



DIRECTORATE-GENERAL FOR EXTERNAL POLICIES
POLICY DEPARTMENT



A EUROPEAN REFUNDING SCHEME FOR DRINKS CONTAINERS

AFET



DIRECTORATE GENERAL FOR EXTERNAL POLICIES OF THE UNION

DIRECTORATE B

POLICY DEPARTMENT

BRIEFING PAPER

A EUROPEAN REFUNDING SCHEME FOR DRINKS CONTAINERS

Abstract

Reuse and recycling schemes for beverage packaging are seen as efficient tools for reducing the environmental impact of packaging systems and for increasing their resource efficiency. The present briefing note provides an overview on the pros and cons of the introduction of a Europe-wide mandatory deposit refund system.

This document was requested by the European Parliament's Committee on Foreign Affairs

AUTHORS

Jürgen SCHNEIDER, Reviewer and Project Leader, Umweltbundesamt GmbH, Austria
Brigitte KARIGL, Task Manager, Umweltbundesamt GmbH, Austria
Hubert REISINGER, Umweltbundesamt GmbH, Austria
Judith OLIVA, Umweltbundesamt GmbH, Austria
Elisabeth SÜßENBACHER, Umweltbundesamt GmbH, Austria
Brigitte READ Proofreader, Umweltbundesamt GmbH, Austria

RESPONSIBLE ADMINISTRATOR

Stefan SCHULZ
Policy Department
DG External Policies
European Parliament
B-1047 Brussels
E-mail: stefan.schulz@europarl.europa.eu

LINGUISTIC VERSIONS

Original: EN

ABOUT THE EDITOR

Editorial closing date: 10 October 2011.

© European Parliament, 2011

Printed in Luxembourg

The Information Note is available on the Internet at

<http://www.europarl.europa.eu/activities/committees/studies.do?language=EN>

If you are unable to download the information you require, please request a paper copy
by e-mail : poldep-expo@europarl.europa.eu

DISCLAIMER

The opinions expressed in this document are the sole responsibility of the author and do not necessarily represent the official position of the European Parliament.

Reproduction and translation for non-commercial purposes are authorized provided the source is acknowledged and the publisher is given prior notice and sent a copy.

TABLE OF CONTENTS

| | |
|--|-----------|
| EXECUTIVE SUMMARY | 5 |
| 1. INTRODUCTION | 6 |
| 2. OBJECTIVES OF DEPOSIT REFUND SYSTEMS | 9 |
| 3. EU LEGAL FRAMEWORK AND EXISTING/CURRENT INITIATIVES | 10 |
| 3.1 LEGAL FRAMEWORK AND EC INITIATIVES | 10 |
| 3.2 EP INITIATIVES | 12 |
| 3.3 BILATERAL MS INITIATIVES | 12 |
| 3.4 OVERVIEW OF REFUND SCHEMES APPLIED IN EUROPE | 12 |
| 3.5 EXPERIENCE GAINED WITH DRSS | 17 |
| 4. INSTRUMENTS FOR PROMOTING REUSE AND RECYCLING OF BEVERAGE PACKAGING | 20 |
| 4.1 NATIONAL DRSS ON REUSABLE BEVERAGE PACKAGING | 20 |
| 4.2 REUSABLE BEVERAGE PACKAGING QUOTAS | 20 |
| 4.3 TAX-BASED SYSTEMS | 20 |
| 4.4 KERBSIDE COLLECTION SYSTEMS FOR PACKAGING WASTE | 21 |
| 4.5 MANDATORY NATIONAL DRSS ON ONE-WAY BEVERAGE PACKAGING | 21 |
| 4.6 OPTIONS FOR HARMONISING NATIONAL DRSS | 22 |
| 5. ADVANTAGES AND DISADVANTAGES OF AN EEA-WIDE REFUND SCHEME FOR ONE-WAY BEVERAGE PACKAGING | 24 |
| 5.1 ADVANTAGES OF AN EEA-WIDE REFUND SCHEME FOR ONE-WAY BEVERAGE PACKAGING | 24 |
| 5.2 DISADVANTAGES OF AN EEA-WIDE REFUND SCHEME FOR BEVERAGE PACKAGING | 25 |
| 6. CONCLUSIONS | 25 |
| 7. ANNEX | 27 |
| 7.1 COUNTRY FACTSHEETS ON DEPOSIT REFUND SYSTEMS | 27 |
| 7.2 CONTACTS | 34 |
| 7.3 REFERENCES | 35 |

LIST OF ABBREVIATIONS

| | |
|----------------|--|
| DKK | Danish Krone |
| DPG | Deutsches Pfandsystem GmbH |
| DRS | Deposit Refund System, Deposit Refund Scheme |
| EC | European Commission |
| EEA | European Environment Agency |
| EEA JPC | Joint Parliamentary Committee of the European Environment Agency |
| EEK | Estonian Kroon |
| EP | European Parliament |
| GhG | Greenhouse gas |
| MEP | Member of European Parliament |
| NOK | Norwegian Krone |
| PET | Polyethylenterephthalat |
| SEK | Swedish Krona |
| WFD | Waste Framework Directive |

LIST OF TABLES

| | |
|---|----|
| Table 1: Estimated Key European One-Way Beverage Can Flows (Eunomia 2011) | 8 |
| Table 2: Waste management targets for packaging waste to be achieved by all EU Member States since 31.12.2008 according to Directive 1994/62/EC | 10 |
| Table 3: Overview of deposit refund systems applied in Europe | 13 |
| Table 4: Selected mandatory deposit rates and achieved return/recycling rates (Eunomia 2011 + additional sources) | 16 |
| Table 5: Estimated Key European One-Way Beverage Can Flows (Eunomia 2011) | 19 |
| Table 6: Options for removing problems with existing national one-way beverage can DRSs (Eunomia 2011) | 23 |
| Table 7: Country factsheets on major deposit refund systems (DRSs) (Eunomia 2011 complemented by ast 2004, BIO 2011, BottleBill.org 2011, Container Recycling Institute 2011, Eunomia et al. 2009b, Eunomia 2011c, InfoNU.nl 2011, Pladerer & Vogel 2009, Simon 2010, Wikipedia 2011) | 27 |

LIST OF FIGURES

| | |
|--|---|
| Figure 1 : Aluminium used beverage can recycling rates in 2009 (EAA 2011). | 7 |
| Figure 2: Life cycle greenhouse gas emissions of different beverage packaging types at year 2007Austrian conditions and recycling rates (WKO 2008b). | 9 |

| | |
|--|----|
| Figure 3 : Share of reusable beverage packaging in Austria in % - development from year 2000 to 2007(AG-Mehrweg 2010). | 17 |
| Figure 4 : Aluminium used beverage can recycling rates in 2009 (EAA 2011). | 18 |
| Figure 5 : Share of reusable beverage packaging in Germany in % (Boekh 2008). | 19 |

EXECUTIVE SUMMARY

High reuse rates of beverage packages and high recycling rates of packaging materials have been shown to contribute to lowering the environmental impacts of packaging systems and increasing resource efficiency. In order to achieve high reuse and recycling rates, the industry has introduced voluntary deposit systems on reusable packaging and some Member States of the European Economic Area (EEA) have implemented mandatory deposit refund systems (DRSs) on one-way beverage packaging.

The mandatory systems are very successful in reducing littering and in achieving high collection and recycling rates for one-way beverage packagings. A considerable part of the recycling potential (especially - but not only - between Germany and Denmark), however, is lost by consumers buying beverages in one country and dumping the packaging in another.

Fragmentation of the common market could be avoided by a harmonisation of the national systems or the introduction of a mandatory deposit refund system for the whole EEA.

The present briefing note gives an overview of the legal framework conditions and existing/current initiatives on the European, regional and country level for promoting the reuse and recycling of beverage packaging, with a focus on mandatory deposit refund systems for one-way beverage packaging. The briefing note summarises different instruments for promoting the reuse and recycling of beverage packaging and discusses the advantages/disadvantages of mandatory deposit refund systems on one-way beverage packaging and its EEA-wide implementation.

Studies and feedback from country experts indicate that mandatory deposit refund systems are seen as an effective means for preventing littering and achieving high recycling rates. However, a global ("kerbside") separate collection system for different packaging materials may also achieve high recycling rates. Countries which already achieve high recycling rates without a mandatory deposit refund system may therefore not be too keen to introduce such a system and would rather aim at a more direct promotion of reusable beverage packaging. An analysis of current trends suggests that the market shares of reusable packaging and the recycling rates will keep falling in several countries without additional measures. However, the available information is not sufficient to determine if an EEA-wide mandatory deposit refund system would be the optimal solution, especially when environmental benefits as well as economic and social impacts are also taken into account. A project which is currently underway (Eunomia 2011) may provide a clearer picture in the near future. However, a thorough impact assessment for the various options would be desirable.

1. INTRODUCTION

Packaging fulfils important functions: good packaging can make logistics efficient, improve the safety and the durability of products and serve the purpose of communication and marketing.

Waste prevention initiatives help to provide all these functions with a minimum of material consumption and waste generation. While technological progress and eco-design allow packaging to become more efficient, the generation of packaging waste in Europe is still growing (in the period from 2005 to 2008 at an average rate of 1 % per year (Eurostat 2011)).

“Separation of waste for recycling” is the number one activity that people think about when they are asked how they can contribute to environmental protection (Eurobarometer 2008). A functioning waste collection and recycling system is the cornerstone of a material-efficient economy.

With 3.1% of total waste arisings in the EU-27 in the year 2008 (Eurostat 2011), packaging waste is neither among the biggest nor among the most hazardous waste streams. Of these, some 20 % (EC 2006a) or 0.6 % of the total EU waste arisings are accounted for by beverage packaging. Nevertheless, in public discussions on the reuse and recycling of waste, beverage packaging waste frequently features as the most important waste stream.

However, for the public beverage packaging waste is (due to its low density - and thus high volume - and due to the everyday need for beverages) an important waste stream especially when it comes to littering or to filling waste bins.

Therefore the reuse and recycling of packaging waste may carry a much bigger symbolic value for the public than the actual impact (or a reduced impact on the environment) would suggest.

However, the reuse and recycling of waste requires from the consumer that he/she does not just throw away an empty bottle/can but that he/she takes it to a separate waste collection bin or point of sale. This is an additional effort which is required and which makes the reuse or recycling of waste less convenient.

So an ideal waste collection system would

- either be a system where a waste bin/machine for the separate collection of beverage packaging is always nearby
- or a system which rewards the consumer for taking the trouble.

To comply with the requirements of the Packaging Directive (94/62/EC), the Member States of the European Economic Area (EEA) – i.e. the 27 EU Member States plus Iceland, Liechtenstein and Norway - have introduced systems for the separate collection of packaging waste as a basis for the reuse of packaging products, the recycling of packaging material and the recovery of energy from packaging material. These systems vary from country to country according to the specific requirements, consumption and distribution patterns of these countries.

In general, national reuse systems work very well for transport packaging, such as crates and pallets, and also for beverage packaging in hotels, restaurants and the catering sector. With consumer beverage packaging, however, public intervention may be needed to encourage the implementation of reuse systems (EC 2009) or to achieve satisfactory recycling rates for one-way beverage packages.

