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



## THE CASE OF FINLAND

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## DESCRIPTION OF THE SYSTEM

### BACKGROUND FOR INTRODUCING THE SYSTEM

Finland had a long history of returning refillable glass containers dating back to the 1950's. The first system concerned refillable glass bottles and was operated by the breweries with their own pool of bottles. In 1994 the government introduced a packaging tax affecting soft and alcoholic beverages with the objective to further incentivise producers and importers to participate in a DRS. The tax was 4 times higher for one-way packaging outside of a deposit system and was not applicable to refillable containers which were part of a deposit system. Therefore, there were clear incentives to join a deposit system both for refillable and for one-way beverage containers.

In order to alleviate the producers from the burden of the packaging tax, a DRS for one-way beverage cans managed by a centralised organisation was created in 1996, on initiative of the beverage producers and the retailers. In 2004, a new DRS operator was set up to manage refillable PET and glass bottles. The refillable glass bottles have been previously handled by the Finish alcohol monopoly before it was decided to integrate them in the DRS system. In 2008, following a change in the packaging tax, the one-way deposit system was extended to PET bottles and in 2011, to one-way glass bottles<sup>1</sup>.

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

A legislation introducing a packaging tax based on volume (litres) has been in place since 1994<sup>2</sup>. It applies to packages for alcoholic beverages, soft drinks, and bottled water<sup>3</sup>. The taxation system aims to encourage the reuse and recycling of drinking packages, to reduce the quantities of such materials ending up in landfills and to prevent littering. Containers that belong to a functional deposit-based return system and can be refilled or recycled as raw material are exempt from the tax. One-way packaging which is part of a DRS has been subject to a zero-rate tax since 2008. Refillable containers that are part of a deposit system have been entirely exempt from the tax from the beginning. Some see this as the main reason for the switch from refillable to one-way containers in Finland over the last decade.

1 Information mainly coming from direct contact with PALPA, IEEP (2017) – Deposit Refund System (and Packaging Tax) in Finland [[report](#)] and PALPA (2017) – Case study on Finnish deposit refund system (Presentation during final conference on capacity building for environmental tax reform held on 5 October 2017 in Brussels) [[website](#)]. Other sources of information are explicitly mentioned.

2 Act 1037/2004 – Laki eräiden juomapakkausten valmisteverosta (Act on excise duty on certain beverage packaging) [[website](#)]

3 All packaging falling under customs tariff group CN22 [[website](#)]

Table 1 : Tax amounts per type of soft and alcoholic drinks packaging

Packaging tax/ l	1994	2005	2008
One-way packaging part of a DRS	0.17 EUR/l	0.085 EUR/l	0 EUR/l
Refillable packaging part of a DRS	0 EUR/l		
All packaging not part of a DRS	0.67 EUR/l	0.51 EUR/l	

The framework for the DRS is laid in a related decree on collection systems for returnable drinks packaging<sup>4</sup>. The decree sets the minimum deposit values for different types of packaging. In accordance with the provisions of the decree, the current deposit values applied by the deposit system operator PALPA are the following:

Table 2: Deposit values for different packaging types

Type of container	Beverage cans	Plastic bottles			Glass bottles
		< 0.35 l	0.35 – 1 l	> 1 l	
Deposit values <sup>5</sup>	0.15 EUR	0.10 EUR	0.20 EUR	0.40 EUR	0.10 EUR

The minimum reuse and recycling targets are 90% for all types of packaging part of a deposit system. If the targets are not reached, the deposit operator has to submit to the Finnish governmental agency of the department of environment<sup>6</sup> an action plan with additional measures on how to achieve the targets.

Until 2015, Finland had a partial producer responsibility for packaging, meaning that it only covered industrial plastic packaging waste<sup>7</sup> since municipalities had the obligation for organising the take-back of consumer packaging<sup>8</sup>. Since 1 May 2015, the producer responsibility organisation RINKI<sup>9</sup> takes care of the collection, transport and treatment of household packaging waste<sup>10</sup>. RINKI is a non-profit service company owned by Finnish producers and retail trade<sup>11</sup>. It operates the eco take-back point network for the collection of glass, metal, carton, and plastic packaging<sup>12</sup>. In 2016 it reached 78% of glass, 84% of metal and 24% of plastic recycling rates<sup>13</sup>.

