INSTITUT FÜR ENERGIE- UND UMWELTFORSCHUNG HEIDELBERG

Potential packaging waste prevention by the usage of flexible packaging and its consequences for the environment

Executive summary

commissioned by Flexible Packaging Europe (FPE)

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The EU Packaging and Packaging Waste Directive aims at preventing the production of packaging waste and, as additional fundamental principles, at reusing packaging, at recycling and other forms of recovering packaging waste to reduce the overall quantities of such waste going to final disposal [EC 1994]. It follows the waste management hierarchy of the European Commission's Waste Framework Directive by giving priority to prevention before other approaches like reuse, recycling and recovery. The European Commission requires that: "Packaging shall be so manufactured that the packaging volume and weight be limited to the minimum adequate amount to maintain the necessary level of safety, hygiene and acceptance for the packed product and for the consumer." [EC 1994]

This prevention requirement may be fulfilled in most cases by the usage of flexible packaging solutions as these are typically light weight in comparison with non-flexible packaging solutions.

In order to verify the assumption that flexible packaging can play a key role in the prevention of packaging waste and the efficient use of resources, Flexible Packaging Europe (FPE) commissioned the Institute for Energy and Environmental Research (IFEU) to prepare a study about the packaging waste prevention potential in the European Union (EU) by the usage of flexible packaging and its consequences for resource efficiency and climate change.

The scenario in which all non-flexible packaging used for Fast Moving Consumer Goods (FMCG) are substituted by flexible packaging wherever possible is investigated. Assuming that all FMCG can be packed in flexible packaging with the exception of carbonated drinks, it is decided, for the purpose of the study, to restrict the scope of such a theoretical substitution to all FMCG excluding all beverages (as a conservative approach).

By substituting all non-flexible packaging of non-beverage FMCG at the EU level, the amount of primary packaging waste could be reduced by 21 million tonnes per year. This means a 70% reduction of the total annual amount of waste generated in EU by non-beverage FMCG primary packaging, which clearly highlights the huge packaging waste prevention potential of flexible packaging. This can be visualised in figure1.

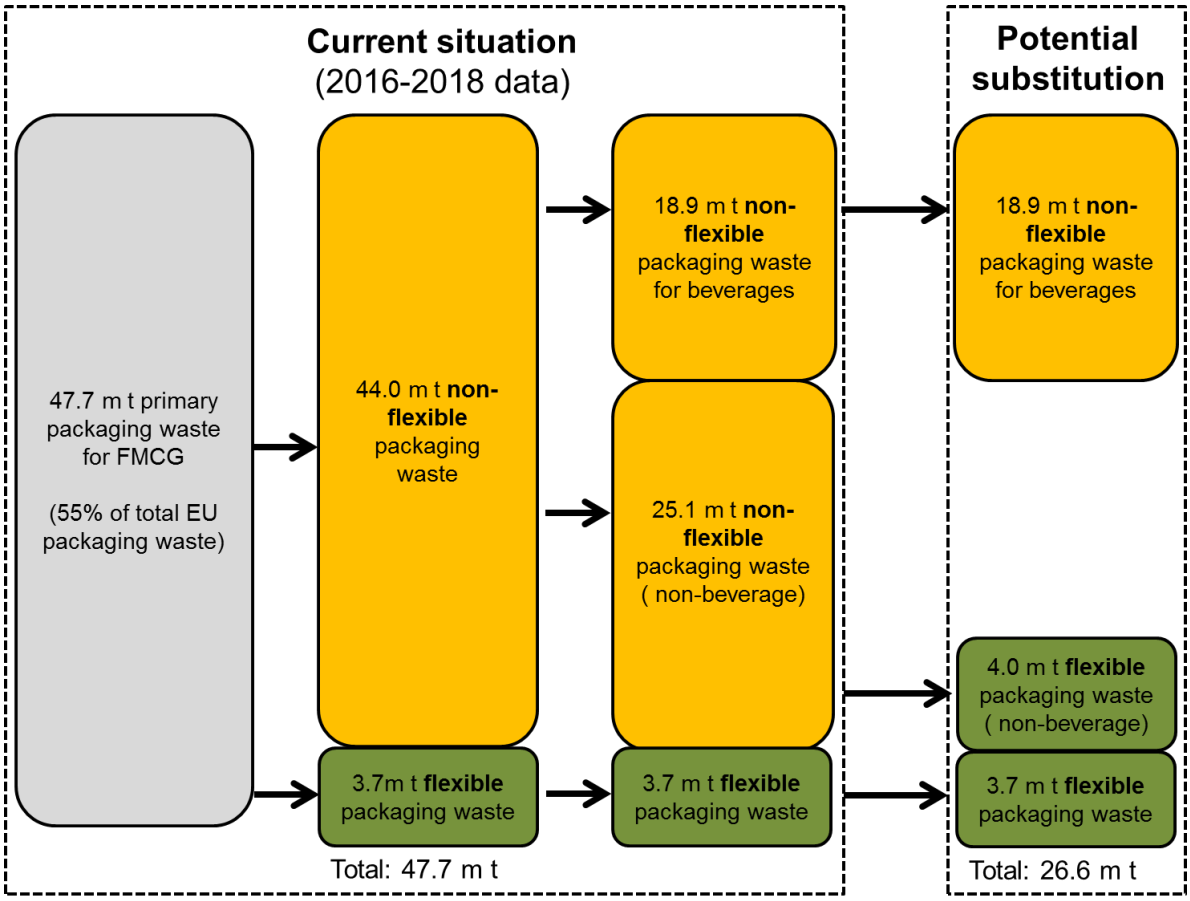

Figure 1 Primary packaging waste for FMCG on the European market

By using a life cycle assessment approach this study shows that such a theoretical substitution would decrease total Global Warming Potential (GWP) and Abiotic Depletion (ADP) results of all European non-beverage FMCG primary packaging by respectively 33% and 32%, even if it is assumed that no material recycling processes for flexible packaging would take place (see figure 2).This demonstrates the considerable environmental improvement that could result from the prevention potential of flexible packaging.