Figure 1 shows that those countries which have introduced mandatory deposit refund systems (DRSs) on one-way beverage packaging are among the European countries with the highest recycling rates of aluminium beverage cans. In Estonia, for example, the recycling rate is 29 % higher than in neighbouring Latvia. In Finland the return rate of drink containers increased by 15 % between 2008 and 2009 after the introduction of a mandatory DRS (Hassi & Pietkäinen 2011).

However, national deposit-refund schemes on one-way beverage packaging cannot reach their full potential if large transboundary flows are involved. This can be demonstrated with the example of German cans of beer being imported in Denmark by final consumers. Because of the lower prices, Danish citizens tend to buy substantial quantities of beer in Germany (see Table 1). There they do not have to pay the deposit on the beer can. Back at home, the Danish citizens do not receive a refund for their imported cans and therefore throw them away as litter or mix them with other waste from households. These cans cannot be recycled (ENDS Europe 2009). Although this is a problem mainly between Germany and Denmark, all Nordic countries are in some way affected (see Table 1).

Economia (2011) estimates that 9 % of EU-27 beer cans are moved across the border by final consumers. However, around 75 % of all final consumer beverage exports occur between the countries shown in Table 1 or between France and the United Kingdom (neither of them having deposit-refund scheme on one-way beverage packaging).

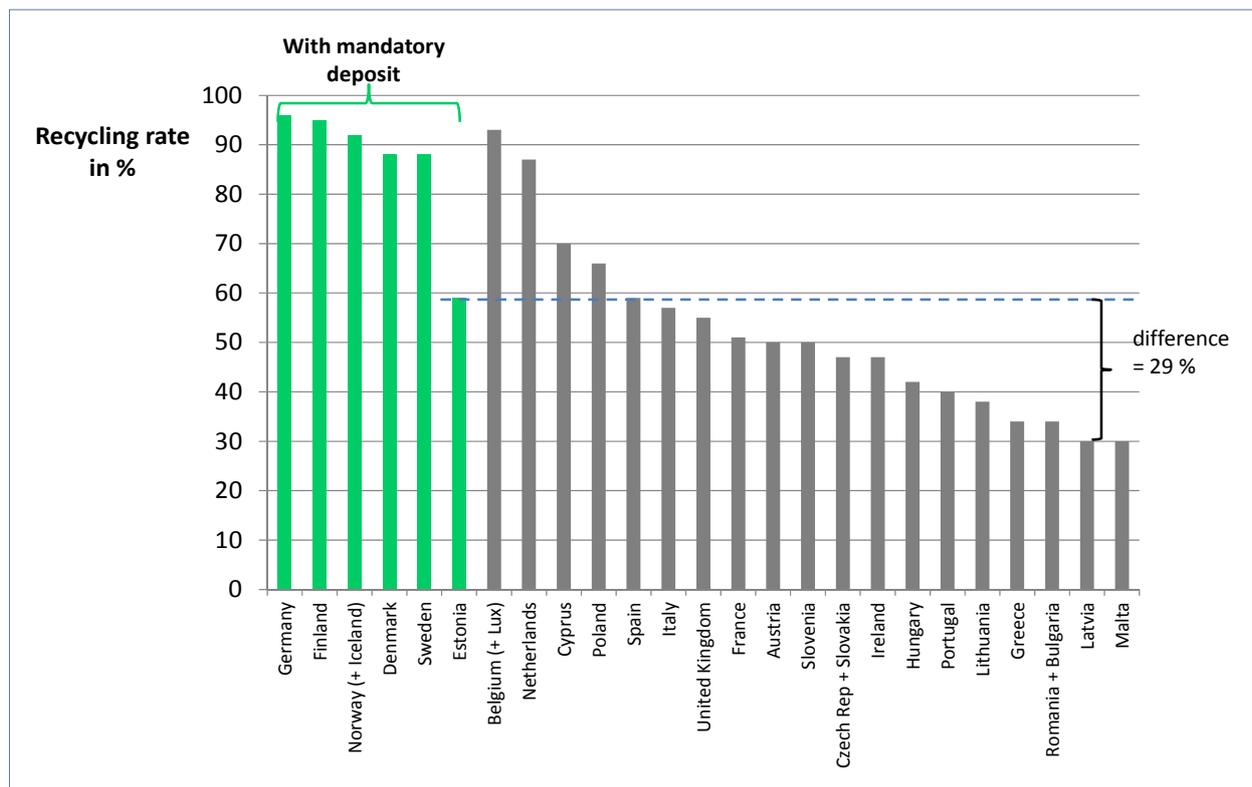


Figure 1 : Aluminium beverage can recycling rates in 2009 (EAA 2011).

Table 1: Estimated Key European One-Way Beverage Can Flows (Eunomia 2011)

| Direction of Flow | Number of transboundary cans in millions/year | |
|-------------------|---|------------------------|
| | Containing beer | Containing soft drinks |
| Germany → Denmark | 230 | 260 |
| Denmark → Sweden | 89 | Not determined |
| Germany → Sweden | 207 | |
| Sweden → Norway | 11 | |
| Sweden → Finland | 100 | |
| Estonia → Finland | 78 | |

The purpose of this briefing note is to provide an overview of existing EU legislation, current initiatives and an assessment of different practices within the EU Members States in the area of the reuse, recovery and recycling of drink containers on the EU-EEA internal market, with a specific focus on refunding schemes.

As the situation varies from country to country, a Europe-wide coordination of refunding schemes for bottles and cartons could be beneficial for the environment, consumers and businesses.

This briefing note explores possibilities for a legislative proposal to be adopted by the European Commission aimed at harmonising EU-EEA practices and reducing environmental damage. An overview is provided of current and previous efforts undertaken by the EU institutions and of the practices undertaken in the EU countries to achieve high rates of reuse, recovery and recycling for drink containers. Arguments in favour of and against an EEA-wide refund scheme are explored, i.e. enabling consumers in the whole EEA area to purchase beverages in one country and return the packaging in another, both for consumers and for the functioning of the internal market.

In 2009 the European Commission concluded that EU member states could introduce obligatory refund schemes for drink bottles and cartons if they considered it necessary for environmental reasons. The Commission maintains that such schemes should strike the right balance between environmental concerns and the good functioning of the internal market.

Figures from Finland show that the return of drink containers to designated recycling stations increased by 15% between 2008 and 2009 as a result of the introduction of an effective refund scheme. The percentage of returned plastic bottles in 2009 was 89%, for aluminium cans 92% and for glass bottles 98%.

The German Environment Ministry conducted a major study on refund systems on drink containers. The study's findings show that a refund scheme has a positive environmental effect since it gives incentives for the use of recyclable drink containers.

The Nordic Council has also launched an initiative with the aim to encourage the return of aluminium cans, and is considering a joint refund scheme. This would have an effect on all the Nordic countries since, if applied, it would lower the trade barriers within the region.

It should also be mentioned that in connection with the 2010 EU budget deliberations, the EP Budget Committee initiated a pilot project on a refund scheme for metal packaging for beverages. The Commission will study the effects of this project and the possibility of coordinating the different systems currently in place. The study is expected to be published in November this year.

This briefing note has been prepared as a desk study, based on existing studies and reports and complemented by internet research and contacts to selected experts from various EEA Member States.

2. OBJECTIVES OF DEPOSIT REFUND SYSTEMS

Deposit refund systems (DRS) aim at increasing the proportion of empty packaging returned by consumers to take-back/collection points. This helps to increase the reuse of packaging products and the recycling of packaging material. Moreover, it may help prevent littering, as it gives consumers an incentive to return empty packaging. Finally, insofar as those national provisions encourage the producers or distributors concerned to have recourse to reusable packaging, DRS systems contribute towards a general reduction of the amount of waste disposed (EC 2009).

In total, a DRS is designed to help to decrease the environmental life cycle impact of beverage packaging and to increase its resource efficiency, while reducing the import dependence of the European economy, as well as improving its competitiveness and creating jobs.

Figure 2 shows, as an illustrative example, the life cycle greenhouse gas emissions for different beverage packaging types as indicator for their environmental impacts. The absolute figures given in this illustration represent the Austrian conditions of the year 2007 (energy production, energy consumption and GhG emissions of Austrian installations, recycling rates) and may differ considerably in other member states. Yet the general pattern, namely that reusable packaging causes lower environmental impacts than one-way packaging, and that this difference becomes smaller with increasing recycling rates of one-way packaging, is quite common in the several EU member states (Peters & Czymmek 2002, Zero Waste Europe 2011).

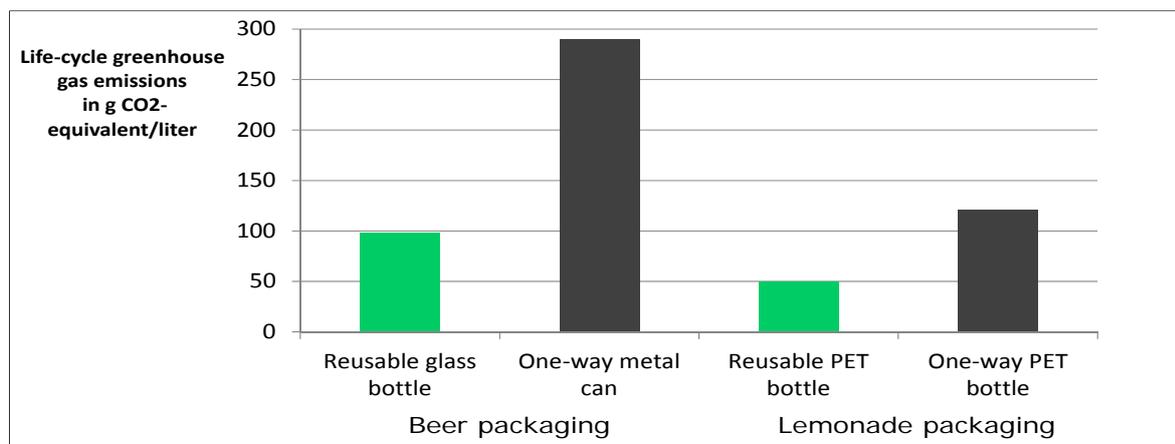


Figure 2 : Life cycle greenhouse gas emissions of different beverage packaging types 2007. Situation and recycling rates for Austria (WKO 2008b).

3. EU LEGAL FRAMEWORK AND EXISTING/CURRENT INITIATIVES

3.1 Legal Framework and EC initiatives

Both the thematic strategy on the prevention and recycling of waste (EC 2005a) and the thematic strategy on the sustainable use of natural resources aim for a reduction of the European economy's environmental impact and an increase of its resource efficiency. Core means for achieving these objectives are waste prevention and the promotion of reuse, recycling and other recovery of waste and its energy contents.

Within this strategic layout the new Waste Framework Directive (2008/98/EC) puts waste prevention and reuse to the top of the waste hierarchy and aims at creating a recycling society. The directive requests the EU Member States to take measures to promote the reuse of products and to establish a high quality recycling system. To this end, the Member States shall set up efficient separate waste collection systems.