## SYSTEM FUNCTIONING, ROLES AND RESPONSIBILITIES OF MAIN STAKEHOLDERS

### Deposit operator



The deposit operator for one-way packaging in the country is Suomen Palautuspakkaus Oy (PALPA). It

4 Decree 180/2005 - Valtioneuvoston asetus eräiden juomapakkausten palautusjärjestelmästä (Government Decree on the return systems for beverage containers) [[website](#)]

5 Norden – The Use of Economic Instruments In Nordic Environmental Policy 2010–2013. Nordic Council of Ministers 2014 [[report](#)]; PALPA (2018) – [Price lists](#) [[website](#)]

6 Pirkanmaan ympäristökeskus (Pirkanmaa Regional Environment Centre)

7 Norden – Economic Policy Instruments for Plastic Waste – A review with Nordic Perspectives. Nordic Council of Ministers 2014, p. 39 [[report](#)]

8 EXPRA – Finland [[website](#)]

9 Finnish Packaging Recycling RINKI Ltd [[website](#)]

10 Norden — Economic Policy Instruments for Plastic Waste – A review with Nordic Perspectives. Nordic Council of Ministers 2014 [[report](#)]

11 Finnish Packaging Recycling RINKI Ltd [[website](#)]

12 RINKI – Check the packaging sorting instructions for households [[website](#)]; Household packaging waste to Rinki eco take-back points [[website](#)]

13 RINKI – Rinki collects packaging statistics from more than 4,000 companies [[website](#)]

was created in 1996 to operate the system for one-way beverage cans. In 2008 PALPA extended the system to one-way PET bottles, and in 2011 – to one-way glass bottles.

PALPA is a non-for-profit organisation owned by retailers (50%) and beverage producers (50%). Membership is open to every company falling under the deposit regulation. Decisions on the amount of different fees of the system – deposit, membership, recycling, product registration and handling fees – are decided by PALPA’s Board of Directors. PALPA’s strategy is to run the system as an administrative office – it outsources all activities related to collection and treatment of containers to a network of companies and does not own any operational assets. PALPA itself has a staff of 13 employees and this way of operation allows for great flexibility. It is financed through registration and recycling fees from retailers and breweries, unredeemed deposits, and sale of collected material (aluminium, PET-plastic, and glass). Since return rates are very high, revenues come mainly from material sales and recycling fees. The average distribution between the different revenue streams varies significantly over time, because the value of the different materials is not the same. For example, PALPA can set the recycling fee of cans at a very low level due to the relatively high revenue received from aluminium sales; while the market value of glass is rather low, and consequently the recycling fee for glass has to be set higher.

The revenues are used to cover the operational costs related to processing of returned packages and to pay compensation to parties performing the different operational activities. All fees applied are based on real costs of handling the materials and can be adjusted to market conditions in order to cover the necessary costs (except for the deposit fees which should better be kept constant throughout the years – notably because of practicality considerations such as labelling). The registration fees reflect the costs charged by RVM manufacturers for running of the machines and administration of the databases. The different recycling systems (for aluminium, PET and glass) have separate accounting and their own pricing, and no cross-financing between them is allowed.

Table 3: Fees for producers (2018)<sup>14</sup>

Type of container	Aluminium cans	Plastic bottles	Glass bottles
Recycling fee	0.005 EUR	0.017 – 0.116 EUR	0.09 – 0.14 EUR <sup>15</sup>
Product registration fee	284.55 EUR		325.20 EUR <sup>16</sup>
Company registration fee	6,178.88 EUR (or 1,382.11 EUR x 5 if paid over the 5 year period)		3,658.55 (or 813.01 x 5 if paid over the 5 year period)

A beverage metal or glass container, whether or not subject to a deposit, becomes PALPA’s property once it has been registered as received by a Reverse Vending Machine or the retailer has placed it in PALPA’s transport package<sup>17</sup>. In the case of cans, the value of the material more or less compensates the logistic cost; in the case of glass, it represents a net cost. Non-deposit PET bottles are not accepted because plastic recycling is more delicate and PALPA uses only the packages that are recognised and that belong to the system.

