

DEPOSIT-REFUND SYSTEMS FOR ONE-WAY BEVERAGE PACKAGING IN EUROPE



THE CASE OF CROATIA

JANUARY 2019



DESCRIPTION OF THE SYSTEM

BACKGROUND FOR INTRODUCING THE SYSTEM

In Croatia, the DRS came into effect in 2006 following the implementation of the Ordinance on Packaging and Packaging Waste of 2005. The decision was driven by increasing quantities of packaging waste since the 1990s as a result of rising use of non-refillable beverage packaging: PET, bottles, and cans. The EU Packaging and Packaging Waste Directive acted as an additional driver for this decision¹.

THE LEGAL BASIS, SCOPE, AND TARGETS. LINKS TO OTHER POLICIES OR INSTRUMENTS

The current main requirements for packaging waste in general and DRS specifically are set in the Ordinance on packaging and waste packaging (88/2015)² and the Regulation on management of waste packaging (97/2015)³. The legislation foresees that a deposit is established for one-way beverage containers of greater volume than 0.2l made of plastic (PET), metal (aluminium and iron) and glass containing alcoholic and non-alcoholic beverages, waters, fruit juices, and soft drinks. Milk and milk-containing beverages are subject to an exception and are excluded from the system. A returnable fee of 0.50 HRK [0.06 EUR] is to be applied per packaging unit regardless of the material and size.

The Ordinance establishes national recovery and recycling targets. In total, at least 60% of packaging shall be separately collected and recovered, of which at least 55% and up to 80% shall be materially recycled. Material-specific recycling targets are the same as the European targets⁴ and there are no targets specifically applicable to packaging falling under DRS.

Main provisions regarding waste management in Croatia are laid down in the Act on Sustainable Waste Management (94/2013)⁵ and by-laws focused on special categories of waste. The most important

1 The Croatian Parliament – Strategy of Waste Management in the Republic of Croatia. 2005. p.24 [law]

2 Article 22(1) Ordinance 88/2015 – Ministry of environmental protection and nature – Pravilnik o ambalaži i otpadnoj ambalaži (Ordinance on packaging and waste packaging). Official Gazette 88/15. 2015 [website]. Replaces previous Ordinance on packaging and packaging waste (Official Gazette 97/05, 115/05, 81/08, 31/09, 156/09, 38/10, 10/11, 81/11, 126/11, 38/13, 86/13)

3 Article 5 of the Decree 97/2015 – Government of the Republic of Croatia – Uredba o gospodarenju otpadnom ambalažom (Decree on the management of waste packaging). Official Gazette 97/15. 2015 [website]

4 60% of glass, paper and cardboard; 50% of metals; 22.5% of plastic (considering only the portion recycled back into plastics)

5 Law 94/2013 – Parliament of the Republic of Croatia – Zakon o održivom gospodarenju otpadom (Act on sustainable waste management). Official Gazette 94/13. 2013 [website]

strategic documents are the Waste Management Strategy 2005⁶ and the National Waste Management Plan (2017-2020)⁷. In line with the provisions, municipal waste management system is based on the principle of separate collection: at source, via recycling yards, on public spaces. Packaging waste is considered as “special category of waste” subject to EPR.

In 2003, the Environmental Protection and Energy Efficiency Fund (hereinafter “FZOEU”)⁸ has been established with the purpose to secure resources for the financing of projects and activities in the field of “conservation, sustainable use, protection and improvement of the environment”. It operates as a structured extra-budgetary fund: the budget of FZOEU is separate from the national budget and cross-financing is not allowed and fees collected for waste management should be strictly dedicated for such purposes. In the area of waste management, FZOEU is in particular responsible for the special categories of waste subject to EPR, including packaging. For this, FZOEU manages the system of collection and financing via EPR fees. Local authorities are responsible for securing the public service of collecting municipal waste⁹.

The system for non-deposit bearing packaging is part of the system of collection and treatment of special categories of waste managed by FZOEU. The waste management fees payable by producers to FZOEU depend on the type and quantities of packaging material placed on the market.