Directive 94/62/EC on packaging and packaging waste lays down measures to prevent the production of packaging waste and, in addition measures intended at reusing, recycling and recovering such waste. This Directive requires Member States to ensure that management systems are put in place for the collection, reuse of used packaging and the recycling or recovery of packaging waste in order assign the different packaging streams to the most appropriate waste management options. To this end it envisages as a first priority measures aimed at preventing the production of packaging waste, it lists, as additional fundamental principles, reusing packaging, recycling and other forms of recovering packaging waste.

The Packaging Directive stipulates targets for the recovery and recycling of packaging waste (see Table 2).

Table 2: Waste management targets for packaging waste to be achieved by all EU Member States since 31.12.2008 according to Directive 1994/62/EC

| Target type | | Minimum target rate in mass % | Definition |
|----------------|-------------------|-------------------------------|---|
| Recovery rate | | 60 | (Packaging waste reused, recycled or incinerated) / (packaging waste generated) |
| Recycling rate | all packaging | 55 | (Packaging waste material recycled) / (packaging waste generated) |
| | Glass packaging | 60 | |
| | Metal packaging | 50 | |
| | Plastic packaging | 22.5 | |

Waste prevention, reuse, recycling and recover is also to be seen in the wider frame of resource efficiency policy. One of 7 initiatives under the Europe 2020 Strategy for a Smart, Sustainable and Integrative Economy is the Flagship Initiative “A Resource Efficient Europe”. The main document of the resource efficiency flagship is the “Resource Efficiency Road Map” (EC 2011b), which

- outlines key challenges and opportunities
- provides a positive long term vision and strategic objectives for European resource efficiency
- proposes priority areas for action and the respective measures.

The measures are structured into

- cross-sectoral measures such as market based instruments, innovation, education, better consumer information, investment in infrastructure, spatial planning, international aspects;
- measures specific for the sectors food, farming, forestry, water, marine resources & fisheries, ecosystems, fossil fuel use, metals & minerals, construction;
- accompanying measures such as monitoring and mitigation of social and economic costs of the transition.

The Resource Efficiency Road Map builds on the existing

- Raw Materials Initiative (EC 2008a)
- Energy Efficiency Action Plan (EC 2006b).
- SCP (Sustainable Consumption and Production) Action Plan (EC 2008b).

The European Commission, however, does not intend to propose an EEA-wide deposit scheme for beverage packaging as “some national systems operating without deposits can also achieve high packaging recycling rates” (Potočnik 2011).

Further studies related to the promotion of reuse and recycling of beverage packaging were published by the European Commission:

- Perchards (2007) describes the availability of reusable and one-way beverage packaging and their return practice in German supermarkets after the introduction of the mandatory deposit on one-way beverage packaging there.
- Perchards (2005) found that the Packaging Directive led to a significant convergence between Member States’ recycling rates. It also confirmed that industry opposes using taxation to drive packaging policy.
- Pira & Ecolas (2005) found that a share of the packaging waste recycled was returned due to market economics, a further share could be related to measures of the Packaging Directive and the final share to pre-directive Member State activities.
- Golding (no year) describes the situation of the reusable beverage packaging market in the 15 EU Member States of the 1990s. Already back then a trend from reusable packaging towards one-way packaging was to be seen.
- An Argus (2001) report summarises the European packaging waste management systems in the older 15 EU Member States and their compliance with the Packaging Directive. This is complemented by a study of the European Environment Agency (2005) which looks deeper into the effectiveness of the waste management system in 5 Member States.
- RDC & Pira (2003) conclude that separate collection of packaging waste is better than its treatment together with unsorted waste.

3.2 EP initiatives

In late 2008 Swedish Independent MEPs H  l  ne Goudin and Nils Lundgren together with Finnish Liberal Henrik Lax and UK Conservative John Bowis called to make metal beverage can producers harmonize "their deposit and return systems". By the deadline date of 5 February 2009, however, they had only gathered 123 signatures, thereby failing to get the declaration adopted (APEAL 2009).

In order to support the discussions on the further development of instruments to promote the reuse, recycling and recovery of beverage packaging the European Commission in recent years has issued 2 documents:

- A report on the implementation of packaging directive 94/62/EC and its impact on the environment, as well as on the functioning of the internal market (EC 2006a).
- A Communication on beverage packaging, deposit systems and free movement of goods (EC 2009).

Following a request from Members of the European Parliament asking for trials of an EEA-wide DRS, the European Commission has commissioned a study on such a scheme for beverage cans. Interim results of the study are published as consultation paper (Eunomia 2011). The public consultation runs till 18.10.2011 (ENDS Europe 2011). The final report is expected for November 2011.

3.3 Bilateral MS initiatives

Since 2009 there have been talks between Danish and German authorities to improve the interoperability of the respective mandatory DRSs (ENDS Europe 2009). *"Much effort is being expended, but no detailed information is available, owing to the delicate stage which discussions have reached"* (Eunomia 2011b).

Since 2008 there have been discussions to introduce a regional DRS for the Nordic countries (ENDS Europe 2010). Currently two different options are discussed:

- a) A system which allows cans to be returned and refunded across border in all Nordic countries
- b) Bilateral solutions (Eunomia 2011b).

There is no current initiative for fully integrating the existing deposit return systems in the Nordic countries¹.

3.4 Overview of refund schemes applied in Europe

Table 3 summarises which EEA Member States feature a deposit refund system

- On reusable beverage packaging (voluntary or supported by legal provisions)
- On one-way beverage packaging (voluntary or mandatory).

Crucial findings to these schemes are added in the "remarks" column. More detailed descriptions of selected deposit refund systems can be found in chapter 7.1 (in the Annex).

¹ Personal communication: Fine Holte, Danish Ministry of Environment, 09.09.2011

Countries which are marked with question marks in Table 3 may have some voluntary DRSs on reusable packaging, but literature does not provide a clear picture

Table 3: Overview of deposit refund systems applied in Europe

| Country | Deposit-refund system on beverage packaging | | | | Remarks to existing instruments | Source | |
|----------------|---|---------------------|-----------------------|--------------------|---------------------------------|---|-------------------------------------|
| | | Reusable containers | | One-way containers | | | |
| | | Voluntary | with legal provisions | Voluntary | | | Mandatory |
| Austria | | X | | | | Apart from beer bottles the market share of all refillables is continuously dropping (see Figure 3). Current discussions focus on introducing initiatives to stop this trend. | |
| Belgium | | ? | | | | An eco-tax of 0.1 €/l on one-way and reusable beverage packaging is charged. This was intended to be refundable on return, however, the return scheme was not installed. | BIO 2011, ECO-Conseil 2010 |
| Bulgaria | ? | ? | | | | | |
| Czech Republic | | | X | | | | Ministry of the Environment 2003 |
| Cyprus | X | (X) | | | | The only voluntary deposit on beer glass bottle may end in future. | Personal communication ² |
| Denmark | | X | | | X | | Eunomia 2011 |
| Estonia | | X | | X | | This is a "voluntary" system which shall help to achieve a recovery target. If the target is not met an excise duty has to be paid. | Eunomia 2011, BottleBill.org 2011 |
| Finland | | | X | X | | The Finish industry "voluntarily" chose to implement a deposit system to avoid a packaging tax. | Eunomia 2011, Eunomia 2011c |
| France | X | | | | | | BIO 2011 |
| Germany | | X | | | X | A return rate of 98 % is achieved. Littering | Eunomia 2011, |

² Personal communication Elena Christodoulidou Frangopoulou, MOA Cyprus, 27.09.11

| Country | Deposit-refund system on beverage packaging | | | | Remarks to existing instruments | Source | |
|---------------|---|----------------------|-----------------------|---------------------|---------------------------------|---|---|
| | | Reusable con-tainers | | One-way con-tainers | | | |
| | | Voluntary | with legal provisions | Voluntary | | | Mandatory |
| | | | | | | is considerably reduced. As instrument for achieving a high reusable quota, the one-way deposit was only a temporary success. Call for additional tax on beverage packaging (higher for one way). | Boekh 2008, Simon 2010 |
| Greece | ? | ? | | | | | |
| Hungary | X | | | | | Tax/fee linked to reusables' market share quotas since 2005. | Eunomia et al. 2009b |
| Iceland | | | | | X | Tax on one-way beverage packaging since 2008. | UST 2006 |
| Ireland | X | | | | | Ireland is currently consulting on the possible introduction of a packaging levy as waste prevention instrument. | Personal communication Jean Clarke, Irish EPA, 26.09.11 |
| Italy | ? | ? | | | | | |
| Latvia | | | X | | | | BIO 2011 |
| Liechtenstein | ? | ? | | | | | |
| Lithuania | | | X | | | | BIO 2011 |
| Luxembourg | | X | | | | | Personal communication ³ |
| Malta | ? | ? | | | | | |
| Netherlands | | | X | X | | There are voluntary systems for glass beer bottles and large PET bottles (reusable and one-way). The main instrument is a packaging tax. For PET deposit bottles, a return rate of 95% is reported, compared to | Eunomia 2011, InfoNU.nl 2011, BIO 2011 |

³ Personal communication Frank Thewes, Environment Agency Luxembourg, 19.09.11

| Country | Deposit-refund system on beverage packaging | | | | Remarks to existing instruments | Source |
|----------------|---|----------------------|-----------------------|---------------------|---------------------------------|--|
| | | Reusable con-tainers | | One-way con-tainers | | |
| | | Voluntary | with legal provisions | Voluntary | | |
| | | | | | 66% of non-deposit PET bottles. | |
| Norway | | | | | X | Eunomia 2011 |
| Poland | | X | | | | BIO 2011 |
| Portugal | ? | ? | | | | |
| Romania | ? | ? | | | | |
| Slovakia | | | X | | X | The deposit on one-way packing is zero (0) € Personal communication ⁴ |
| Slovenia | | | X | | | Reusable packaging is exempt from waste management levy and environmental tax. Voluntary deposit on reusable glass. Personal communication ⁵ |
| Spain | ? | | ? | | | If recovery/recycling targets are not met a tax applies. BIO 2011 |
| Sweden | | X | | | X | Eunomia 2011 |
| United Kingdom | X | (X) | | | | Voluntary deposit refund on reusable beverage packaging exists only in Scotland Wikipedia 2011 |

Zero Waste Europe (2011) claims, that also the Czech Republic, Latvia, Lithuania, Spain and the United Kingdom "are in the process of evaluating a deposit-system for one-way containers".

None of the national DRSs seem to refer to beverage cartons. Nevertheless ACE (2011) reports that 65 % of beverage cartons are recovered and 33 % are recycled in Europe, with a trend towards growing recycling rates.

In many of the new EU member states (Bulgaria, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania and Slovakia) taxes are used as an instrument against non-achievement of recycling targets. The tax is payable on the difference between the recycling targets set for each material for that particular year and the recycling rates actually achieved (Incpen 2011).

⁴ Personal communication Viera Simkovicova, Slovak Environmental Agency, 13.09.2011

⁵ Personal communication Lucija Jukić Soršak, Ministry of Environment and Spatial Planning Slovenia, 12.09.2011

Table 4 shows the deposit rates of the major European DRSs on one-way beverage packaging. The deposit rates and deposit specifications considerably vary from country to country, the achieved return/recycling rates, however, are high in all countries which feature mandatory DRSs.