Because of the low population density in Finland, cost of transportation is a significant expense. To face this challenge, baling and counting operations have been decentralised to several locations and material is compacted and sorted as early as possible after collection to increase cost efficiency (where possible, at collection point itself, via RVM). PALPA pays a transport fee to transporters that collect the beverage

<sup>14</sup> PALPA (2018) – [Price lists](#). Fees depend on the volume for glass and on the volume and type of material for PET (clear, coloured, mixed); fees excluding VAT

<sup>15</sup> This fee applied to a retail product. For the hotel, restaurant and café sector lower fees apply ranging between 0.13 (for ≤ 0.5 l) and 0.22 (for > 0.5)

<sup>16</sup> This fee applied to a retail product. For the hotel, restaurant and café sector the price is set at 40.65 EUR

<sup>17</sup> PALPA (2016) – The rules of the deposit-refund system for Beverage Can. [\[report\]](#)

containers from retailers and deliver them to a bailing and counting plant. From there, the materials are delivered to material recyclers who pay PALPA for the recycled material.

The system is based on package recognition. This means that when a customer puts a container inside a RVM, it scans its barcode and shape, and compares the data with the packages registered in the database. Thus, as part of the registration, PALPA inspects all new packages in order to make sure that the materials comply with the specifications agreed with recycling plants and the marking is clear and recognisable by all RVM.

There is an additional deposit operator which is managing the system for refillable beverage containers as well as reusable transportation units of retailers. It has been created by the beverage producers in 2004 under the name of Ekopulloyhdistys ry (Ekopullo). It also runs on a non-for-profit basis and operates within PALPA – meaning that it does not have own employees, but buys services from PALPA. As a result, there is no antagonism or competition between the two operators. On the contrary, there are synergies since Ekopullo administrates all the transport packaging – which is used not only for refillables (pallets, cases, trolleys), but also for one-way beverage packaging.

### Producers

Importers and producers have to pay a packaging tax of 0.51 EUR/l for packages in customs tariff group CN 22. They are allowed to a tax exemption if the company and the products are registered in a deposit recycling system.

For one-way packaging, companies can join PALPA against a membership fee. In addition, a registration fee is due for each product added in the return system, and deposit and recycling fees are charged on the basis of the packages released on the market.

When joining the system for the first time, companies fill in a product registration application and send models of packages to PALPA and the machine vendors for approval. The packages are tested to ensure that all the machine models of all vendors are able to handle the deposit packages returned by consumers without any problems. The package must also feature a deposit marking and a barcode which is read by the machines. For cans and PET bottles, the deposit marking is obligatory, while for imported one-way glass bottles deposit only the barcode can be accepted (the recycling fee due in this case is a little bit higher).

For refillable glass bottles, companies can become a member of Ekopullo. The system is operating only within Finland and there are no imports of refillables. In the Ekopullo system, each member owns the bottles, and the transportation units (pallets) they need. Ekopullo administrates and optimises the pool of packages, maintaining sufficient number of packages and defining the need of replacement, stock and new purchases for the members.

### Retailers and shops<sup>18</sup>

Any retail point selling beverage containers subject to a deposit is obliged to take back the empty packaging. The only exception mentioned in the law is the volume in relation to sales, meaning that a retailer of small size can refuse to accept packaging if the volume is disproportionately high in relation to its size. However, this issue has not occurred in practice.

Retailers are responsible for the acquisition and maintenance of RVM, as well as for ensuring that the RVM have working electronic connection allowing for the information of the returned containers to be transferred to PALPA. In 2016, around 4,000 RVM have been in operation with 5,000 retail collections for

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<sup>18</sup> PALPA (2016) – The rules of the deposit-refund system for Beverage Can. [\[report\]](#)

consumers and additional 9,000 collection locations in the out of home consumption places (hotels, restaurants, cafes) sectors. When returning beverage containers subject to a deposit, the retailers are entitled to receive a handling fee and deposit fee refunds for the containers received from consumers. The fees are paid out on the basis of the data received by PALPA through the automated RVMs or of the calculation data of manual bags.

### Consumers<sup>19</sup>

Consumers pay an additional deposit for the beverage packaging marked with a deposit sign. They can return and claim back the deposit at any retail point selling packaged beverages.

### Supervision

DRS are approved and controlled by Environmental Authority under Ministry of Environment. Operators are authorised to manage the system and no particular period is defined. For all producer responsibility organisations (both dealing with deposit and with other packaging) there is a requirement to have a reserve in some form which is sufficient to cover the running of the system for 6 months.

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<sup>19</sup> Pantilliset – