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## AN OVERVIEW OF LEGISLATIVE CHANGES IN PACKAGING WASTE MANAGEMENT IN ROMANIA

BY

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**Abstract.** Sustainable approaches in packaging waste (a key waste stream) management play a vital role in increasing material and energy recycling and recovery rates and promoting closed loops. This review is focused on how the legislative context influences the performance of packaging waste management systems. As in any European member state, Romania has enforced the Directives and subsequent acts related to packaging waste. From 2018 onwards, the flow of European legislative documents implementation has increased together with the necessity to match national legislation with the actual societal needs. In Romania, the packaging waste system is organized based on the Extended Producer Responsibility principle and the separate collection of materials. The main findings of this analysis in the Romanian context, is that the legislative instruments have influenced the achievement of recovery and recycling rates as envisioned for the 2019-2021 period, as well as increasing the chances for the fulfilment of planned targets up to 2025.

**Keywords:** packaging waste management, recycling, extended producer responsibility (EPR), legislation.

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## 1. Introduction

Over the past decade, resource efficiency and circular materials principles, including resource productivity, materials recovery, sustainable materials management and the "3Rs" (i.e. reduce, reuse, recycle), have received increasing attention at the highest levels of government and are actively promoted by international organisations, including the Organisation for Economic Co-operation and Development (OECD) and the United Nations Environment Programme (UNEP), as well as the European Commission (OECD, 2021).

Over the years, European Union has developed a series of policies and instruments with the aim to minimize environmental pollution, reduce resource depletion and enhance the use of renewable energy sources. The last policies refer to the European Green Deal, delivered in 2020 which will shape the future development of EU member states until 2030. Referring to material cycles, the New Circular Economy Action Plan (2020) ([https://environment.ec.europa.eu/strategy/circular-economy-action-plan\\_en](https://environment.ec.europa.eu/strategy/circular-economy-action-plan_en)) promotes all initiatives that support the efficient extraction of high-quality resources. The policy and action plan enforced come together with the stringent need to revise the corresponding legislation. All European Union Member states are implementing at the national level the new legislation on waste management, including the directives regarding the keywaste stream packaging waste.

In response to more sustainable material cycles, the main legislative act consolidated in 2018 was the Directive 2008/98/EC on waste and amended by Directive 2018/851. This came as a response to the overall municipal waste generation rates which in 2018, at the EU-28 level, was 489 kg/capita/year, almost the same as the 510 kg/capita/year registered in 2005. Furthermore, in many cases there is a relatively low waste recycling rate compared to landfilling (European Environmental Bureau, 2020).

At the present time (2023), the results in the circular material management and circular business models are still modest, so the European Commission has made new assessments and launched new stakeholder consultation ([https://environment.ec.europa.eu/topics/waste-and-recycling/waste-framework-directive\\_en#ref-2023-wfd-revision](https://environment.ec.europa.eu/topics/waste-and-recycling/waste-framework-directive_en#ref-2023-wfd-revision)).

Out of the European municipal solid waste generation rate, 180 kg/capita/year is packaging waste, making it a 37.5% contribution. If no actions are to be taken, by 2030, the packaging waste generation rate will increase by 19%, with a more prominent increase in the plastic packaging waste generation rate of approximately 46% ([https://ec.europa.eu/commission/presscorner/detail/en/ip\\_22\\_7155](https://ec.europa.eu/commission/presscorner/detail/en/ip_22_7155)).

In the age of speed and evolution on all fronts, the population desires increased attention to the products they use, which is why the packaging waste management issues have emerged. Consumer products always come with an amount of packaging, primary for protection, but also for product safety, as well

as aesthetic purposes. The current consumption patterns are enhancing the production of packaging and even though smart and eco-design choices and various material replacements have been incorporated, at the EU level, the packaging waste generation rates have been increasing over the last decade (2011-2020) with 13% (Fig. 1).

The composition of packaging waste differs from case to case, paper and cardboard are often used to package different food products, plastic is used to protect beverages, and metal is used for canned food and beverages. The EU average composition in 2020 is presented in Fig. 2 (expressed as %) and 3 (expressed as quantities). In addition to these basic materials, packaging waste may contain adhesives, labels, and filling materials, which will enhance the environmental impact if discharge occurs.

