



Executive Summary

Disposable Paper-based Food Packaging

The false solution to the packaging waste crisis

In the ongoing negotiations of the EU Packaging and Packaging Waste Regulation, the realities of disposable paper-based food packaging should not be ignored. Marketing single-use paper-based products as sustainable alternatives to plastics is misleading citizens and policy makers. Legislators must seize the opportunity to curb the growing levels of packaging waste driven by overreliance on throwaway applications.

To effectively prevent waste, the EU must adopt effective rules to address the uncontrolled growth of single-use packaging, no matter the material it is made of. In particular, to lessen pressure impact on forests, climate, biodiversity, water use and human health globally, it must champion a dramatic reduction of paper-based packaging.

It also must curb the widespread use of composite packaging materials and the waste they create as well as support transparency and restrictions of the harmful chemicals they so often contain.

Paper and board represent the largest share of packaging waste materials and the second fastest growing packaging waste stream. Reduced demand for paper from other sectors, such as graphic and sanitary paper, have been offset by rapid growth in packaging, partly driven by emerging trends including e-commerce and food delivery.

Paper-based packaging remains the largest source of packaging waste in the European Union (41.1%) .Totalling 32.7 million tonnes in 2020, paper-based waste is higher than the total of the two next largest materials combined - plastic (19.4%) and glass (19.1%).¹

Paper-based materials are increasingly being used to package food and beverages. The food and beverage industry represents two-thirds of the total packaging market in Europe. Globally, paper- and paperboard-based packaging account for approximately 37% of food packaging demand.²

As a reaction to the environmental and socio-economic impacts associated with plastics - paper-based packaging is increasingly marketed as a sustainable alternative. Evidence shows however that paper-based substitutes present many new as well as similar challenges, furthermore paper is nearly always combined with plastics and chemical coatings.

Paper-based packaging in the food and beverage sector presents multiple challenges throughout its lifecycle, including the impact of the pulp and packaging industries on climate change, biodiversity loss, water stress and deforestation; the challenge of managing growing levels of paper waste (often contaminated by food and grease) including in on-the-go settings; the difficulty in recycling paper-based composites which integrate plastics and other materials; and the extensive use of hazardous chemicals - many of which may migrate into food and end up in our bodies - by the paper packaging industry.

Around 90% of paper pulp is made from wood³, and paper production is responsible for about 35% of all clear-felled trees⁴ - every year 3 billion trees are cut down globally for paper-based packaging.⁵

The country providing the most paper and pulp to the EU is Brazil - providing more to Europe than the region's biggest producers - Sweden and Finland.⁶ In the last two decades Brazil has tripled its pulp production, now covering an area of 7.2 million hectares (twice the surface of Belgium). Eucalyptus and pine plantations in Brazil are exacerbating water scarcity, forest fires and biodiversity loss.⁷

Within Europe, Finnish forests have become a net emitter of carbon dioxide due to overlogging⁸ and 76% of Finnish forest habitats are classified as threatened.⁹ The capacity of Swedish forests to capture CO₂ has been reduced by 5 million tonnes as result of over exploitation.¹⁰ Lichen has decreased by 70% since 1950 threatening biodiversity and the livelihood of indigenous reindeer herders.¹¹

The pulp and paper industry is the world's third largest consumer of water - the production of just one A4 sheet of paper requires around 10 litres of water.¹² The industry is also the world's fifth largest consumer of energy¹³, and the International Energy Agency (IEA) states that the pulp and paper industry is not on track to reach its climate goals, being responsible for about 190 million tonnes of CO2 emissions in 2021.¹⁴

Overall, little more than half of the paper and board produced use recovered fibre. The remainder are made of virgin fibres.¹⁵ In theory, paper and cardboard can be recycled around eight times but on average European paper fibres are only recycled 3.5 times.¹⁷ Recycling processes cannot cope with more than 3-10% non-pulpable (or non-paper) materials. For food and beverage packaging, the level of recycling is inhibited by coatings and composites, which hamper recycling processes. One study showed that in 74% of tested samples, plastics were more recyclable than paper composite alternatives.¹⁸

While corrugated cardboard often contains high levels of recycled content, most food packaging uses virgin fibre due to food safety or technical requirements.¹⁹ Paper-based food contact materials and cartons are nearly always made from virgin fibres. In on-the-go settings, paper-based packaging is rarely separately collected so unlikely to ever be recycled.²⁰

Paper continues to be the second largest waste stream shipped to non-EU countries after ferrous metals. **12.4% of paper collected for recycling in the EU (representing 4.4 million tonnes) is exported, the bulk of which goes to Asia (primarily India, Indonesia and Turkey).**²¹

Chemicals are widely used throughout the production of paper-based packaging. Out of the 608 substances of concern found in food packaging, 256 (42%) are used in paper and board packaging materials.²² These are chemicals known to, among others, be persistent, cause cancer and disturb the human reproductive and hormonal system. Importantly, many toxic chemicals may migrate from food packaging and thus become a significant source of contamination in food and eventually the consumer's body. **Analysis of paper-based take-away packaging and tableware in Europe showed that 32 out of 42 tested items had been deliberately treated with PFAS chemicals - including many labelled as biodegradable or compostable.**²³ European legislation addressing chemical safety for food contact materials needs a thorough revision and lacks specific rules and requirements for paper packaging.