The opposite scenario – i.e. the substitution in the EU of all flexible packaging used for non-beverage FMCG by rigid packaging solutions – would increase total GWP and ADP of non-beverage FMCG primary packaging of by about 30%, despite the much higher actual recycling rate of rigid packaging. Even if the recycling rate of all rigid packaging was raised to 100%, this theoretical substitution would still lead to higher GWP and ADP results than the situation today.

The impacts on GWP of both scenarios can be visualised in figure 2.

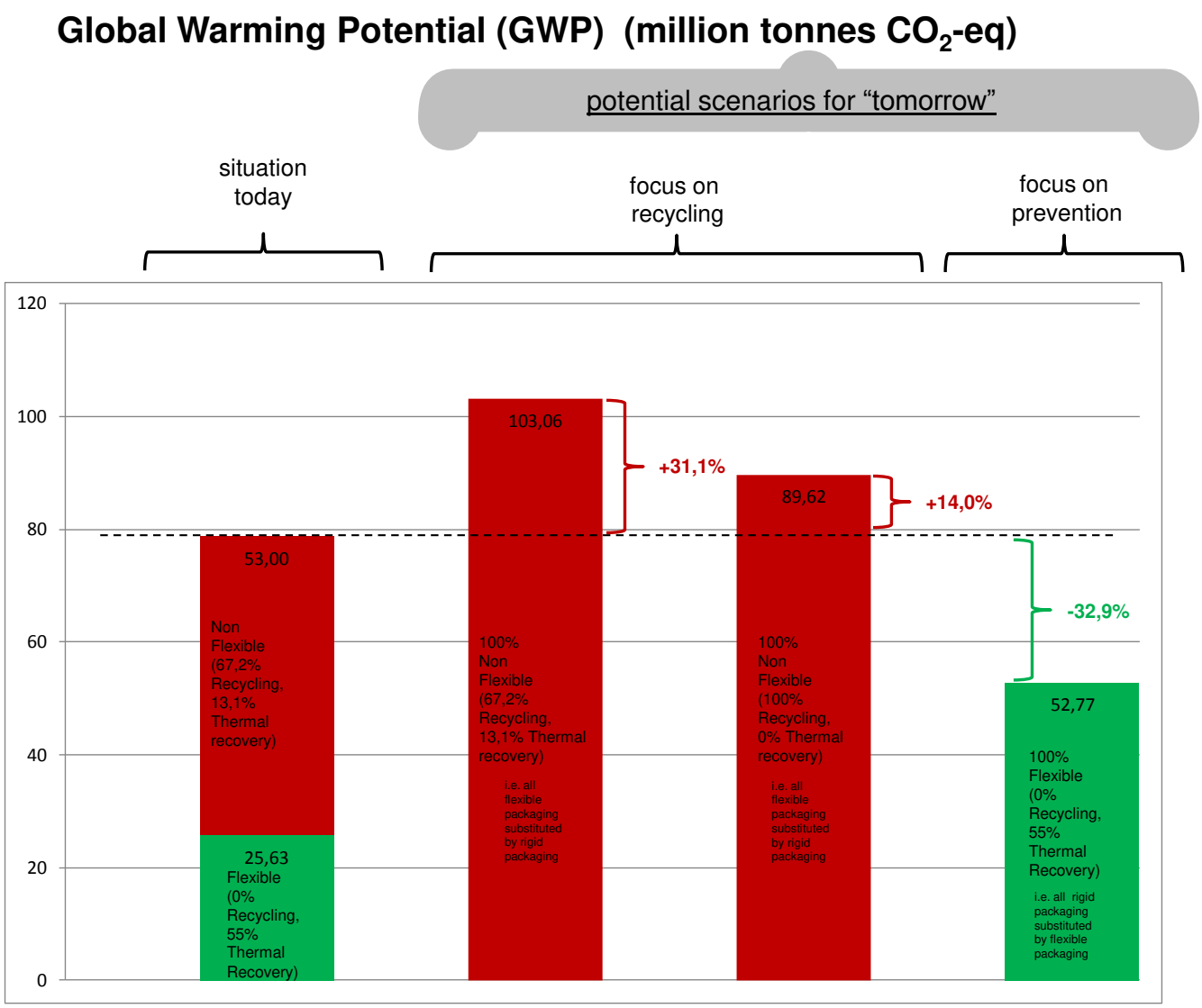

Figure 2: Global Warming Potential assessment results (FMCG packaging without beverages)

The authors therefore recommend to not only focus on recyclability and achieving recycling targets but also on the prevention of primary packaging. This will not only lead to less primary packaging waste but also to a much better performance regarding Climate Change and Resource Efficiency, if this is achieved by a higher use of flexible packaging. Indeed, the environmental impact results of flexible packaging are much lower than those of alternative non-flexible packaging solutions, even if a recycling rate of 100% could be realised for the latter.

On the other hand, a focus on only recyclability and achieving recycling targets might lead to a substitution of flexible packaging solutions by more easily recyclable non-flexible packaging which would clearly be detrimental for Climate Change and Resource Efficiency.