Table 4: Selected mandatory deposit rates and achieved return/recycling rates (Eunomia 2011 + additional sources)

| Country | Amount of deposit on one-way packaging | | Effect on one-way packaging | | | Additional sources |
|-------------|--|--|-----------------------------|------|---------------------|--|
| | | | Return rate in % | | Recycling rate in % | |
| | | | bottles | cans | | |
| Denmark | 0.13 € | containers < 1 litre | | | 89 | Personal communication ¹ |
| | 0.20 € | 0.5 litre plastic bottles | | | | |
| | 0.40 € | containers ≥ 1 litre | | | | |
| Estonia | 0.04 € | all metal cans and one-way plastic bottles ≤ 0.5 l. | 90 | | | BottleBill.org 2011, Personal communication ⁶ |
| | 0.08 € | one-way plastic bottles > 0.5 l, one-way glass and all refillable bottles. | | | | |
| Finland | 0.15 € | metal cans | 92 | 94 | | Eunomia 2011c, Hassi & Pietikäinen 2011 |
| | 0.20 € | plastic containers between 0.35 and 1.0 litre | | | | |
| | 0.40 € | plastic containers > 1.0 litre | | | | |
| Germany | 0.25 € | all one-way containers | 98 | | | Boekh 2008, Simon 2010, Pladerer & Vogel 2009 |
| Netherlands | 0.25 € | PET soda bottles > 0.5 litre | 95 | | | InfoNU.nl 2011, BIO 2011 |
| Norway | 0.13 € | cans, glass and plastic bottles ≤ 0.5 litre | 82 | 92 | | Pladerer & Vogel 2009 |
| | 0.33 € | cans, glass and plastic bottles > 0.5 litre | | | | |

⁶ Personal communication Peeter Eek, Ministry of the Environment of Estonia, 09.09.2011

| Country | Amount of deposit on one-way packaging | | Effect on one-way packaging | | | Additional sources |
|---------|--|-----------------------|-----------------------------|------|---------------------|-----------------------|
| | | | Return rate in % | | Recycling rate in % | |
| | | | bottles | cans | | |
| Sweden | 0.10 € | metal cans | 86 | 93 | | Pladerer & Vogel 2009 |
| | 0.10 € | PET bottles ≤ 1 litre | | | | |
| | 0.20 € | PET bottles > 1 litre | | | | |

3.5 Experience gained with DRSs

Voluntary DRS only for reusable packaging

The example of Austria shows that a voluntary DRS only for reusable packaging does not necessarily result in an increase of reuse of packaging (Figure 3). Since 2000, the share of reusable packaging has been decreasing steadily and significantly. The reasons for the decrease are

- The market price for drinking packed in reusable containers is usually higher than that of comparable goods in non-reusable containers (on the one hand because of the deposit, on the other hand because retail seems to promote drinking packed in non-reusable containers)
- The barrier of bringing back the reusable container to collection points seems to be higher than for separate collection of non-reusable containers, which is reflected in consumers' purchase decisions.

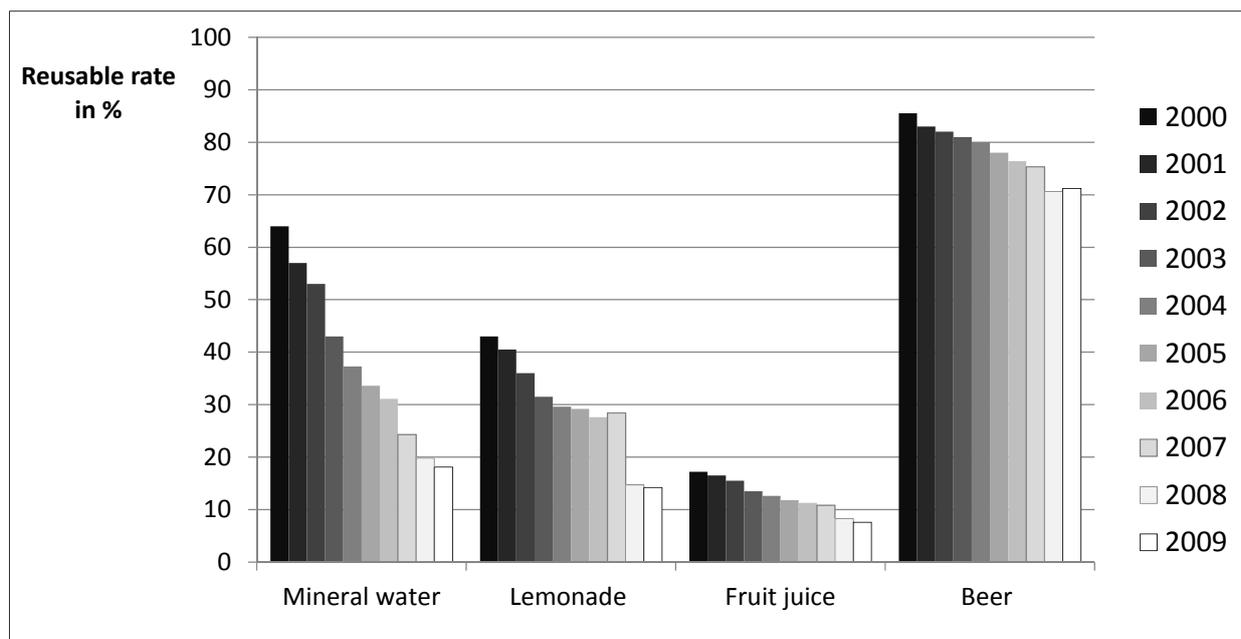


Figure 3 : Share of reusable beverage packaging in Austria in % - development from year 2000 to 2007(AG-Mehrweg 2010).

On the other hand, voluntary DRS seem to lead to higher recycling rates for the respective packaging material. In the Netherlands, which features a voluntary deposit return system for a share of the one-way PET bottles, in the year 2010, for deposit PET bottles, a return rate of 95% is reported, compared to 66% of non-deposit PET bottles.

Mandatory DRS for one-way packaging

Figure 1 shows that those countries which have introduced mandatory deposit refund systems (DRSs) on one-way beverage packaging are among the European countries with the highest recycling rates of aluminium beverage cans. In Estonia, for example, the recycling rate is 29 % higher than in neighbouring Latvia. In Finland the return rate of drink containers increased by 15 % between 2008 and 2009 in connection with the introduction of a mandatory DRS (Hassi & Pietikäinen 2011).

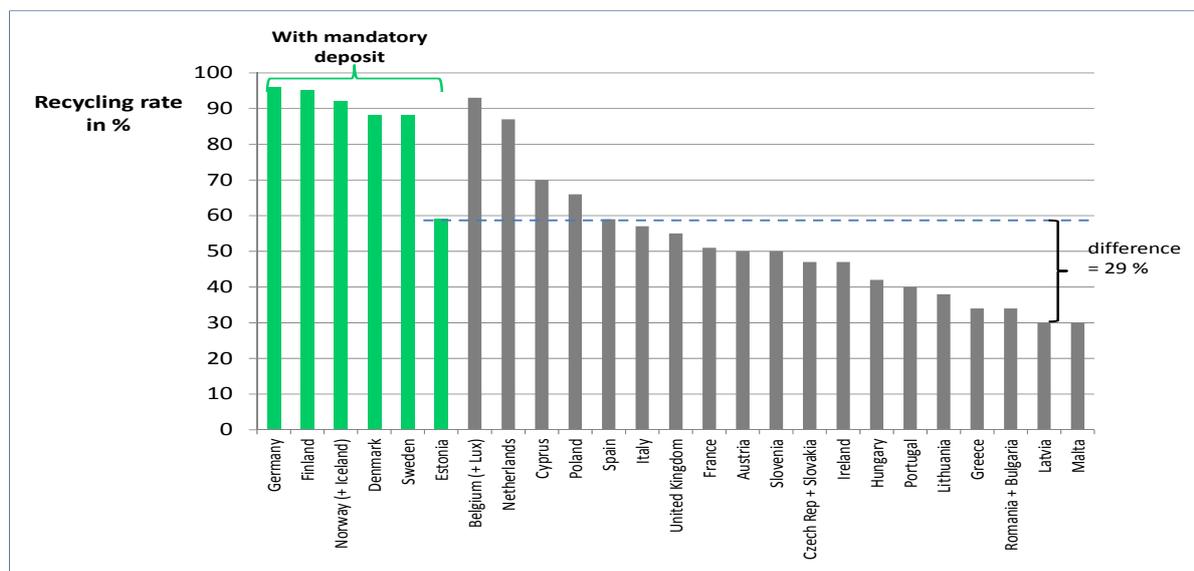


Figure 4 : Aluminium used beverage can recycling rates in 2009 (EAA 2011).

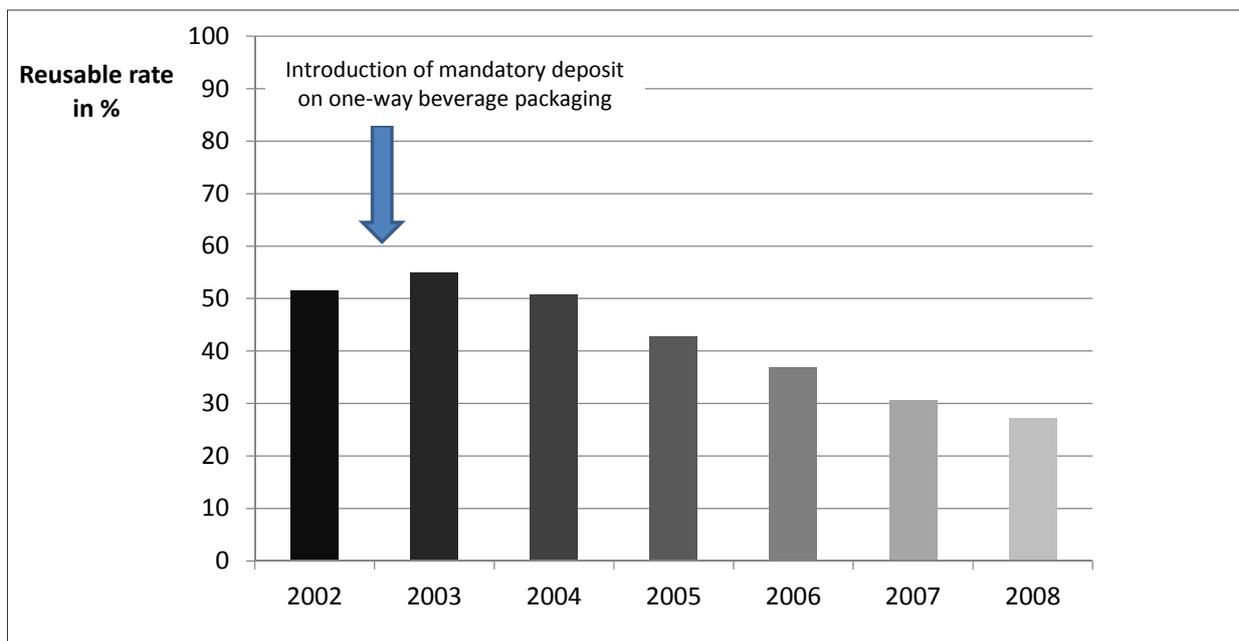
However, national deposit-refund schemes on one-way beverage packaging can not activate their full potentials if large transboundary flows are involved. An example is the import of German beer cans to Denmark by final consumers: Due to lower prices, Danish citizens buy beer in Germany at relevant quantities (see Table 5). As Danish citizens they are exempt from the deposit on the beer can. Back in Denmark, the cans are not collected separately because there is neither a refund from the German nor from the Danish DRS. The empty cans are widely disposed of together with mixed household waste or even littered. These cans cannot be recycled (ENDS Europe 2009). While this problem is biggest between Germany and Denmark all Nordic countries are affected (see Table 1).

Eunomia (2011) estimate the 9 % of the EU-27 beer cans are moved across the border by final consumers. However, around 75 % of all final consumer beverage exports occur between the countries shown in Table 1 or between France and the United Kingdom (the latter two featuring no deposit-refund scheme on one-way beverage packaging).

Table 5: Estimated Key European One-Way Beverage Can Flows (Eunomia 2011)

| Direction of Flow | Number of transboundary cans in millions/year | |
|-------------------|---|------------------------|
| | Containing beer | Containing soft drinks |
| Germany → Denmark | 230 | 260 |
| Denmark → Sweden | 89 | Not determined |
| Germany → Sweden | 207 | |
| Sweden → Norway | 11 | |
| Sweden → Finland | 100 | |
| Estonia → Finland | 78 | |

Furthermore, the introduction of a mandatory DRS for one-way packaging seems to create a more level playing field for reusable packaging. The example of Germany shows that such a measure has slowed the loss of market share of reusable packaging

**Figure 5 : Share of reusable beverage packaging in Germany in % (Boekh 2008).**

The marginalisation of reusable beverage packaging (except for beer glass bottles) shown in Figure 3 for Austria and in Figure 5 for Germany is a trend which can be seen across Europe (ECO-Conseil 2010).

The mandatory DRS on one way beverage packaging as introduced by several European nations has gained following achievements:

- High recycling rates (in Estonia nearly 90 % for glass and over 90 % for PET)

- The recovered material is much cleaner than with kerbside collection.
- The recovered material can nearly 100 % be recycled
- The littering is considerably reduced
- A level playing field for reusable packaging is created. This has slowed, however did not stop, the loss of reusable market shares (see Figure 5).

Generally it is perceived that the gained benefits from mandatory DRS on one way beverage packaging well exceed the costs of operating the DRS⁷.

4. INSTRUMENTS FOR PROMOTING REUSE AND RECYCLING OF BEVERAGE PACKAGING

4.1 National DRSs on reusable beverage packaging

Traditionally, reuse systems are combined with payment of a deposit in order to guarantee that a large proportion of containers are returned for refilling. These deposit and return systems are often operated on a voluntary basis by the fillers concerned. They either set up their own system for the products they distribute or pool resources with other producers by using common containers and crates. Voluntary schemes of this kind for refillables are rarely covered by legislation.

Nevertheless, a few Member States have adopted regulatory provisions to set certain common parameters. These parameters are normally limited to general rules, such as a common deposit rate. However, if Member States opt for a national legislative framework for such systems for refillables, they have to meet at least the conditions set out in Article 7 of Directive 94/62/EC, which are:

- The requirements set shall apply to imported products under non-discriminatory conditions, and
- Distortion of competition must be avoided.

Refillable schemes are mostly used by domestic fillers, given that they require a certain turnover of containers and that costs normally increase with the distance between the filler and the points of sale (EC 2009).

4.2 Reusable beverage packaging quotas

Some EU Member States have set certain target values (quotas) for the reuse of drinking containers for certain beverages.

If these quotas are tied to certain specific obligations in case that they are not met these obligations could give rise to internal market concerns (EC 2009): Importers of beverages normally use considerably more non-reusable packaging than do domestic producers. Thus obligations to achieve certain quotas could unduly promote domestic producers over importers. These trade barriers potentially could be reduced by applying a tradeable certificate system (Umweltbundesamt 2010).

4.3 Tax-based systems

In accordance with the polluter-pays principle Member States may adopt tax arrangements which differentiate between similar products, on the basis of objective criteria such as the environmental

⁷ Personal communication Peeter Eek, Ministry of the Environment Estonia, 09.09.2011.

impact of the material used. Such environmental criteria need to be applied in a consistent and - with respect to market participants – neutral manner. An environmental or resource tax may provide an incentive for waste prevention (for drinking tap water instead of canned drinks) and would very well fit into a wider ecological tax reform as proposed by the Resource Efficiency Roadmap (EC 2011b).

Also a tax-refund system is possible (as is practised in Norway) on the grounds that returned beverage packaging can be reused or recycled and thus cause a lower environmental impact.

The costs of complying with national environment-driven tax systems are often lower than the additional costs linked to mandatory deposit systems as described above. Nevertheless, packaging taxation is not neutral as to its internal market effects and thus may constitute a trade barrier.

4.4 Kerbside collection systems for packaging waste

In Europe beverage packaging is mostly included in the systems for the separate collection of packaging by means of collection islands near to residential areas and shops, usually consisting of collection bins for glass containers, for metal containers and in some areas also for plastic containers. These collection systems are usually financed by a levy which is paid by the producer/importer to the operator of the collection system in the respective area.

4.5 Mandatory national DRs on one-way beverage packaging

Some Member States have introduced mandatory deposit systems for non-reusable beverage packaging in order to raise the recycling rate of this packaging type. For the scope and design of these schemes see chapter 7.1 in the Annex.

Community law leaves it to each Member State to choose between a deposit and return system, on the one hand, and a global packaging-collection system on the other, or to opt for a combination of the two systems depending on the type of product; with the proviso that the systems chosen should be designed to channel packaging to the most appropriate waste management alternatives and form part of a policy covering all packaging and packaging waste (EC 2009).

The chosen system must fulfil following requirements:

- The system must be open to the participation of the economic operators of the sectors concerned and to the participation of the competent public authorities.
- The system chosen must also apply to imported products under non-discriminatory conditions, including the detailed arrangements and any tariffs imposed for access to the system. As regards the latter, Member States should avoid arrangements that lead to the unjustified doubling of participation charges at different levels for the same service provided which would risk hampering specifically small businesses.
- The system must not create unjustified trade barriers.
- The system must not distort competition
- The transitional period for adapting to the new system must be long enough. According the European Commission (EC 2009) a transitional period of at least one year seems necessary.
- The system should
 - cover the whole territory, (but not necessarily limited to one system operator)
 - be open to the participation of all economic operators of the sector concerned
 - avoid discrimination between those products that are exempt and those that are subject to the deposit requirement. Any differentiation is to be based on objective criteria (EC 2009).

Member States may choose between setting up a mandatory DRS by themselves and leaving the task to the industry concerned (e.g. producers and distributors). In order to make it easier for the consumer to identify beverages or beverage packaging that is covered by a deposit and return system, it may be considered useful to label the products concerned, e.g. with a common logo. A clearing system helps to guarantee a levelling out of the different amounts of the deposit collected and returned between the players involved. It is advisable to make the system easily accessible, irrespective of the Member State in which the producer or distributor concerned has its seat (EC 2009).

A recent evaluation of the German mandatory DRS on beverage packaging (Umweltbundesamt 2010) comes to following conclusions:

- The system has achieved an increase in the return rate and an improvement of the quality of the collected materials, both contributing to an increased recycling rate
- The system has reduced littering
- The initial positive effect on the reusables' market share, however, was again lost over time.

The combination of promoting reusable packaging and mandatory deposits on one-way beverage packaging is seen as an efficient system for minimising the environmental impacts of beverage packaging.

In order to further improve the system it is necessary to make a better distinction between one-way and reusable packaging. Therefore Umweltbundesamt (2010) recommends to introduce a labelling requirement for "ONE-WAY" and "REUSABLE". In addition Umweltbundesamt (2010) recommends to perform a public awareness campaign to promote reusable beverage packaging and to extend the mandatory deposit to all beverage areas.

National mandatory DRSs create barriers to trade, given that such systems make it impossible to sell the same product in the same packaging in more than one Member State. Instead, producers or distributors may have to alter the packaging or the labelling of the imported products and have to bear additional costs connected with the organisation of the take-back system.

The introduction of mandatory DRSs nevertheless may be justified (EC 2009) if the environmental/economic benefits clearly surpass their direct and indirect costs. There, however, are options for removing the trade barriers by harmonising the national deposit refund systems.

4.6 Options for harmonising national DRSs

The options to erase the barriers of the national mandatory DRSs, which have been investigated by Eunomia (2011) are shown in Table 6 together wither pros and cons. The pros and cons of an EEA wide system are discussed in more detail in chapter 5.

Table 6: Options for removing problems with existing national one-way beverage can DRSs (Eunomia 2011)

| Scheme | Pros | Cons |
|---|--|--|
| Introduction of EEA wide DRS | <p>Beverage producers could optimise their production and logistics for the whole market</p> <p>Labelling would be uniform across the EEA</p> <p>Easy to understand</p> <p>Purchase and refunding possible in the whole EEA</p> <p>Overall EU recycling rate should increase</p> | <p>Many countries and retailers are reluctant</p> <p>All existing systems would need to be revised;</p> <p>Existing general systems for the separate collection lose market share;</p> <p>The level of national deposits may have been chosen with specific objectives in mind. These objectives may be compromised by use of a uniform deposit rate;</p> <p>Refund rates must be adapted to changing currency exchange rates.</p> |
| Requirement for all existing DRSs to form a single system | <p>Consumers who have purchased deposit-bearing cans in one country would be able to have their deposit redeemed (most likely raising return rates in those areas where cross-border trade is significant);</p> <p>One organisation will cover all countries;</p> <p>There would be a marginal improvement in the EU recycling rate for cans (associated with cross-border shopping);</p> <p>The need for exemptions from deposits is essentially removed.</p> | <p>All existing systems would need to be revised;</p> <p>The level of national deposits may have been chosen with specific objectives in mind. These objectives may be compromised by use of a uniform deposit rate;</p> |
| Requirement for all existing DRSs to be interoperable | <p>The solution is targeted at the problems related to border trade;</p> <p>Consumers who have purchased deposit-bearing cans in one country would be able to have their deposit redeemed;</p> <p>There would be a marginal improvement in the EU recycling rate for cans.</p> | |
| No exemption of deposit payment for foreign citizens | <p>The incentive for consumers to return cans remains (albeit the system is not so convenient);</p> <p>The need for exemptions from deposits is removed.</p> | <p>Requires border shoppers to transport empty containers back to country of origin to redeem deposits.</p> |
| Bi-lateral agreements to ensure the national systems are | <p>The incentive for consumers to return cans remains;</p> <p>Exemptions from deposits are no longer required for border shopping areas;</p> | <p>Arrangement required to handle different value added tax rates;</p> <p>Refund rates must be adapted to changing currency exchange rates.</p> |

| Scheme | Pros | Cons |
|---|--|---|
| interoperable | The system for returns is convenient; Levels of littering of cans currently purchased without deposits from border shops may be expected to fall; Recycling of cans may be expected to increase. | |
| Bi-lateral agreements between countries to compensate for cost of managing cross-border flows | Receiving country is compensated for additional costs of managing the non-deposit cans | May not directly change consumers' behaviour; Does not directly address the underlying interoperability issue; Issues of transparency in the mechanism may arise. |

In Denmark the preferred solution to solve the crossborder problems is to find a bilateral solution with Germany¹.

5. ADVANTAGES AND DISADVANTAGES OF AN EEA-WIDE REFUND SCHEME FOR ONE-WAY BEVERAGE PACKAGING

5.1 Advantages of an EEA-wide refund scheme for one-way beverage packaging

National regulatory measures aiming at promoting the reuse and recycling of beverage packaging, according to the European Commission (EC 2009) have the potential to divide the internal market, as: "market operators engaged in activities in several Member States national systems often make it more difficult to take advantage of business opportunities within the internal market. Instead of selling the same product in the same packaging in different markets, they are required to adapt their packaging to the requirements of each individual Member State, which usually leads to additional costs." An EEA-wide system would avoid such market barriers.

An EEA-wide DRS for beverage packaging could lead to following further benefits:

- Beverage producers could optimise their production and logistics for the whole market. Free movement of goods would not be restricted. Consumers would get back their deposits wherever they buy the beverages and return the packaging.
- Labelling, as far as deposits are concerned, would be uniform across the EEA;
- A single system should be easy to understand;
- Any consumer who has purchased deposit-bearing cans in one country and consumed them in another would be able to have their deposit easily redeemed (most likely raising return rates in those areas where cross-border trade is significant);
- The overall EU recycling rate for cans should increase (although this would depend on the level of the deposit; part of the rationale would probably be to achieve this).

An additional positive effect could be that a competitive disadvantage of existing reusable beverage packaging, which exists when there is no DSR for one-way drinking containers, is removed.

5.2 Disadvantages of an EEA-wide refund scheme for beverage packaging

Drawbacks of the introduction of an EEA-wide mandatory DRS for one-way beverage packaging are:

- All countries would have to alter their existing systems for the collection of packaging waste which will entail additional costs;
- Retailers are not keen to take the additional effort and responsibility for managing the return system (Perchards 2008);
- Existing kerbside collection systems for packaging waste would lose market share and thus get specifically more expensive (Repak 2008, Europen 2003);
- The level of deposits in countries with DRSs in place may have been chosen with specific objectives in mind. These objectives may be compromised by use of a uniform deposit rate;
- It is difficult to set a deposit rate which is both effective and affordable in all countries, in spite of the different income levels and social preferences⁸
- Not all countries use the same currency so that deposit / refund rates would need to be periodically revised in line with exchange rate movements;
- Borders with countries outside the EEA would still be potentially affected by the cross-border problem unless specific measures were developed (Eunomia 2011).

6. CONCLUSIONS

The European Commission has raised concerns over the promotion of reusable beverage packaging which threatens to fracture the internal EEA market. Beverage producers who use reusable packaging are usually domestic producers, while importers of beverages, due to longer transport distances, tend to use one-way packaging. The promotion of reusable beverage packaging would thus give an advantage to domestic producers over non-domestic producers who operate internationally (EC 2009).

Where the full potential of reusable packaging solutions cannot be achieved, the option that remains is the recycling of one-way packaging. Experience in different countries has shown that obligatory DRSs lead to high return and recycling rates, as well as to considerable reductions in littering (Pladerer & Vogel 2009). However, if mandatory DRSs are implemented on the national level, there may again be trade barriers for non-domestic beverage producers, as well as frictions between the different systems.

A way out of these problems would be the implementation of an EEA-wide DRS on one-way beverage packaging. Beverage producers could optimise production and the logistics for the whole market. The free movement of goods would not be restricted. Consumers would get back their deposits no matter where they buy their beverages and return the packaging.

However, there are also other, more limited, options for improving the interoperability of national DRSs (see Table 6). In some Member States the promotion of reusable beverage packaging may be seen as a priority.

According to Article 15 of the Packaging Directive (94/62/EC) the European Council has the competence to adopt economic instruments on the EEA level to promote the objectives stipulated in the Directive. If it can be shown that an EEA-wide obligatory DRS on one-way beverage packaging is the best instrument to minimise the environmental impact of beverage packaging while ensuring the functioning of the internal market its introduction would be justified.

However, while there are many indications that an EEA-wide obligatory DRS on one-way beverage packaging may achieve the highest recycling rates while avoiding market distortions, there are some fundamental aspects that still need further investigation:

- how would such a scheme work best (e.g. with tax refunds or deposits), what would be the amount of such a deposit and which packaging items would be included (e.g. cans, PET bottles and/or glass bottles)
- how could such a scheme be implemented
- what are the environmental, economic, market, social and political impacts (positive and negative) of such a scheme
- how sceptics and consumers could be convinced of the need to adopt the scheme.

Feedback from country experts shows that there is strong resistance in industry to an EEA-wide obligatory DRS on one-way beverage packaging, combined with much scepticism among public administration. Much effort will therefore be necessary to win over key stakeholders in order to gain sufficient support for the implementation of such a system.

Studies and feedback from country experts indicate that mandatory DRSs are seen as an effective means for preventing littering and achieving high recycling rates. However, a global ("kerbside") separate collection system for different packaging materials may also achieve high recycling rates (see Figure 1). Countries which already achieve high recycling rates without a mandatory DRSs may therefore not be too keen to introduce such a system and would rather aim at a more direct promotion of reusable beverage packagings. There also seems to be some preference for bilateral or regional harmonisation of existing national mandatory DRSs over the introduction of an EEA-wide system (Eunomia 2011b,c).

While it is clear that new instruments must be introduced to keep the market shares of reusable packaging from falling (see Figure 3) and to raise the recycling rates in several countries (see Figure 1), the available information is not sufficient to determine if an EEA-wide mandatory DRS would be the optimal solution. A project which is currently underway (Eunomia 2011) may provide a clearer picture by November 2011. However, further studies on the positive and negative aspects of the implementation of such a scheme may be necessary.

⁸ Personal communication Christoph Scharff, ARA, 15.09.2011

7. ANNEX

7.1 Country factsheets on deposit refund systems

Table 7: Country factsheets on major deposit refund systems (DRSs) (Eunomia 2011 complemented by ast 2004, BIO 2011, BottleBill.org 2011, Container Recycling Institute 2011, Eunomia et al. 2009b, Eunomia 2011c, InfoNU.nl 2011, Pladerer & Vogel 2009, Simon 2010, Wikipedia 2011)

| Country | Denmark |
|------------------------|--|
| DRSs | <p>There are two DRSs in Denmark:</p> <ul style="list-style-type: none"> • Reusable containers – collection through the breweries for refilling. • One-way containers-collection through Dansk Retursystem A/S for recycling. |
| Scope | <p>The deposit system is compulsory for the following containers</p> <ul style="list-style-type: none"> • Collection system for one-way containers for beer and carbonated drinks. • Repayment of the deposit to the trade for one –way containers. • Payment of handling allowances to the trade for sorting returnable containers and for receiving one-way containers. <p>On 1 April 2005, the system was extended to include flavoured alcoholic beverages and cider. Still water and iced tea were also included from 1 October 2008.</p> |
| Regulation and Targets | <p>Denmark transposed the Packaging Directive's provisions on essential requirements and heavy metals limits in Statutory Order N° 298 of 1997.</p> <p>Statutory Order N° 619 (June 2000) implements various provisions of a number of EC waste directives, including the Packaging and Packaging Waste Directive and amends the responsibilities placed on local authorities.</p> <p>Statutory Order on Deposits and Collection etc. of Packaging for Beer and certain Soft Drinks amended in 2007</p> <p>The Ministry of the Environment is the responsible authority for the deposit system. The operation of Dansk Retursystem A/S is regulated according to Administrative Order (Bekendgørelse) No. 634 of 19 June 2008.</p> <p>Suppliers who use reusable containers must ensure collection to at least 98 %.</p> <p>Dansk Retursystem must ensure collection of one-way containers to at least 95 % (from 1 January 2013).</p> |
| Deposit amount | <p>In Denmark, drink products with a refundable deposit are sold either in one-way containers, in which case the material is recycled after use, or reusable containers that are cleaned and reused.</p> <p>For one-way container 3 different deposit rates have been introduced:</p> <ul style="list-style-type: none"> • 1.0 DKK (0.13 €) for containers < 1 litre • 1.5 DKK (0.20 €) for 0.5 litre plastic bottles • 3.0 DKK (0.40 €) for containers ≥ 1 litre. |

| | |
|-----------------------------------|---|
| | Fee rates are calculated so that over time there is a balance between revenues (fees) and the costs of waste management schemes, i.e. a non-profit cost-coverage principle. |
| Achievements Experience gained | In the third year of operation of the deposit on one-way beverage packaging (2005) a recycling rate of 84 % for one-way beverage packaging was achieved. Take back usually is by reverse vending machines. Some (e.g. smaller) shops do not have machines, so the owners accept empty cans and bottles and repay the deposit themselves if the shops sell cans or plastic bottles made of the same material. Machines also accept labelled packaging even if the shop in which it is located does not itself sell the product. |
| Existing Problems | Trade in alcoholic beverages from Germany to Denmark has been causing some issues as the Danish consumers are unable to return the empty containers via the Dansk Retursystem. |
| Country | Estonia |
| DRSs | In Estonia the mandatory one-way beverage packaging DRS since 2005 has been operated by Eesto Pandipakend LLC (EPP). |
| Regulation and Targets | The Estonian Packaging Act, RT I 2004, 41, 278 sets a 60 % recovery targets for all packaging placed on the market by 2010. If the enterprises, which produce or import beverage packaging, fail to set up packaging a waste recovery system minimally and to achieve the 60% target, they are charged an excise duty. This duty is separate from the deposit refund. |
| Scope | The DRS covers containers made of glass, plastic or metal; one-way containers or reusable containers for beer, cider, drinks with low alcohol content, soft drinks, water, juice, juice concentrate and nectar. EPP organizes the nationwide collection and recycling of containers and container waste from glass, plastic and metal containers included in the deposit system. |
| Deposit amount | <ul style="list-style-type: none"> • 0.06 € for all metal cans and one-way plastic bottles ≤ 0.5 l • 0.08 € for one-way plastic bottles > 0.5 l, one-way glass and all reusable bottles. |
| Achievements Experience gained | The mandatory DRS on one way packaging has provided a level playing field for reusable packaging and thus slowed, however not stopped, the loss of the latter's market share. High recycling rates are achieved (nearly 90 % for glass and over 90 % for PET). The recovered material is much cleaner than with kerbside collection. The recovered material can nearly 100 % be recycled. The littering is considerably reduced ⁹ . |

⁹ Personal communication Peeter Eek, Miistry of the Environment Estonia, 09.09.2011.

