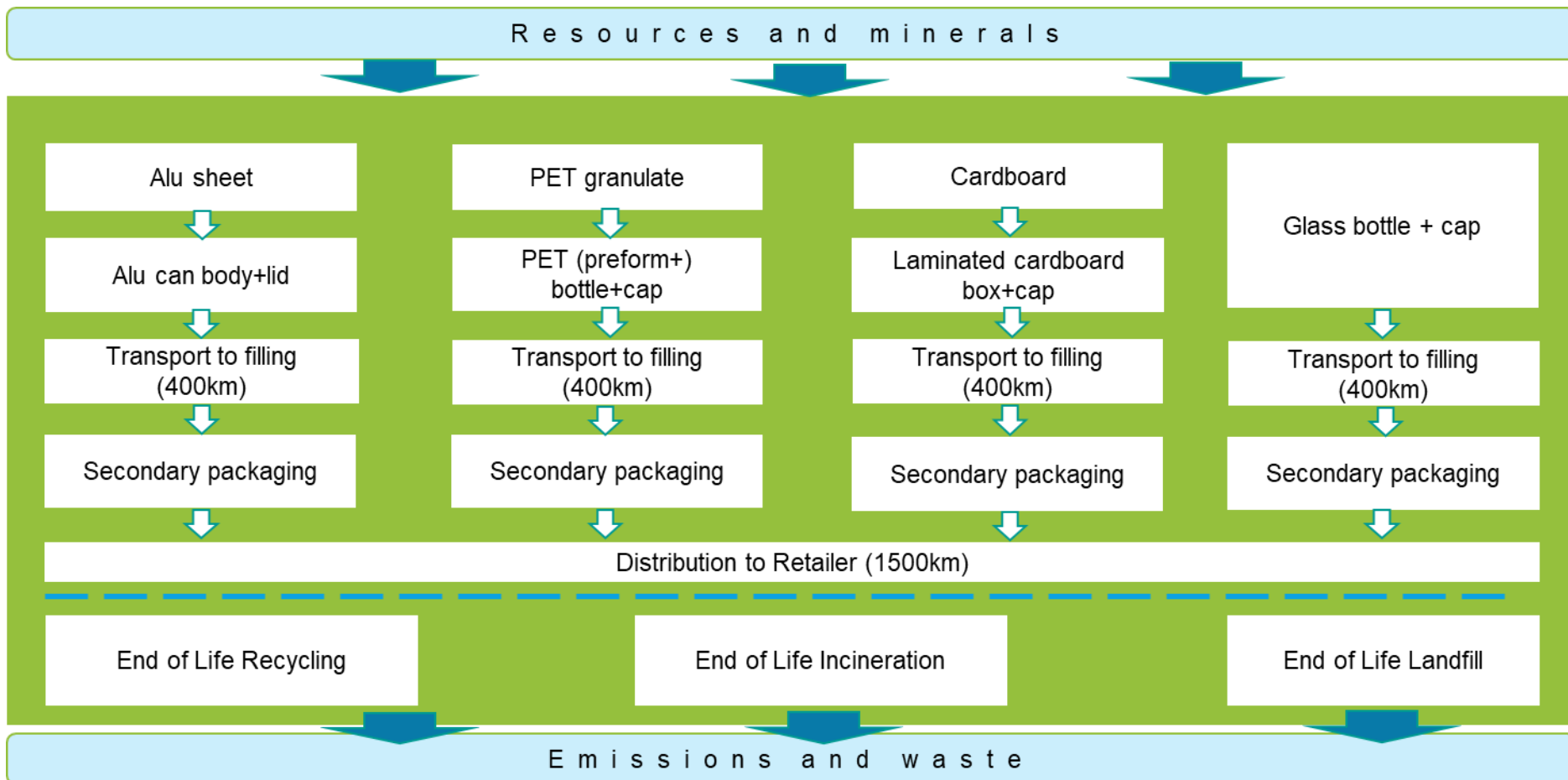
XV. LCA Konferencia
“Körforgásban a fenntarthatóságért”