Table 1 : Waste management fees¹⁰

Material	Fee per tonne
PET	410.00 HRK [55.53 EUR]
Aluminium cans	410.00 HRK [55.53 EUR]
Iron cans	225.00 HRK [30.47 EUR]
Paper, cardboard	375.00 HRK [50.48 EUR]
Composite packaging used for beverages	410.00 HRK [55.53 EUR]
Composite packaging for other uses	750.00 HRK [101.58 EUR]
Plastic bags	1,500.00 HRK [202.12 EUR]
Polymers for milk and milk-containing products	410.00 HRK [55.53 EUR]
Other polymers	750.00 HRK [101.58 EUR]
Glass	150.00 HRK [20.31 EUR]
Wood	150.00 HRK [20.31 EUR]
Textile	150.00 HRK [20.31 EUR]

6 Strategy 130/2005 – Parliament of the Republic of Croatia – Strategija gospodarenja otpadom Republike Hrvatske (Waste management strategy). Official Gazette 130/2005. 2005 [[website](#)]

7 Decision 3/2017 – Government of the Republic of Croatia - Odluka o donošenju Plana gospodarenja otpadom Republike Hrvatske za razdoblje 2017. - 2022. Godine (Decision on the adoption of the Waste Management Plan of the Republic of Croatia for the period 2017 – 2022). Official Gazette 3/2017. 2017 [[website](#)]

8 The Act on the Environmental Protection and Energy Efficiency Fund was published in the Official Gazette 107/03 and it is applied as of 1 January 2004. It was established under the provisions of the Environmental Protection Act (82/94 and 128/99) and the Energy Act (68/01).

9 Government of the Republic of Croatia – Waste Management Plan of the Republic of Croatia for the period 2017-2022. 2017 [[report](#)]

10 Article 7 (2) of the Decree 97/2015 – Government of the Republic of Croatia – Uredba o gospodarenju otpadom ambalažom (Decree on the management of waste packaging). Official Gazette 97/15. 2015 [[website](#)]

FZOEU finances the service of collection and transport of packaging waste and reimburses the companies authorised for collection and storage of the packaging waste. The amount of refunds depends on the conditions agreed in the contracts of FZOEU and authorised collectors. FZOEU is owner of the collected packaging waste and sells it to authorised recyclers. So far, it has concluded contracts with 27 authorised collectors and 8 authorised companies for recovery and recycling of packaging waste.

In addition, there is a parallel system of collection and treatment of packaging waste where collectors and recyclers are not paid by FZOEU and operate on market basis.

SYSTEM FUNCTIONING, ROLES AND RESPONSIBILITIES OF MAIN STAKEHOLDERS

Deposit operator



FOND ZA ZAŠTITU OKOLIŠA I
ENERGETSKU UČINKOVITOST

Since the introduction of the system, FZOEU is responsible for activities related to management of packaging and packaging waste more generally and the DRS in particular. FZOEU is a public authority, responsible for collecting and investing extra budgetary resources in the programmes and projects of environmental and nature protection, energy efficiency and use of renewable energy sources.

The responsibilities of FZOEU related to the management of the DRS are the following¹¹:

- Return to the retailers the deposit (0.5 HRK [0.06 EUR]) paid to the customers;
- Compensate the incurred retailer's costs due to handling of the returned one-way packaging (0.1 HRK [0.013 EUR] per each packaging collected manually and 0.12 HRK [0.016 EUR] per each package collected via RVM);
- Check and approve compatibility of the packaging to be collected via RVM;
- Collect data and deposit amounts from the producers;
- Enter into an agreement with authorised collectors and agree on the manner of payment of collection and transport costs;
- Enter into an agreement with authorised recyclers and agree on the manner of selling collected packaging.

In 2015, FZOEU expected to collect 396 million HRK [53.61 million EUR] for carrying out waste management activities in general (not exclusively from the DRS). Regarding the DRS, FZOEU had foreseen part of this money for an introduction of RVM with compression starting in 2014 as no compression of the containers has been performed until then¹².

FZOEU pays a handling fee to the retailer who takes back the beverage packaging back from the consumer, per unit of deposit-bearing packaging (both one-way and reusable containers):

- 0.10 HRK [0.013 EUR] for manual collection

¹¹ Fond za zaštitu okoliša i energetske učinkovitost (FZOEU) – Activities of the Fund [[website](#)]

¹² Fond za zaštitu okoliša i energetske učinkovitost (FZOEU) – Program rada Fond za zaštitu okoliša i energetske učinkovitost za 2015. godinu (The programme of the Environmental Protection and Energy Efficiency Fund for 2015). 2015. p. 58 [[report](#)]

- 0.12 HRK [0.016 EUR] for collection using reverse-vending machines¹³

At the beginning of the implementation of the system, no labels were applied and bigger amounts of containers ended up in the system claiming reimbursement of fees (eg. containers which were produced in a previous period, or imported from abroad, or specifically manufactured for the return of the fee). As a result, between January and October 2006, FZOEU systematically paid more money as a refund to the retailers as compared to the amount collected from producers. In addition, some producers managed to avoid paying deposit fees. This all resulted in a reported deficit of over 41 million EUR¹⁴. Until 2008, FZOEU has established some level of control through the use of labels and barcodes¹⁵.

Producers¹⁶

Upon placing products on the market, producers become obliged to pay the deposit amount to FZOEU, based on the data that producers are required to submit to FZOEU. In addition to the deposit amount, producers also pay waste management fees depending on the type and quantities of packaging material (Table 1).

The monthly report should include data on the quantity of packaged products as well as quantities of products exported and withdrawn from the market. In accordance with the submitted data, the producer issues a payment to FZOEU on the last day of the month.

Before placing a new beverage product on the market, the producer shall notify FZOEU and provide certain product specifications and as well as a product sample. Among others, the specifications shall include a barcode, GTIN number as well as the packaging type. The provided sample of the product is used to evaluate whether the product label is in conformity with the obligations set out by the Ordinance: the marketed product shall include an indication of the packaging material, the recycling mark, the GTIN number, as well as the DRS symbol.

Retailers¹⁷

Retailers selling packaged beverages are obliged to collect the returned deposit-subjected packaging and refund the deposit to the consumers. Stores with an area larger than 200 m² are subject to this obligation. Retailers whose sales area is smaller than 200 m² may decide to participate in the DRS provided they are approved by FZOEU, subject to meeting certain technical requirements related to the availability of space for acceptance and storage of the packaging.



¹³ Article 6 of the Decree 97/2015 – Government of the Republic of Croatia – Uredba o gospodarenju otpadnom ambalažom (Decree on the management of waste packaging). Official Gazette 97/15. 2015 [\[website\]](#)

¹⁴ Bottle Bill Resource Guide – Croatia [\[website\]](#)

¹⁵ Portal Novosti – Ministrica zaštite okoliša najavila ukidanje povratnih naknada za ambalažu (The Minister of Environmental Protection announced the abolition of refundable packaging fees) 2012 [\[website\]](#)

¹⁶ Article 23 of the Ordinance 88/2015 – Ministry of environmental protection and nature – Pravilnik o ambalaži i otpadnoj ambalaži (Ordinance on packaging and waste packaging). Official Gazette 88/15. 2015 [\[website\]](#)

¹⁷ Article 24 of the Ordinance 88/2015 – Ministry of environmental protection and nature – Pravilnik o ambalaži i otpadnoj ambalaži (Ordinance on packaging and waste packaging). Official Gazette 88/15. 2015 [\[website\]](#)