References

- 1) Eurostat (2023, March 23), "Packaging waste statistics", online: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Packaging_waste_statistics#Waste_generation_by_packaging_material, viewed in June 2023.
- 2) Peters, R. et al (2019, March), "Review of analytical approaches for the identification of non-intentionally added substances in paper and board food contact materials ", Trends in Food Science & Technology. Volume 85, March 2019, Pages 44-54. Trends in Food Science & Technology Review.
- 3) Bandara, R., G.M. Indunil (2022, July 1), "Food packaging from recycled papers: chemical, physical, optical properties and heavy metal migration", Heliyon 8 (2022), p. 1.
- 4) Bandara, R., G.M. Indunil (2022, July 1), "Food packaging from recycled papers: chemical, physical, optical properties and heavy metal migration", Heliyon 8 (2022), p. 1.
- 5) The Grocer (2023, July 3), "Is paper really better for the Earth than plastic?", online: <https://www.thegrocer.co.uk/sustainability-and-environment/is-paper-packaging-really-more-sustainable-than-plastic/680773.article>, viewed in July 2023.
- 6) UN Comtrade (2023), "EU pulp imports (including intra-European trade)", viewed in May 2023.
- 7) Environmental Paper Network (2022, December), Scorching the earth. Pulp and paper expansion in Três Lagoas, Brazil. Summary Report, # Conflict Plantations 4, p. 3;
- 8) Environmental Paper Network (2023, April), Unwrapping a disaster. The human cost of overpackaging, p. 11-12.
- 9) Greenpeace (2022, November), Products of Nordic forest destruction end up on EU supermarket shelves, p. 4.
- 10) Greenpeace (2022, November), Products of Nordic forest destruction end up on EU supermarket shelves, p. 3.
- 11) Greenpeace (2022, November), Products of Nordic forest destruction end up on EU supermarket shelves, p. 3.
- 12) Beck-O'Brien, M., V. Egenolf, S. Winter, J. Zahnen, N. Griesshammer, N. (2022). Everything from wood – The resource of the future or the next crisis? How footprints, benchmarks and targets can support a balanced bioeconomy transition. WWF Germany, p. 77.
- 13) International Energy Agency (2022, September.), "Pulp and Paper. Tracking Report, September 2022", online: <https://www.iea.org/reports/pulp-and-paper>, viewed in April 2023.
- 14) International Energy Agency (2022, September.), "Pulp and Paper. Tracking Report, September 2022", online: <https://www.iea.org/reports/pulp-and-paper>, viewed in April 2023.
- 15) Confederation of European Paper Industries (2022), Key Statistics 2021, European Pulp & Paper Industry, p. 6.
- 16) European Paper Recycling Council (2022, September 5), Monitoring Report 2021, European Declaration on Paper Recycling 2021-2030, p. 2.
- 17) European Commission (2022, November 30), Commission Staff Working Document. Impact Assessment Report. Accompanying the document Proposal for a Regulation of the European Parliament and the Council on packaging and packaging waste, amending Regulation (EU) 2019/1020, and repealing Directive 94/62/EC, pp. 217;
- 18) The Grocer (2023, July 3), "Is paper really better for the Earth than plastic?", online: <https://www.thegrocer.co.uk/sustainability-and-environment/is-paper-packaging-really-more-sustainable-than-plastic/680773.article>, viewed in July 2023.
- 19) Gesellschaft für Verpackungsmarktforschung (2021, May), Substitution von Kunststoffverpackungen durch papierbasierte Verbunde, IK Industrievereinigung Kunststoffverpackungen e.V., p. 27-50.
- 20) Food Packaging Forum (n.d.), "Food packaging materials and recycling. Fact sheets.", online: <https://www.foodpackagingforum.org/packaging-fact-sheets>, viewed in June 2023.
- 21) European Commission (2022, November 30), Commission Staff Working Document. Impact Assessment Report. Accompanying the document Proposal for a Regulation of the European Parliament and the Council on packaging and packaging waste, amending Regulation (EU) 2019/1020, and repealing Directive 94/62/EC, pp. 216.
- 22) Eurostat (2022, May 25), "What are the main destinations of EU export of waste?", online: <https://ec.europa.eu/eurostat/en/web/products-eurostat-news/-/ddn-20220525-1>, viewed in June 2023.
- 23) Ksenia J. Groh, B. Guecke, O. Martin, M. Maffini, and J. Muncke (2021), "Overview of intentionally used food contact chemicals and their hazards", Environment International. Volume 150, May 2021, 106225, p. 6.
- 24) Straková, J., Schneider, J., Cingotti, N. et al. (2021). "Throwaway Packaging, Forever Chemicals: European wide survey of PFAS in disposable food packaging and tableware". 54p (https://chemtrust.org/wp-content/uploads/PFASreport_FCM_May2021.pdf)