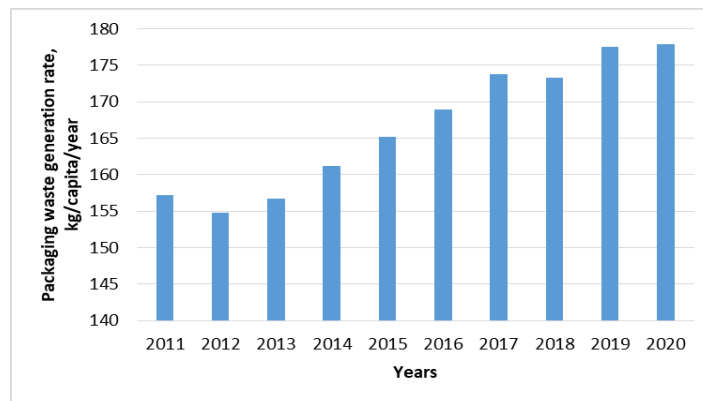


Fig. 1 – Packaging waste generated EU, 2011–2020 (source: Eurostat, 2020).

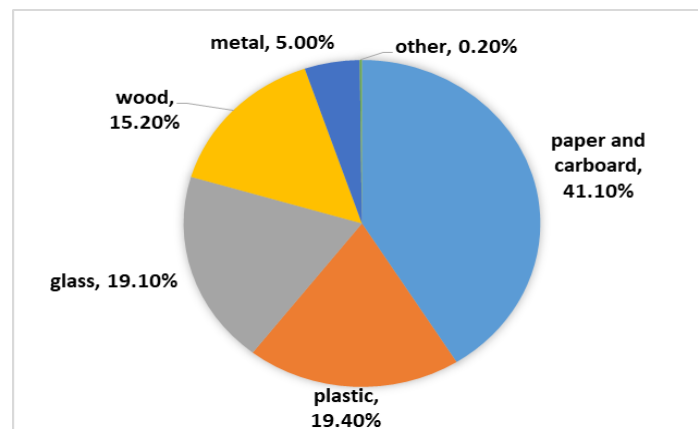


Fig. 2 – Packaging waste composition by material type in 2020, EU average (source: Eurostat, 2020).

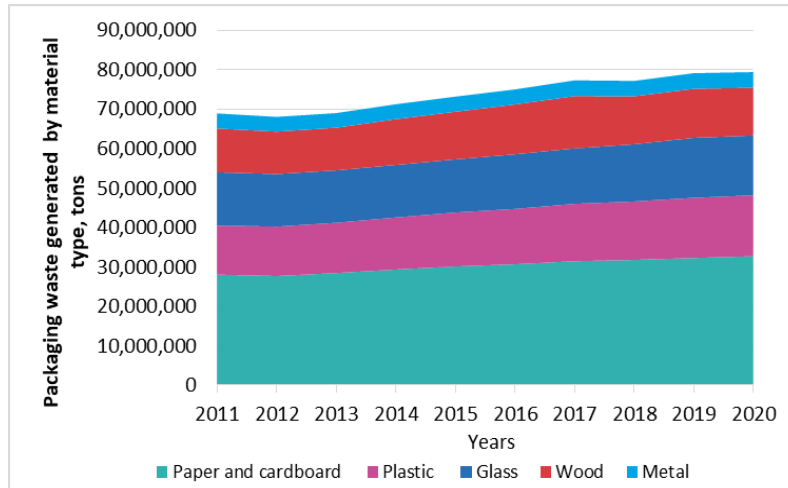


Fig. 3 – Packaging waste generated by packaging material, EU, 2011–2020 (million tonnes) (source: Eurostat, 2020).

Looking at the multinational landscape of Europe, and beyond, collection and recycling have been the subject of many studies in recent decades. The increasing pollution and the irreversibility of its consequences have made the population more aware about the separate collection and recycling.

Although there are different legislative acts that regulate the production, collection, and recycling of waste, there are and will be challenges regarding their proper management, as well as on the ways to address illegal waste dumping. In this regard, at European level, countries are forced to continue investing in waste recycling infrastructure, to increase awareness among producers and consumers, and, last but not least, to strengthen their regulatory framework (European Parliament, 2018, ([https://www.europarl.europa.eu/RegData/etudes/BRIE/2018/614766/EPRSBRI\(2018\)614766EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2018/614766/EPRSBRI(2018)614766EN.pdf))).