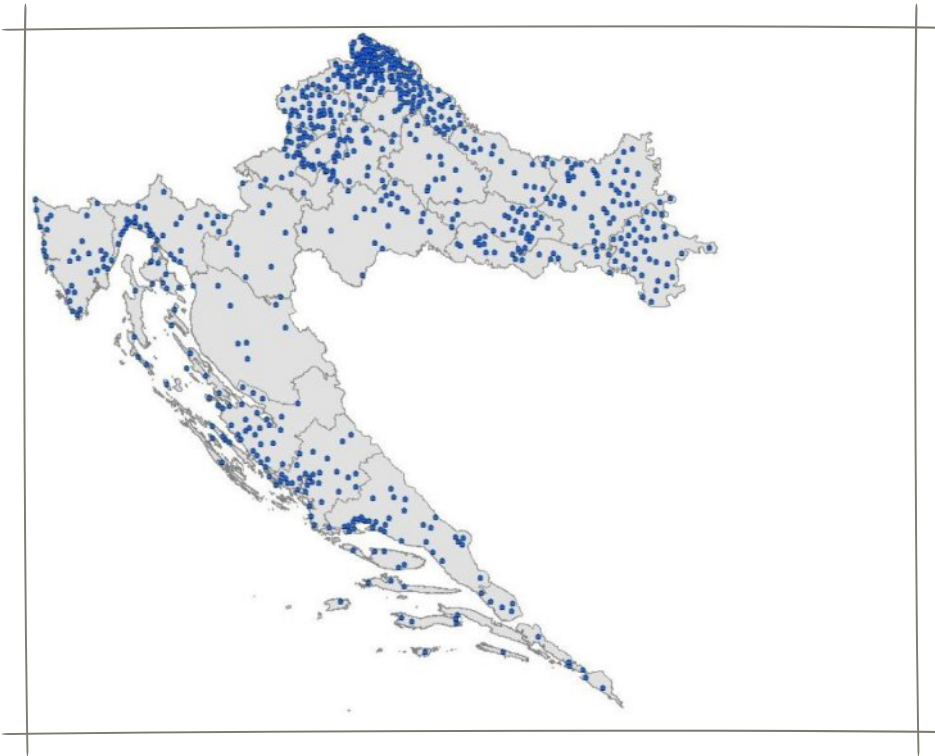


Figure 1 : Places in which packaging waste is collected through the DRS system¹⁸

The reception of deposit-subjected packaging and the refunding of deposits may be organised in either manual or mechanical way, using RVMs. The place of reception shall be clearly indicated to consumers. The retailer is required to collect and store data on the amount of returned packaging and submit it to FZOEU once per month. As indicated above, FZOEU provides refund for the collected packaging as well as incurred handling expenses to the retailer based on the submitted information. Upon entering into an agreement with FZOEU, waste collection services collect the returned packaging subject to deposit from the retailers.

Until 2014, containers collected through a RVM were not compressed. In 2014, the first pilot project was implemented with the aim to demonstrate the economic feasibility and the level of control with this type of collection. By the end of 2015, it was planned that this type of collection accounts for 40% of total collected quantities. In a longer term, it was foreseen that this would decrease the burden on authorised collectors by 60% and the burden on counting centres by 68%. The plan also foresees that the sellers would face differentiated fees and that they will take the burden of procuring the specially assigned bags for collection outside of a RVM system¹⁹.

Consumers²⁰

Consumers pay a deposit on beverage container, included in the price of the beverage. They may return the packaging to a retailer and collect the deposit amount if the returned packaging is not damaged and bears barcode as well as DRS symbol.

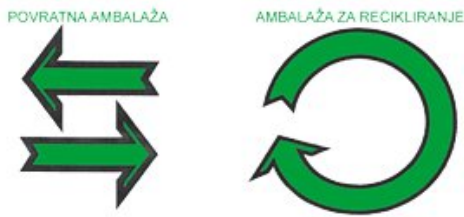
When consumers return one-way packaging that is included in DRS (beverages) they get paid 0.50 HRK [0.06 EUR] from retailer. When consumers return reusable packaging (beverages) they can buy another beverage in the same packaging without paying cost of the bottle.

18 Agency for Environment and nature of the Republic of Croatia – Izvješće O Gospodarenju Otpadnom Ambalažom (Report on the management of waste packaging), 2016. p. 13 [[report](#)]

19 Fond za zaštitu okoliša i energetska učinkovitost (FZOEU) – Program rada Fond za zaštitu okoliša i energetska učinkovitost za 2015. godinu (The programme of the Environmental Protection and Energy Efficiency Fund for 2015). 2015. p. 58 [[report](#)]

20 Article 25, Article 14 of the Ordinance 88/2015 – Ministry of environmental protection and nature – Pravilnik o ambalaži i otpadnoj ambalaži (Ordinance on packaging and waste packaging). Official Gazette 88/15. 2015 [[website](#)]

There are separate standardised labels for one-way and for reusable beverage packaging, prescribed in the legislation²¹. Reusable packaging has label REUSABLE PACKAGING (POVRATNA AMBALAŽA) and related sign.



DRS packaging has label DEPOSIT FEE (POVRATNA NAKNADA) and associated sign.



Supervision

No concrete mechanism is available to ensure that there is no free riding and more generally it is noted that there is a lack of monitoring instruments.

²¹ Annex 6 of the Ordinance 88/2015 – Ministry of environmental protection and nature – Pravilnik o ambalaži i otpadnoj ambalaži (Ordinance on packaging and waste packaging). Official Gazette 88/15. 2015 [[website](#)]

RESULTS

In 2014, a total of 93.6% of bottles and cans placed on the market were recovered through the DRS model. The subsequent years demonstrated high results as well²². In 2015, 77% of PET, 86% of glass and 89% of metal containers were returned. The outcomes in 2016 reached the collection rate of 96% for PET, 82% for glass, and 86% for metal. According to the information provided by FZOEU, almost all collected packaging waste (99.99%) were recycled²³.