| Country | Finland |
|------------------------|---|
| DRSs | <p>The Finish industry "voluntarily" chose to implement a deposit system to avoid a packaging tax.</p> <p>Several DRSs operate in Finland</p> <ul style="list-style-type: none"> • Palpa, the largest system, is responsible for cans and PET bottles. • Ekopullo covers reusable glass and PET bottles. The members are producers and importers of beverage containers. • A-Pullo covers reusable glass bottles. • Alko covers one-way glass containers. <p>In addition there are 7 closed systems (to which no additional producers/importers may join), of which Lidl's is the largest in terms of volume.</p> |
| Regulation and Targets | <p>The deposit system for bottles is determined by the Waste Act (1072/1993) and the targets for drink containers are covered by the Act (180/2005) on the return system of drink containers.</p> <p>The targets are:</p> <ul style="list-style-type: none"> • At least 90 % of the reusable beverage containers are returned and refilled • At least 90 % of the metal containers are returned and recycled • At least 80 % of the other one-way containers are returned for material recycling. |
| Deposit amount | <p>In the original statutes the deposit was described as follows:</p> <p>At least</p> <ul style="list-style-type: none"> • 0.15 € for metal cans • 0.20 € for plastic containers between 0.35 and 1.0 litre • 0.40 € for plastic containers > 1.0 litre. |
| Existing Problems | <p>Some issues around the trade in alcoholic beverages between Estonia and Finland have been reported.</p> |
| Country | Germany |
| DRSs | <p>In Germany the DRS on one-way beverage containers was introduced in 2003. Retailers who sell beverages in one-way packaging must take back one-way containers of the same material (plastic, metal, glass) as they sell. Small retailers (< 200 m²) need to take back only containers from the companies for which they distribute beverages. The system is coordinated by DPG (Deutsches Pfandsystem GmbH) a company formed in June 2005 by the trade and industry organizations.</p> <p>There also are various deposit systems for reusable bottles, e.g. for beer or carbonated water bottles.</p> |
| Scope | <p>DPG covers one-way beer, water, soft drink, still drink, alcopop and energy drink</p> |

| | |
|------------------------|--|
| | containers. DPG does not cover juice and nectar from fruit and vegetables, milk drinks with a milk share > 50 %, diet drinks, wine and spirits. DPG also does not cover plastic bags, block-bottom bags, (until 2012) biologically degradable container and reusables. |
| Regulation and Targets | The deposit system for one-way beverage packaging was introduced in 2003 as §9 of the Packaging Ordinance (Verordnung über die Vermeidung und Verwertung von Verpackungsabfällen). The objective is to achieve a market share for reusable and “ecologically advantageous” one-way packaging of 80 %. |
| Deposit amount | <ul style="list-style-type: none"> • 0.25 € is the standard deposit for all one-way containers (cans, glass and plastic bottles) as of 2010 <p>The deposits for reusable bottles are not regulated by law since they are the private business of the individual beverage manufacturer and can therefore vary in rate. Nonetheless there are some standard rates that are widely used:</p> <ul style="list-style-type: none"> • € 0.08 for glass bottles for most beer and beer mixed drinks (usually up to 0.5 litre) • € 0.15 for reusable glass and plastic bottles for most soft drinks (usually up to 2 litres): • between € 0.15 and € 0.50 for reusable glass bottles of a special kind and design (usually flip-top bottles for beer) |
| Achievements | <p>By introducing a mandatory deposit on one-way packaging</p> <ul style="list-style-type: none"> • A return rate of 98 % and high recycling rates were achieved • Littering was considerably reduced, • Equal frame conditions for reusable and one-way beverage packaging was achieved. <p>As instrument for achieving a high reusable quota, the one-way deposit was only a temporary success (see Figure 5).</p> |
| Problems caused | <p>The introduction of the German one-way container DRS was fought by lobby groups of German bottling industry and retailers.</p> <p>These institutions claimed that the mandatory DRS had led to a shift from glass to plastic bottles and had reduced the volume and quality of the kerbside collection.</p> <p>The disputes also included trials at the Federal Administrative Court of Germany and the Federal Constitutional Court of Germany, but all trials were won by the German federal government.</p> <p>As additional instrument for achieving a higher reusable rate a tax, with (according to the higher environmental impacts) higher rates for one-way packaging is discussed (Simon 2010).</p> |
| Country | Netherlands |
| DRSs | A mandatory system does not exist. There are voluntary systems for glass beer |

| | |
|----------------|--|
| | bottles and large PET bottles (reusable and one-way). |
| Deposit amount | PET soda bottles (reusable and one-way) carry a 25-cent (0.25 €) deposit. For PET deposit bottles, a return rate of 95% (26.6 kton) is reported, compared to 66% (11.3 kton) of non-deposit PET bottles (2010) ¹⁰ . Reusable glass beer bottles carry a 10-cent (0.10 €) deposit with a further 1.50 euro deposit for the plastic crate. The return rate for deposit glass bottles is around 90% (2009) ¹¹ . The main instrument, however, is a packaging tax. |
| | The Environmental Protection Act contains the option to impose mandatory deposit-refund schemes. But until now the instrument has not been part of the Dutch waste policy. Also Article 8 of the Decree on the management of packaging, paper and cardboard (waste) addresses a deposit-refund scheme for drinks packaging, which will only be established if certain targets for collection, reuse or litter reduction will not be realised. |
| Country | Norway |
| DRSs | Norsk Resirk is the non-profit system founded 3 May 1999 and co-owned by various organisations in trade and industry that handles the depositing and recycling of one-way plastic bottles and beverage cans in Norway. The Norwegian system works in such a way that the excise tax decreases as the returns increases, meaning that for example 90 per cent returns for cans translates into a 90 per cent discount on the excise tax. |
| Scope | Most drinks excluding milk, vegetable juice and water |
| Deposit amount | <ul style="list-style-type: none"> • 1.00 NOK (0.13 €) for cans, glass and plastic bottles ≤ 0.5 litre • 2.50 NOK (0.33 €) for cans, glass and plastic bottles > 0.5 litre |
| Achievements | In 2005 93% of all recyclable bottles and 80% of all drink cans in Norway returned into the deposit and recycling system. |
| Country | Slovakia |
| DRSs | The Ministry of Environment of the Slovak Republic has issued Decree no. 81/2011 Coll. on deposit on beverage packaging, which is effective since 1 April 2011, introducing a mandatory deposit for both reusable and one-way beverage packaging. |
| Deposit amount | The decree provides deposit rates for reusable beverage packaging as follows: <ul style="list-style-type: none"> a) 0.13 € per one beverage packaging up to the volume of 2 l; b) 0.27 € per one glass reusable packaging for beer; |

¹⁰ <http://www.verpakkingsmanagement.nl/thema's/duurzaamheid/42-statiegeld+voor+pet+niet+eco-effici%C3%ABnt.html>

¹¹ http://www.recyclingnetwerk.org/andere_themas/2009/09/statiegeld.php

| | |
|------------------------|---|
| | <p>c) 40 € for other reusable beverage packaging. The decree provides also a list of returnable non-reusable packaging:</p> <p>a) Polyethylene terephthalate (PET) beverage packaging b) Aluminium beverage cans</p> <p>The deposit rate is 0 (zero) EUR for the above packaging.</p> |
| Existing Problems | The deposit system up to now works satisfactorily only for glass beer packaging. |
| Country | Slovenia |
| DRSs | In Slovenia a deposit was introduced for the returnable glass packaging. on a voluntary basis in year 2000 by the Association of Commerce, Association for Tourism and Hospitality and Association of agro-food processing of Slovenian Chamber of Commerce. |
| Supporting Instrument | Decree on the management of packaging and packaging waste (OG RS, No. 84/06, 106/06, 110/07, 67/11, 68/11 corr.) exempts reusable packaging, from the waste management system fee and from the environmental tax ¹² . |
| Country | Sweden |
| DRSs | <p>In Sweden there are 2 types of return systems for beverage containers:</p> <ul style="list-style-type: none"> • One for reusable glass bottles (is handled by the breweries) • The other for one-way metal cans and plastic bottles for consumption-ready drinks (operated mostly by Returnpack Svenska AB but also by Dela AB and PET-System AB). |
| Scope | <p>Drinks in plastic bottles and metal cans for e.g. beer water and soft drinks may only be sold when they are part of an approved deposit return system.</p> <p>Exempt are drinks which consist primarily of dairy product or vegetable/fruit juices.</p> |
| Regulation and Targets | <p>Regulation 2005:220 defines the scope of the obligatory deposit return systems on one-way plastic bottles and metal cans.</p> <p>The Swedish Board of Agriculture is the supervisory authority. Recycling levels are reported to the Swedish Environmental Protection Agency.</p> <p>The recycling target is 90 %.</p> |
| Deposit amount | <p>Deposit for reusable glass bottles handled by breweries:</p> <ul style="list-style-type: none"> • 0.56 SEK (0.06 €) for 0.33 litre glass bottles • 0.90 SEK (0.10 €) for 0.5 litre glass bottles |

¹² Personal communication Lucija Jukić Soršak, Ministry of Environment and Spatial Planning Slovenia, 12.09.2011

| | |
|-------------------|---|
| | <p>Deposit for one-way containers handled by an approved return system:</p> <ul style="list-style-type: none">• 0.89 SEK (0.10 €) for metal cans• 0.89 SEK (0.10 €) for PET bottles ≤ 1 litre• 1.79 SEK (0.20 €) for PET bottles > 1 litre |
| Existing Problems | <p>The 1.5 litre reusable PET bottle with a deposit of 4.00 SEK (0.45 €) has been discontinued, and has been replaced by the 1.5 litre non-reusable PET bottle.</p> |

7.2 **Contacts**

- AT Federal Ministry of Agriculture, Forestry, Environment and Water Management – Mr. Georg Fürnsinn – www.lebensministerium.at
- AT ARA Altstoff Recycling Austria AG - Mr Christoph Scharff - www.ara.at.
- AT Österreichisches Ökologieinstitut – Mr. Christian Pladerer – www.ecology.at
- AT Die Grünen – Ms. Christiane Brunner – www.gruene.at
- CY Ministry of Agriculture, Natural Resources and Environment - Ms Elena Christodoulidou Frangopoullou - <http://www.cyprus.gov.cy/moa/>
- DK Ministry of Environment, Danish Environmental Protection Agency – Ms Fine Holten - <http://www.mst.dk>
- EE Ministry of the Environment – Peeter Eek - <http://www.envir.ee/67244>
- GE Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit - Jürgen Seitel - <http://www.bmu.de/>
- IE Environmental Protection Agency – Ms Jean Clarke – www.epa.ie
- LU Administration de l'environnement, Division des déchets – Mr. Frank Thewes - www.environnement.public.lu
- SK Slovak Environmental Agency – Ms. Viera Simkovicova - www.sazp.sk/
- SI Republic of Slovenia, Ministry of Environment and Spatial Planning – Ms. Lucija Jukić Soršak - www.mop.gov.si/en/

7.3 References

European Legislation:

- Waste Framework Directive (2008/98/EC): Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives. Official Journal of the European Union L 312/3, from 22.11.2008.
- Amendment to Packaging Directive (2004/12/EC): Directive 2004/12/EC of the European Parliament and of the Council of 11 February 2004 amending Directive 94/62/EC on packaging and packaging waste - Statement by the Council, the Commission and the European Parliament. Official Journal of the European Union L 47, 18.2.2004, p. 26–32
- Packaging Directive (94/62/EC): European Parliament and Council Directive 94/62/EC of 20 December 1994 on packaging and packaging waste. Official Journal of the European Union L 365, 31.12.1994, p. 10–23

Literature Sources:

- ACE (2011): Recycling rates are continually growing. <http://www.beveragecarton.eu/en/working-with-nature-2/alias-2/recycling-in-europe>.
- AG-Mehrweg (2010) : Das Ökobonus-Modell <http://www.mehrweg.at/file/001405.pdf>.
- APEAL - Association of European Producers of Steel for Packaging (2009): Little support for MEPs' call for EU-wide can deposit. http://www.apeal.org/uploads/Mediaroom/09-02-10_Little%20support%20for%20MEPs%20call%20for%20EU%20wide%20can%20deposit.pdf.
- Argus (2001): European Packaging Waste Management System. http://ec.europa.eu/environment/waste/studies/packaging/epwms_xsum.pdf.
- Ast (2004): Das Einwegpfand drückt die Luft ab. Recycling magazine (2004) 6, p. 10-11.
- BIO Intelligence Service (2011): Use of Economic Instruments and Waste Management Performances. In preparation
- Boekh, M. (2008): Die Pfandpflicht bleibt wirkungslos: Mehrwegquote im freien Fall. Entsorgungsmagazin (2008) 9, p. 29.
- BottleBill.org (2011): Beverage container legislation – Estonia. <http://www.bottlebill.org/legislation/world/estonia.htm>.
- Container Recycling Institute (2011): Bottle Bill Resource Guide. <http://www.bottlebill.org/legislation/world/sweden.htm>. Accessed on 09.09.2011.
- EAA - European Aluminium Association (2011): Aluminium used beverage can recycling results, Europe 2009. [http://www.eaa.net/files/eaa/documents/67/846/846_Press%20Release%20Alu%20bevcans%20recycling%202009\(final26July2011\)_ANNEX.pdf](http://www.eaa.net/files/eaa/documents/67/846/846_Press%20Release%20Alu%20bevcans%20recycling%202009(final26July2011)_ANNEX.pdf).

- EC - European Commission (2005a): Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions - Taking sustainable use of resources forward: A Thematic Strategy on the prevention and recycling of waste. COM (2005)666, 21.12.2005
- EC - European Commission (2005b): Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions - Thematic Strategy on the sustainable use of natural resources. COM (2005) 670, 21.12.2005.
- EC - European Commission (2006a): Report from the European Commission to the Council and the European Parliament on the implementation of directive 94/62/EC on packaging and packaging waste and its impact on the environment, as well as on the functioning of the internal market. COM (2006) 767 final, Brussels, 6.12.2006.
- EC - European Commission (2006b): Communication from the Commission Action Plan for Energy Efficiency: Realising the Potential (Energy Efficiency Action Plan). COM(2006)545 final from 19.10.2006.
- EC - European Commission (2008a): Communication from the Commission to the European Parliament and the Council - The Raw Materials Initiative - Meeting our critical needs for growth and jobs in Europe (The Raw Materials Initiative). COM(2008) 699 from 04.11.2008.
- EC - European Commission (2008b): Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on the Sustainable Consumption and Production and the Sustainable Industrial Policy Action Plan (SCP-Action Plan). COM (2008)397/3, SEC(2008)2110. Brussels.
- EC - European Commission (2009): Communication from the Commission - Beverage packaging, deposit systems and free movement of goods. COM (2009/C 107/01). Brussels.
- EC - European Commission (2011a): Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - A resource-efficient Europe – Flagship initiative under the Europe 2020 Strategy. COM (2011) 21, Brussels, 26.1.2011. http://ec.europa.eu/resource-efficient-europe/pdf/resource_efficient_europe_en.pdf.
- EC - European Commission (2011b): Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – Roadmap to a Resource Efficient Europe. COM (2011) 571, Brussels, 20.9.2011.
- ECO-Conseil (2010): Mehrwegquote im Getränkebereich im Großherzogtum Luxemburg. http://www.environnement.public.lu/dechets/dossiers/emballages/mehrwegquote_2009.pdf
- EEA - European Environment Agency (2005): Effectiveness of packaging waste management systems in selected countries: an EEA pilot study. Copenhagen. http://www.eea.europa.eu/publications/eea_report_2005_3.
- ENDS Europe (2009): Danish bid to end German drinks deposit dispute. 9.2.2009.
- ENDS Europe (2010): Northern light on cross-border deposit scheme.22.9.2010.
- ENDS Europe (2011): Brussels consults on EU-wide can deposit scheme.17.8.2011.

- Eunomia (2009): Consultation on Options for Enhanced Coordination of Deposit Refund Systems for Metal Beverage Cans. <http://www.eunomia.co.uk/page.php/consultation>.
- Eunomia (2011): Options and Feasibility of a European Refund System for Metal Beverage Cans. <http://ec.europa.eu/environment/waste/packaging/cans/map.htm>.
- Eunomia (2011b): Workshop Summary Report Copenhagen. http://ec.europa.eu/environment/waste/packaging/cans/pdf/copenhagen_workshop_summary.pdf.
- Eunomia (2011c): Workshop Summary Report Helsinki. http://ec.europa.eu/environment/waste/packaging/cans/pdf/helsinki_workshop_summary.pdf
- Eunomia, Tobin, TBU, Ökoinstitut, Scuola Agraria Monz & Arcadis (2009b): International review of waste management policy. <http://www.environ.ie/en/Publications/Environment/Waste/WasteManagement/>.
- Eurobarometer (2008): Attitudes of European citizens towards the environment. Special Eurobarometer 295. http://ec.europa.eu/public_opinion/archives/ebs/ebs_295_en.pdf.
- Europen (2003): Mandatory deposits for non-refillable beverage containers. www.europen.be/download_protected_file.php?file=14.
- Eurostat (2011): Packaging waste [env_waspac]. <http://epp.eurostat.ec.europa.eu/portal/page/portal/environment/data/database>. Accessed on 09.09.2011
- Golding, A. (no year) : Reuse of Primary Packaging. Tübingen. http://ec.europa.eu/environment/waste/studies/packaging/reuse_main.pdf.
- Hassi, S. & Pietikäinen, S. (2011): Creating an Eu-wide deposit system for bottles and cans. European Parliament. Parliamentary questions, 23. May 2011. <http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+WQ+E-2011-005039+0+DOC+XML+V0//EN>.
- IFEU – Institut für Energie- und Umweltforschung Heidelberg GmbH (2011): Ökobilanz von Getränkeverpackungen in Österreich – Sachstand 2010. Heidelberg. http://www.ifeu.de/oekobilanzen/pdf/Oekobilanz_%20Getraenkeverpackungen_Oesterreich%202010_Langfassung.pdf.
- Incpen (2011) : Possible packaging tax or levy incpen submission to irish department of the environment, community and local government. Ireland. <http://www.incpen.org/docs/IrishPackagingTaxProposalsINCPENResponse.pdf>.
- InfoNU.nl (2011) : Hoeveel statiegeld krijg je er eigenlijk voor? <http://financieel.infoanu.nl/diversen/29541-hoeveel-statiegeld-krijg-je-er-eigenlijk-voor.html>.
- Ministry of the Environment of the Czech Republic (2003) : Waste Management Plan of the Czech Republic.
- Misiga, P. (2011): Waste issues in the context of resource efficiency. Retail Forum for Sustainability. 09.06.2011, Brussels.
- Perchards (2005): Study on the progress of the implementation and impact of the Packaging Directive on the functioning of the internal market. St. Albans. [http://www.perchards.com/files/documents/Final%20report%2020-6-05%20\(final%20v3\).pdf](http://www.perchards.com/files/documents/Final%20report%2020-6-05%20(final%20v3).pdf)

- Perchards (2007) : Study on factual implementation of a nationwide take-back system in Germany after 1 May 2006. St. Albans. http://ec.europa.eu/enterprise/policies/single-market-goods/files/goods/docs/beverage_communication/study_deposit_systems_en.pdf.
- Perchards (2008): A deposit and refund system in Ireland. http://www.repak.ie/files/Deposits_for_Ireland_September_2008_final.pdf.
- Peters, M. & Czymmek, F. (2002): Das Zwangspfand auf Einweggetränkeverpackungen - eine ökologisch-ökonomische Analyse. Beuermann, G. (Hrsg.): Arbeitsberichte zum Umweltmanagement, Arbeitsbericht 9, Universität Köln.
- Pira & Ecolas (2005): Study on the implementation of Directive 94/62/EC on Packaging and Packaging Waste and options to strengthen prevention and re-use of packaging. Leatherhead, UK. http://ec.europa.eu/environment/waste/studies/packaging/050224_final_report.pdf
- Pladerer, Ch. & Vogel, G. (2009) : Mehrweg hat Zukunft. Wien. http://wenigermist.natuerlichwien.at/wp-content/uploads/2010/06/262_Bericht_Mehrwegmodelle_WU_Oekologie-Institut__2009.08.10_WEB.pdf.
- Potočnik (2011): Joint answer given by Mr Potočnik on behalf of the Commission - Written questions: E-007172/11, E-007173/11. <http://www.europarl.europa.eu/sides/getAllAnswers.do?reference=E-2011-007173&language=EN>.
- RDC & Pira (2003): Evaluation of Costs and Benefits for the Achievement of Reuse and the Recycling Targets for the Different Packaging Materials in the Frame of the Packaging and Packaging Waste Directive 94/62/EC'. <http://ec.europa.eu/environment/waste/studies/packaging/costsbenefits.pdf>.
- Repak (2008) A deposit and refund system in Ireland. http://www.repak.ie/files/perchards_-_key_messages_FINAL_4_Nov.pdf
- Simon, H.-W. (2010): Mehrwegsysteme auf dem Rückzug: Die Steuer soll's richten. Entsorgungsmagazin (2010) 3-4, S. 22-23.
- Umweltbundesamt (2010) : Bewertung der Verpackungsverordnung – Evaluierung der Pfandpflicht. Dessau. <http://www.umweltdaten.de/publikationen/fpdf-l/3931.pdf>.
- Wikipedia (2011): Container deposit legislation. http://www.enotes.com/topic/Container_deposit_legislation. Accessed on 09.09.2011
- WKO - Wirtschaftskammer Österreich (2008b): Nachhaltigkeitsagenda 2008 -2017 der österreichischen Wirtschaft für Getränkeverpackungen. Wien. http://portal.wko.at/wk/format_detail.wk?angid=1&stid=255221&dstid=8333&opennavid=0.
- Zero Waste Europe (2011): Beverage packaging and zero waste. <http://www.zerowasteurope.eu/beverage-packaging-and-zero-waste/>.

DIRECTORATE-GENERAL FOR EXTERNAL POLICIES

POLICY DEPARTMENT

Role

Policy departments are research units that provide specialised advice to committees, inter-parliamentary delegations and other parliamentary bodies.

Policy Areas

- Foreign Affairs
- Human Rights
- Security and Defence
- Development
- International Trade

Documents

Visit the European Parliament website: <http://www.europarl.europa.eu/studies>