The European Union has set recovery and recycling targets for packaging waste, which currently are 60% and 55% respectively. Beyond the overall packaging waste targets for recycling and reuse, there are also recycling targets per material type such as: 25% for plastic, 15% for wood, 50% ferrous metals, and 60% for glass and paper and cardboard.

In the case of overall recovery, in 2020, the average EU performance is 80%, while in Romania is 42.5%. If only recycling rates are considered, Romania has recycled 40% of packaging waste as compared to the EU, which recycled 64% of the total amount of packaging waste in 2020 (Fig. 4).

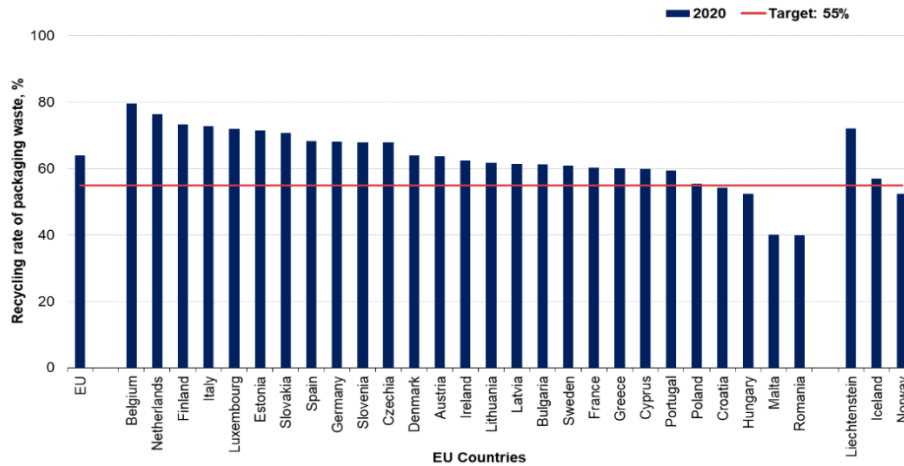


Fig. 4 – Recycling rates of packaging waste in EU countries, 2020 (source Eurostat, 2020).

In the realisation of targets for the overall and per material type recycling rates, EU member states use various models based on the Extended Producer Responsibility principle (EPR) mixed with Deposit Returns Schemes (DRS) or not and implemented separate waste collection. Within the Extended Producer Responsibility principle, packaging producers are required to support the realisation of waste packaging overall and per material targets. This can be done individually, or with the help of Responsibility Transfer Organizations (RTOs). RTOs act as intermediaries between producers and the recycling industry. They are often considered to function as 'compensation' mechanisms. Their aim is to work with a wide range of individual collectors and recyclers, to be responsible for the producers' recycling rates (for an agreed fee) and to achieve the realisation of targets on their behalf. The EPR principle is a twisted European version of the "polluter pays" concept. According to the European authorities, producers are always responsible for how consumers use their products (Jora *et al.*, 2020). In Romania, by the end of 2017, 16 RTOs were operational. Currently, the packaging waste management system in Romania is based on separate collection and the EPR principle, with no current functional DRS scheme. The DRS is intended to become operational in Romania by the end of 2023.

The main objective of this study is to analyse the changes in the Romanian packaging waste legislation, starting with 2018 as reference year. The approach is top-down, meaning that an overview of the main European revisions on packaging and packaging waste is provided to better understand an European member state response in the field, followed by an assessment in Romania's case. The consequences of the legislative framework on the technical performance of the packaging waste management system at national level is indicated by comparing

the 2019-2021 recycling and recovery targets for various packaging wastes with the planned targets for 2025 and 2030.

## 2. Main European legislative framework on packaging waste

As demonstrated in the previous section, packaging waste is present in significant quantities in European Union, thus a well-established legislative framework has been implemented and developed to manage it as sustainable as possible.

The EU legislation addressing specifically the packaging waste issues, is Directive 94/62/EC, also known as the EU Packaging and Packaging Waste Directive. The directive promotes the principle of the “3Rs” in EU countries, setting objectives for the recycling, recovery, and disposal of packaging waste, and includes requirements for reducing the amount of packaging waste generated, as well as promoting the use of durable and recyclable packaging materials (Ciccarelli *et al.*, 2016). This is a key piece of EU legislation on solid waste and aims to promote a circular economy by implementing measures including recycling objectives, characterized mainly by separate collection systems and extended producer responsibility (EPR) schemes (Joltreau, 2022).