STUDY OVERVIEW



- **GOAL (Selected):** to compare and contrast benefits and drawbacks of
 - small-to-medium-sized, single-use beverage packaging,
 - in 3 regions (EU, US, Brazil),
 - Using various methodological approaches (PEF-CFF, Cut-off and Substitution)
 - Evaluating sustainability metrics and **MCI**.
- **METHODS:**
 - life cycle models using Sphera's LCA databases (GaBi databases 2019)
 - LCA software suite GaBi
- **ANALYSIS:**
 - 4 materials: aluminum cans, PET, glass bottles and beverage cartons
 - in 3 regions, various methodologies, various impact categories
 - critical review by a panel of 3 independent experts

SYSTEM BOUNDARIES



REGIONAL STATISTICS APPLIED



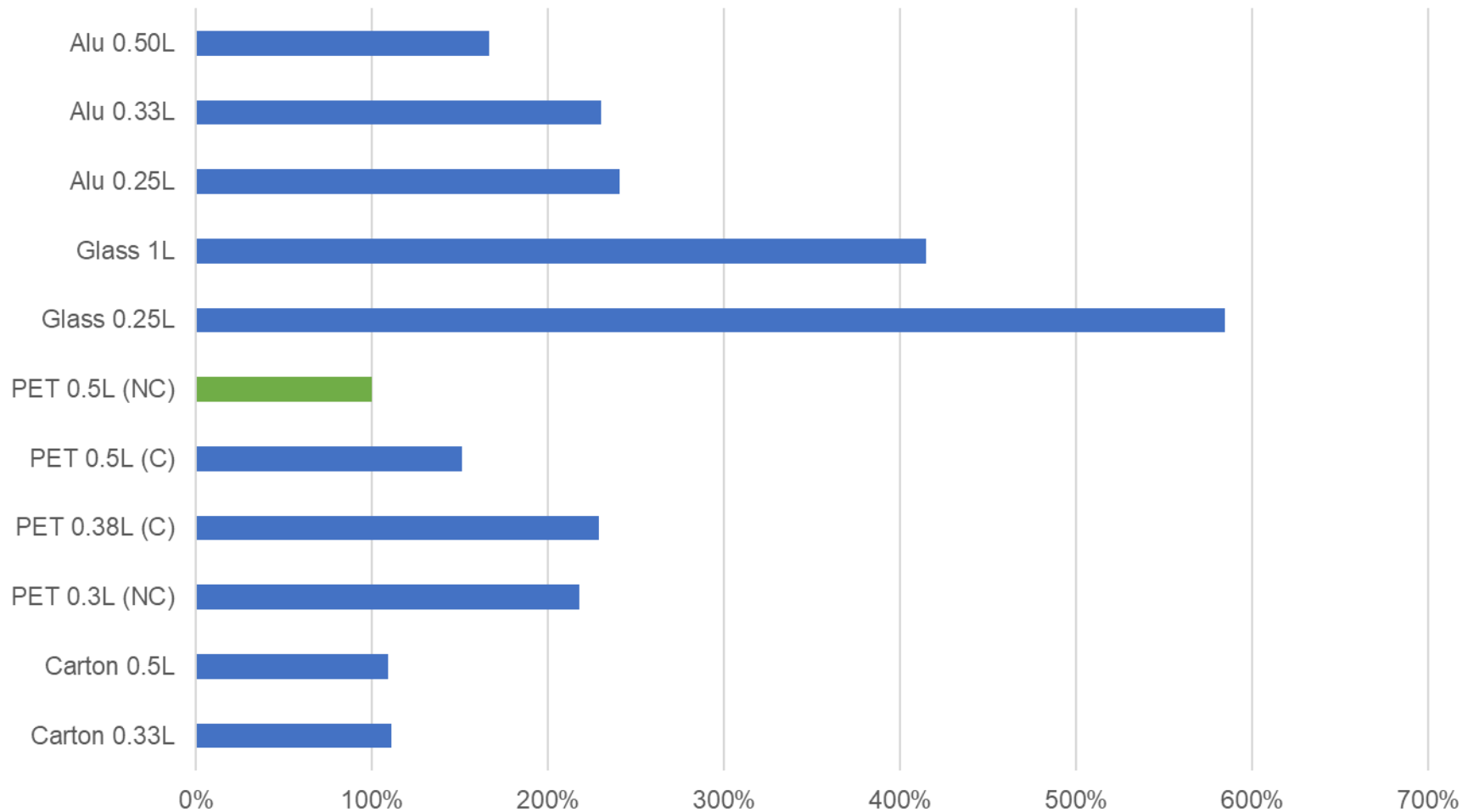
Beverage packaging	Region: Europe		Region: US		Region: Brazil	
	RC [%]	R2[%]	RC [%]	R2[%]	RC [%]	R2[%]
Aluminum cans	55 (body) 3 (ends)	69	73	50	78	97
PET bottles	0	42	6	30	0	59
Glass bottles	40	66	35	42	45	47
Beverage cartons	0	43*	0	26*	0	21*