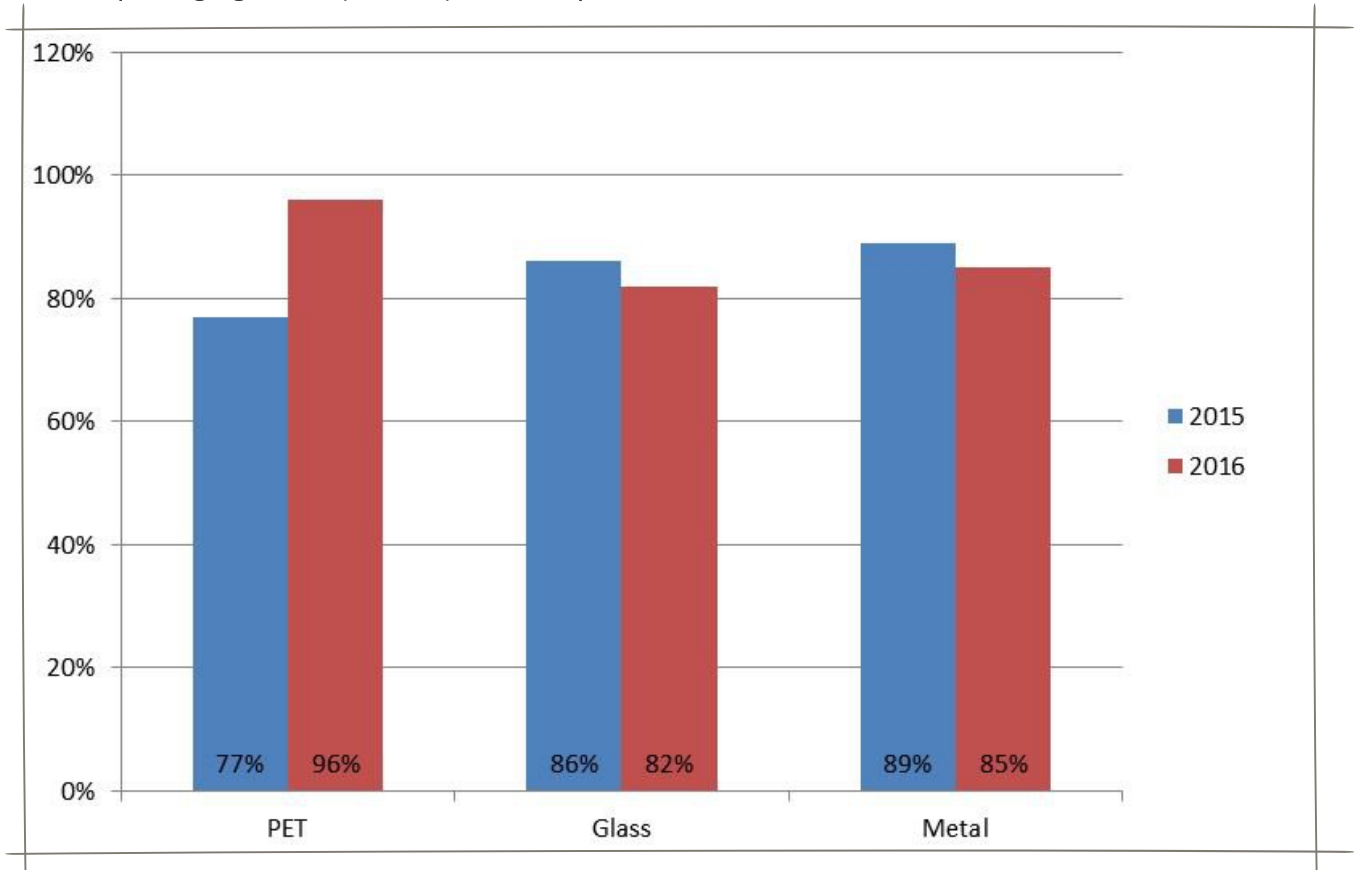


Figure 2 : collected packaging per material in 2015 and 2016²⁴

A public report on realisation of FZOEU program for 2015 provides data on management of packaging waste in general, not specifying the cost coverage of the DRS system and non-DRS system separately. It is stated that, in 2015, FZOEU had an income of nearly 505 million HRK [86 million EUR] from producer fees and 21.5 million HRK [2.8 million EUR] from waste packaging sale to recyclers, thus having a total income of 526 million HRK [70.5 million EUR]. Total expenses in 2015 for packaging waste were 484 million HRK [65 million EUR]²⁵.

This numbers show that management of the packaging waste are fully covered by fees collected from producers but it is not clear if the DRS system is self-sufficient.

²² Fond za zaštitu okoliša i energetska učinkovitost (FZOEU) – Gospodarenje otpadom (Waste management) [[website](#)]

²³ Agency for Environment and nature of the Republic of Croatia – Izvješće O Gospodarenju Otpadnom Ambalažom (Report on the management of waste packaging). 2016. p. 7 [[report](#)]

²⁴ Agency for Environment and nature of the Republic of Croatia – Izvješće O Gospodarenju Otpadnom Ambalažom (Report on the management of waste packaging). 2016. p. 12 [[report](#)]

²⁵ Fond za zaštitu okoliša i energetska učinkovitost (FZOEU) – Home [[website](#)]