In 2015, the Plastic Bags Directive, Directive 2015/720 was introduced with the scope of reducing the consumption of lightweight plastic carrier bags, a sort of package that was provided usually for free to customers and used just once, thus having a very short product lifetime.

Directive 94/62/EC has been amended again and thus Directive 2018/852 of the European Parliament and of the Council was introduced, which aims to increase the recycling and recovery of packaging waste while contributing to the development of the European strategy for plastics in a circular economy (Fig. 5).



Fig. 5 – The amendments of Directive 2018/852/EU.

Directive 2018/852/EU aims for packaging waste to be recycled at a rate of 65% by 2025 and 70% by 2030. This directive involves the principle of Extended Producer Responsibility (Zorpas *et al.*, 2019).

A major concern related to packaging waste is the plastic packaging category. To tackle this issue, a new Directive was enforced in 2019, namely Directive 2019/904 on the reduction of the impact of certain plastic products on the environment, also known as the Single-use Plastic Products Directive. The Directive covers 10 plastic product categories and sets specific plastic packaging waste targets such: as the 77% and 90% separate collection targets for plastic bottles by 2025 and respectively circularity targets for Polyethylene terephthalate (PET) bottles production (25% recycled material in PET bottles by 2025 and 30% in all plastic bottles by 2030).

By the end of 2022, based on extensive consultations on the review of requirements for packaging and new sets of measures to enhance packaging waste prevention, the European Commission has proposed (not yet adopted) a new revision of EU rules on packaging and packaging waste. While design and material reductions in packages are promoted, together with increased number of packages use cycles, in what packaging waste is concerned clarifications on new waste types arising were introduced, such the first definitions on “biobased”, “compostable” and “biodegradable plastics”. This information will be included in a revised consolidated version of the European Packaging and Packaging Waste Directive, coming as early as 2023.

### **3. Main packaging waste legislation in Romania**

Being an European Union member state, Romania is aligned with all the European Union policies and strategies in the waste management field and has adopted all the necessary instruments to support the packaging waste management system.

To begin with, chronologically, both the Waste Framework Directive 2008/98/EC and Directive 94/62/EC on package and packaging waste have been transposed in the Romanian context into Law 211/2011 (Legea 211/2011) and Law 249/2015 (Legea 249/2015) respectively. The Extended Producer Responsibility instrument was implemented with legislative support within the Emergency Ordinance 196/2005 (OU 196/2005) on Environmental Fund (EF).

The revised versions of the Packages and Packaging Waste Directive from 2018, has been initially translated into Emergency Ordinance 74/2018 (OU 74/2018) and then into a national Law 87/2018 (Legea 87/2018). In the same year, in parallel with the new legal requirements on packages and packaging wastes, the old Emergency Ordinance 196/2006 (OU 196/2006) has been revised into Law 143/2018 (Legea 143/2018) (<https://ecoromambalaje.ro>).

Next year, in 2019, other pieces of legislation have been enforced, the most important being Law 31/2019 (Legea 31/2019) on packages and packaging

waste, and by the half of the year, new additions were brought by the Emergency Ordinance 50/2019 (OU 50/2019) on the same topic. During the same year, specifically on packaging waste reporting and the associated calculation methodology on the contribution and taxes paid by packaging waste producers to the Environmental Fund, Order 149/2019 (Ordinul 149/2019) was launched. Starting with 2019, the reports towards the Environmental Fund are made in the electronic format according to the Order 572/2019 (Ordinul (572/2019)).

In 2020, secondary pieces of legislation referred mainly to the obligations on reporting to the Environmental Fund, namely: Orders 60, 560 and 1.155/2020 (Ordinele 60, 560, 1.150/2020). These obligations had a positive effect in what data reporting is concerned, the reporting entities giving special attention to all the reports submissions dead-lines and revisions. The packaging waste statistics provided to the Environmental Fund can be considered of a higher quality compared to the ones provided to the Environmental Protection Agency and included in the Eurostat database (Deloitte, 2022).