RC – Recycled content; R2 – Recycling/collection rate

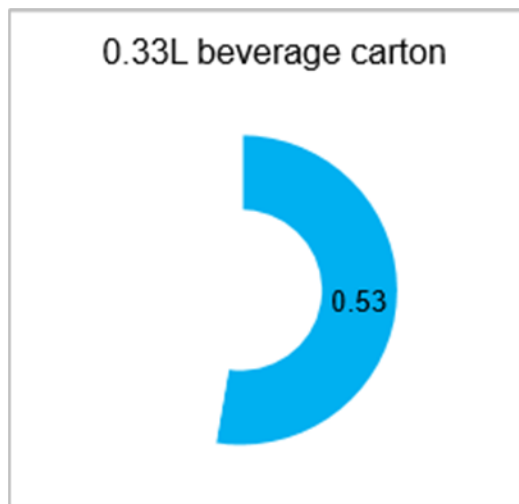
CLIMATE CHANGE – RELATIVE IMPACTS



% CO2 eq. per unit of fill volume in the EU, cradle-to-grave incl. transports, relative to the lowest impact (PEF-CFF)



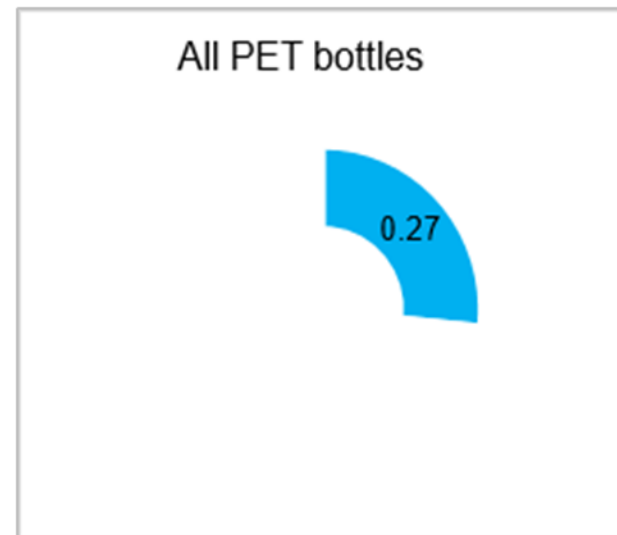
MATERIAL CIRCULARITY INDICATOR*



Largely renewable raw material, assumed sustainably sourced (FSC)