REFERENCES

- Agency for Environment and nature of the Republic of Croatia – Izvješće O Gospodarenju Otpadnom Ambalažom (Report on the management of waste packaging). 2016
[http://www.haop.hr/sites/default/files/uploads/dokumenti/021_otpad/Izvjescja/ostalo/OTP_Izvje%C5%A1%C4%87e%20o%20gospodarenju%20otpadnom%20ambala%C5%BEom_2016..PDF]
- Bottle Bill Resource Guide – Croatia [<http://www.bottlebill.org/legislation/world/croatia.htm>] Accessed in December 2018
- Decision 88/2015 – Government of the Republic of Croatia – Odluka o područjima sakupljanja neopasne otpadne ambalaže (Decision on the collection of non-hazardous waste packaging). Official Gazette 88/15. 2015 [https://narodne-novine.nn.hr/clanci/sluzbeni/2015_08_88_1736.html] Accessed in December 2018
- Decree 97/2015 – Government of the Republic of Croatia – Uredba o gospodarenju otpadnom ambalažom (Decree on the management of waste packaging). Official Gazette 97/15. 2015 [https://narodne-novine.nn.hr/clanci/sluzbeni/2015_09_97_1872.html] Accessed in December 2018
- Decision 3/2017 – Government of the Republic of Croatia - Odluka o donošenju Plana gospodarenja otpadom Republike Hrvatske za razdoblje 2017. - 2022. Godine (Decision on the adoption of the Waste Management Plan of the Republic of Croatia for the period 2017 – 2022). Official Gazette 3/2017. 2017 [https://narodne-novine.nn.hr/clanci/sluzbeni/2017_01_3_120.html] Accessed in December 2018
- Fond za zaštitu okoliša i energetske učinkovitost (FZOEU) – Activities of the Fund
[http://www.fzoeu.hr/en/about_us/activities_of_the_fund/] Accessed in December 2018
- Fond za zaštitu okoliša i energetske učinkovitost (FZOEU) – Gospodarenje otpadom (Waste management)
[http://www.fzoeu.hr/hr/gospodarenje_otpadom/posebne_kategorije_otpada/ambalazni_otpad/]
Accessed in December 2018
- Fond za zaštitu okoliša i energetske učinkovitost (FZOEU) – Home [www.fzoeu.hr] Accessed in December 2018
- Fond za zaštitu okoliša i energetske učinkovitost (FZOEU) – Program rada Fond za zaštitu okoliša i energetske učinkovitost za 2015. godinu (The programme of the Environmental Protection and Energy Efficiency Fund for 2015). 2015 [http://www.fzoeu.hr/docs/program_rada_fonda_za_2015_v2.pdf]
- Government of the Republic of Croatia – Waste Management Plan of the Republic of Croatia for the period 2017-2022. 2017
[http://www.mzoip.hr/doc/management_plan_of_the_republic_of_croatia_for_the_period_2017-2022.pdf]
- Law 94/2013 – Parliament of the Republic of Croatia – Zakon o održivom gospodarenju otpadom (Act on sustainable waste management). Official Gazette 94/13. 2013[https://narodne-novine.nn.hr/clanci/sluzbeni/2013_07_94_2123.html] Accessed in December 2018
- Ordinance 88/2015 – Ministry of environmental protection and nature – Pravilnik o ambalaži i otpadnoj ambalaži (Ordinance on packaging and waste packaging). Official Gazette 88/15. 2015 [https://narodne-novine.nn.hr/clanci/sluzbeni/2015_08_88_1735.html] Accessed in December 2018
- Portal Novosti – Ministrica zaštite okoliša najavila ukidanje povratnih naknada za ambalažu (The Minister of Environmental Protection announced the abolition of refundable packaging fees) 2012

[<http://arhiva.portalnovosti.com/2012/01/intrigator-57/>] Accessed in December 2018

Strategy 130/2005 – Parliament of the Republic of Croatia – Strategija gospodarenja otpadom Republike Hrvatske (Waste management strategy). Official Gazette 130/2005. 2005 [https://narodne-novine.nn.hr/clanci/sluzbeni/2005_11_130_2398.html] Accessed in December 2018

The Croatian Parliament – Strategy of Waste Management in the Republic of Croatia. 2005 [http://mzoip.hr/doc/waste_management_strategy_og_130-205.pdf]

Disclaimer

This country report is based on publicly available information gathered by ACR+ team and validated by a Public waste management operator.

Deposit-refund systems for one-way beverage packaging in Europe

This country report is part of a wider study of ten deposit-refund systems in Europe covering the following countries: Croatia; Denmark; Estonia; Finland; Germany; Iceland; Lithuania; the Netherlands; Norway and Sweden.

The full report is available for ACR+ members on www.acrplus.org.