In 2021, more changes have intervened in the legislative framework. Firstly, the revisions within the Waste Framework Directive have been translated into the Government Emergency Ordinance 92/2021 (OUG 92/2021). Related to the packaging and packaging waste category, Ordinance 1/2021 (Ordonanța 1/2021) was issued on all packaging waste, as well as 6/2021 (Ordonanța 6/2021) for the single use plastic products. The first piece of legislation regarding the launching a Deposit Return Scheme for primary packaging waste has emerged into the Government Decision 1.074/2021 (HG 1.074/2021). Other legislative acts with less significant impact on packaging waste referred to the Extended Producer Responsibility and the waste reporting obligations, as well as on waste operations (transfer, landfilling).

In the last year, 2022, there was one important change in the main waste management legislation framework in Romania. Government Emergency Ordinance 133/2022 (OUG 133/2022) was issued and this modifies Government Emergency Ordinance 92/2021 (OUG 92/2021) and an older legislative act, Law 101/2006 (Legea 101/2006) on waste collection service for municipalities. The efforts towards the implementation of Deposit Refund Schemes have continued with a series of acts: Government Emergency Ordinance 165/2022 (OU 165/2022) and Governmental Decision 1.074/2022 (HG 1.074/2022). The objective is to have an operational DRS scheme in 2023 (currently to be launched in November 2023). Another change was made to the legislation referring to the waste reporting obligations to the Environmental Fund, namely Government Emergency Ordinance 125/2022 (OUG 125/2022).

Over the 2019-2021 period, the overall packaging waste statistics status in Romania is presented in Table 1.



**Table 1***Packaging waste recycling and recovery targets, in Romania*

Type of operations	2018	2019	2020	2021
Recycling, %, EF	70	63	62	60
Recycling, %, Eurostat	57.9	44.6	39.9	n.a.
Recovery, %, EF	73	66	66	63
Recovery, %, Eurostat	60	47.2	42.5	n.a.

Data sources in Table 1 come from the Environmental Fund (Deloitte, 2022) and Eurostat and it can be observed that there is a significant difference between the 2 official data sources, the most reliable one being, as mentioned before the Environmental Fund.

Giving the legislative aspects discussed so far, Romania is committed to fulfil, in a step-by-step approach, for the next period, the following packaging waste recycling and recovery targets (Table 2). As such, there are good premises that the overall 2025 recycling and recovery targets to be achieved relatively easy.

**Table 2***Packaging waste recycling and recovery targets, in Romania*

Type of operations	2019-2022	2023	2024	2025
Recycling	55	60	60	65
Recovery	60	65	65	70

**Table 3***Packaging waste recycling targets, per material type, in Romania*

Type of material	2019-2022 planned	2019-2021 achieved, EF	2023	2024	2025
Glass	60	63-62-64	65	65	70
Plastic	22.5	47-46-42	35	40	50
including PET	55	55-51-57	57	60	65
Paper - cardboard	60	70-68-66	65	70	75
Aluminium	20	23-23-22	30	40	50
Metal	50	63-65-54	60	65	70
Wood	15	70-69-65	20	20	25

For the 2019-2022 period, Romania's recycling planned target objectives are indicated in Table 3. The reported values presented as series for 2019-2020-2021, coming from the Environmental Fund data source show that for each

material the recycling objectives have been met and even exceeded, with excellent results on the metal and wood packaging waste recycling percentages. This again highlights the good premises in the achievement of the 2025 targets.

Besides transposing the environmental and waste related legislation, Romania has also a series of strategies and action plans supporting the legislative framework. These include:

- The National Waste Management Plan for 2018-2025 period;
- The National Sustainable Development Strategy of Romania 2030;
- The National Recovery and Resilience Plan (PNRR).

According to the National Sustainable Development Strategy of Romania 2030, Romania intends to reuse and recycle 65% of the weight of all packaging waste by 2025 and at least 75% by 2030. Additionally, minimum targets are set for the preparation for reuse and recycling of specific materials contained in packaging waste both for 2025 and 2030 (Radu and Dulamea, 2021).

In May 2021, the Ministry of Investments and European Projects submitted the National Recovery and Resilience Plan (PNRR) to the European Commission, which includes the development and implementation of deposit return systems for packaging, as well as investments in the necessary hardware and software infrastructure for this purpose. The PNRR aims to transition towards a green economy by managing household, commercial, and industrial waste through prevention, minimization, sorting, reuse, and recycling measures, using recycled materials as efficient raw materials (Radu and Dulamea, 2021).

