STOPP PRACTICE ABSTRACT

ECO-DESIGN FRAMEWORK

PROBLEM ENCOUNTERED AND OBJECTIVE

Plastic food packaging design often prioritizes branding, functionality, and cost, while circularity aspects such as reuse, recyclability, and recycled content integration are considered too late in development. This leads to complex, non-recyclable, or inefficient solutions. The objective was to develop an improved eco-design decision framework, building on 4everPack, to systematically guide packaging development across use, reuse, and recycling lifecycles while ensuring food safety and material efficiency.

MAIN RESULTS / OUTCOMES

A structured eco-design decision tree was developed to support sustainable plastic food packaging design. The framework integrates three progressive levels: design for reduction and efficient use, design for reuse and recycling systems, and design from recycling through safe recycled content integration. It incorporates food protection criteria, branding simplification, collection and sorting compatibility, and regulatory compliance (EU 2022/1616), enabling a comprehensive and practical circular packaging design approach.

PRACTICAL RECOMMENDATIONS

Packaging designers should first assess necessity and material efficiency before addressing reuse and recycling pathways. Branding-driven complexity must be minimized to enhance recyclability and reduce weight. Mono-material solutions, sort-friendly geometries, and removable labels should be prioritized. Where feasible, robust reuse systems should be implemented. Finally, recycled content must comply with food contact regulations and originate from approved processes to ensure safety and high-quality circular integration.

Fig 1: Cover of the STOPP eco-design decision tree, guiding plastic food packaging design across use, reuse and recycling.

Further information

The full Eco-Design Framework can be found here: STOPP REPORTS

About this abstract

Authors: University of Vaasa
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STOPP is a Horizon Europe project aiming to transform food plastic packaging through the "5 Rs": Refuse, Reduce, Redesign, Reuse, and Recycle. Aligned with the EU's Packaging Directive, it develops training materials and strategies to promote circular economy solutions. Engaging stakeholders, STOPP advances recycling, reusable packaging, and consumer awareness for sustainable food packaging.

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