

# EU waste packaging recycling goals demotivate waste prevention and bring limited environmental benefits

Aljoša Petek<sup>1,2</sup>, Andreja Žgajnar Gotvajn<sup>3</sup>, Vasilka Sancin<sup>2</sup>

<sup>1</sup>Legal Center for the Protection of Human Rights and the Environment, Metelkova 6, Ljubljana, Slovenia and

<sup>2</sup>University of Ljubljana, Faculty of Law, Poljanski nasip 2, 1000 Ljubljana, Slovenia

<sup>3</sup>University of Ljubljana, Faculty of Chemistry and Chemical Technology, Večna pot 113, 1000 Ljubljana, Slovenia

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Presenting author email: andreja.zgajnar@fkkt.uni-lj.si

## Introduction

The aim of this paper is to critically analyze available data on the impacts of European Union (EU) legislative and policy developments concerning packaging waste (PW) across EU Member States (MS), with a specific focus on the potentially negative environmental effect of EU waste policies, promoting recycling of PW, especially on reducing efforts for waste prevention, which is the first EU priority for waste management. Paper aims to provide some innovative proposals to improve greater efficiency of existing measures and suggest some new ones.

## Material and methods

This paper is based on analysis of primary sources (legislative and strategic documents) and analysis of secondary sources (scientific articles in the field of research of environmental effects of PW, the practical effects of recycling PW and the prevention of PW), especially within the EU legal framework and practice.

## Results and discussion

Eurostat statistics show that while the share of recycling of PW at the EU level is increasing, it is not catching up with the growth of generated PW. Between 2020 and 2021, the amount of PW per person grew by 11 kg, while recycling grew by 7 kg. Total the amount of PW recycled was just over 120 kg per person, and the amount of PW generated was just under 189 kg per person. The amount of PW generated in Slovenia in 2021 was 133.99 kg per capita, in Germany above 230 kg per capita, in France below 200 kg per capita, in Croatia 75 kg per capita etc. While the recycling rates vary, the growth in the amount of PW shows a similar growing trend in the EU. [1]

The European hierarchy of waste management, which was enacted in Article 4 of Waste Framework Directive, (WFD), [2] enshrines waste prevention as the foremost priority in waste management, followed by priority by reuse, recycling, recovery (including energy recovery) and disposal. In contrast, other EU legislation, especially the Packaging Directive, [3] establishes legal framework for achieving high goals specifically in the field of waste recycling while giving other areas, such as prevention and reuse, less attention. These goals have been increasing over the years - the currently legally binding goals in the Packaging directive require 65% recycled PW by 2025 and 70% by 2030.

WFD sets specific goals for different materials, such as plastic (50 % recycled by 2025, 55 % by 2030), glass (70 % by 2025, 75 % by 2030), paper and cardboard (75% by 2025 and 85% by 2030) and other materials. Meanwhile, reuse and prevention targets are facultative for EU member states, largely neglected, or defined in relation to recycling.

The consequences of handling of PW in EU in the form of a directive is the great diversity of its implementation in various EU MS. Even countries that are comparable in terms of size, number of inhabitants or the amount of PW created, differ from each other in terms of implementation models. This can be seen in the cases of Slovenia, Belgium, the Czech Republic, Ireland and elsewhere. [4] Waste, including PW, in the entire production chain (including from the point of view of life cycle analysis) also causes emissions of greenhouse gases (GHG), which is addressed, amongst other documents, in all national energy and climate plans of EU MS.

A high amount of collected waste and a higher level of recycling as independently analyzed factors do not significantly affect GHG emissions nor significantly reduce them. [5] As possible alternatives, the expert researchers mainly offer reuse of packaging, sustainable design of packaging during the production phase and the general reduction of packaging waste, i.e., reducing the amount and weight of product packaging, at the source. [6] Despite the indicated alternatives there are no comprehensive analyzes of the positive consequences of these methods on the level of EU.

One of the EU's key tools for the long-term achievement of the goals of circular economy and (more) sustainable waste management is the so-called extended producer responsibility (EPR), applicable also to PW in all MS. So far, the tool has mainly influenced a higher rate of collected PW and a higher share of recycled PW, while the possibilities of reducing its generation, reuse and environmental impacts of PW, including GHG

emissions, remain largely unexplored. This issue exists also in the lack of research of replacing plastic packaging with single use paper and cardboard, which now presents a vast majority of PW. [7]

There are several possible and already existing trends of preventing packaging and PW, [8] such as (and not limited to) improving packaging design (eco-design) and production, assessing the impacts of PW through life cycle assessments, [9] promoting and implementing reusable packaging, [10] raising consumer awareness [11] and introducing new, stimulating tax policies for waste prevention at the source. [12]

## Conclusions

EU policies favor and promote recycling, without adequate evidence of its environmental benefits and GHG reduction, which is in turn reducing the effects of waste prevention policies. Current EU trends show a general increase in PW generation over all MS. There are several proven effective policies in the field of waste prevention and reuse of PW, but they are not effectively implemented or emphasized, which is not in line with the EU waste hierarchy and in favor of solely recycling.

Since EU represents a global frontrunner and model in several environmental fields, including waste management and EPR, it also presents a model for the implementation of the Sustainable Development Goals (SDG) of United Nations, specifically, but not exclusively, the Sustainable cities and human settlements goal. If the implementation in EU is poorly executed, this might transfer negative effects also on achieving international goals.

On the 24<sup>th</sup> of April, 2024, the EU Parliament adopted new measures addressing more sustainable packaging, reuse and waste reduction (these are still to be confirmed by the Council). These new rules include among others packaging reduction targets (5% by 2030, 10% by 2035 and 15% by 2040), maximum empty space ratio in a package (50%), minimum of 10% of reusable packaging of beverages by 2030, separate collection of beverages packaging (90% collected by 2029), with the aim of all packaging being recyclable. While the goals are admirable and include eco-design measures, they still greatly favor recycling. [13]

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