#### 4. Conclusions

This study has proposed an analysis of the Romanian packaging waste legislation, starting with 2018 as reference year. Firstly, an overview of the packaging waste status at the European Union level was provided, to better understand the trends in waste generation and composition. In 2020, almost 38% of the municipal solid waste generation rate is made of packaging waste, while the highest share in material composition is attributed to paper and cardboard (over 41%). However the increasing concerns are directed to the second material type most frequently used in packaging, namely plastic packaging waste.

In order to better control the material cycles, highly desirable in closed loops, and to have a performant waste management system, all sorts of instruments can be used, however a significant part is played by the legislative framework, assigning clear roles and responsibilities. At the top of the legislative framework in European Union are the Waste Framework Directive and Packaging and Packaging Waste Directive. “Daughter” directives have also been modified and new ones were formulated, for the latter case, an example is the Single Use Plastic Products Directive. The recent modifications from 2018 onwards of the above mentioned directives have triggered an increase flow of secondary legislation on the topic of

packaging waste. At the bottom of the legislation, national European member states laws, ordinances and decisions are transposing the European legislation.

The most important changes at the European level, as well as at national level, have been summarized in this study. Under the investigated period, Romania has a packaging waste management system based on the implementation of the EPR principle, as well as the separate collection of packaging waste. Currently, no DRS schemes are operational for the packaging waste system.

The main consequences of the legislative framework is related to the overall packaging targets in recovery and recycling of waste, as well as the specific material related targets. As it can be seen, in Romania's case, the 2019-2021 results in recycling and recovery targets, according to the Environmental Fund monitoring and reporting system, highlight the realisation of the planned targets, making it a good premises for the short term period targets (up to 2025).

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  - \* \* *Ordonanța de urgență nr. 133 din 29 septembrie 2022 pentru modificarea și completarea Ordonanței de urgență a Guvernului nr. 92/2021 privind regimul deșeurilor, precum și a Legii serviciului de salubritate a localităților nr. 101/2006, Monitorul Oficial nr. 958 din 30 septembrie 2022.*
  - \* \* *Ordonanța de urgență nr. 125/2022 pentru modificarea și completarea Ordonanței de urgență a Guvernului nr. 196/2005 privind Fondul pentru mediu.*
  - \* \* *Ordonanța de urgență nr. 165 din 8 decembrie 2022 pentru modificarea și completarea Ordonanței de urgență a Guvernului nr. 63/2022 privind unele măsuri temporare pentru acordarea de sprijin material categoriilor de persoane aflate în situații de risc de deprivare materială și/sau risc de sărăcie extremă, suportate parțial din fonduri externe nerambursabile, precum și unele măsuri de distribuire a acestuia, Monitorul Oficial nr. 1178 din 8 decembrie 2022.*
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## O ANALIZĂ A MODIFICĂRILOR LEGISLATIVE ÎN DOMENIUL MANAGEMENTULUI DEȘEURILOR DE AMBALAJE DIN ROMÂNIA

(Rezumat)

Abordările sustenabile în ceea ce privesc deșeurile de ambalaje (o categorie-cheie de deșeuri) joacă un rol vital în creșterea ratelor de reciclare și recuperare materială și energetică și promovează conceptul de ciclu închis. Studiul acesta evaluează modul în care contextul legislativ influențează performanțele sistemului de management al deșeurilor de ambalaje. Ca oricare stat membru al Uniunii Europene, România a adoptat Directivele și legislația secundară conexasă în acest domeniu. Începând cu 2018 până în prezent, fluxul de acte legislative de la nivelul Comisiei Europene s-a intensificat, implementarea acestora la nivel național fiind condiționată și de nevoile societății. În România, managementul deșeurilor de ambalaje este organizat pe baza principiului „Responsabilitatea Extinsă a Producătorului”, concomitent cu colectarea selectivă a acestor materiale. Principalele concluzii, la nivelul României, sunt acelea că modificările legislative au influențat semnificativ atingerea țintelor de reciclare și recuperare a deșeurilor de ambalaje, asumate pentru perioada 2019-2021 și că au multiplicat șansele ca țintele planificate pentru 2025 să fie realizabile.