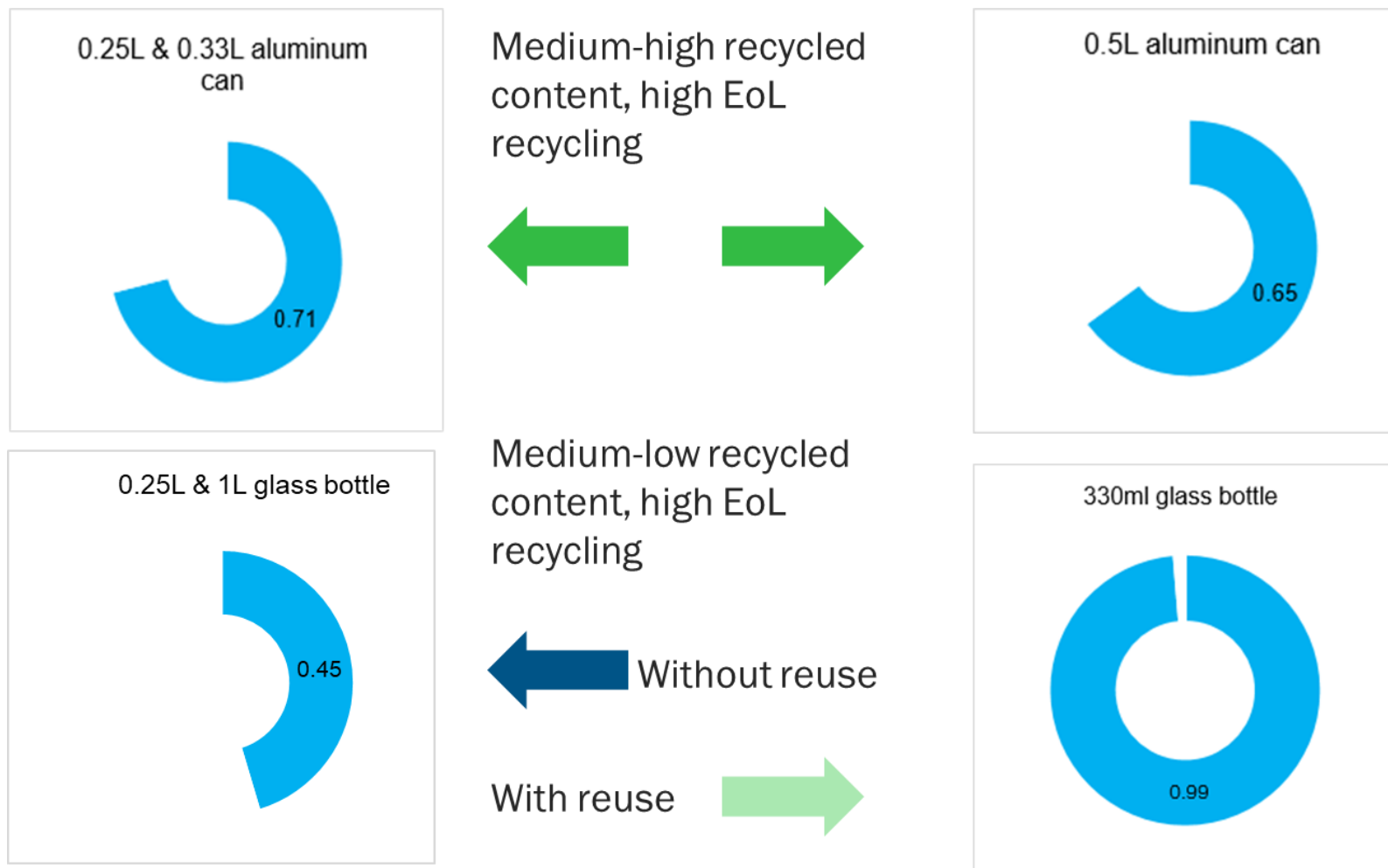


Entirely fossil raw material



* Based on "Circularity Indicators: An Approach to Measuring Circularity, Ellen MacArthur Foundation and Granta Design, <https://www.ellenmacarthurfoundation.org/assets/downloads/Circularity-Indicators-Methodology.pdf>

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A FEW CONCLUSIONS...



MCI & Climate

- MCI often correlates quite well with findings on climate change (GWP) → no causality
- MCI does not consider material efficiency → not suitable as single sustainability metric

Optimization

- None of the material options are inherently more sustainable
- Glass: reuse to be maximised
- Aluminum can: recycling and recycled content to be maximized
- PET bottles: weight reduction and recycling/recycled content
- Beverage cartons: weight reduction

<https://www.ball.com/realcircularity#LCA>

Material efficiency & LCA

- Packaging efficiency has a significant impact on the environmental burdens of the packaging



KÖSZÖNÖM A FIGYELMET!

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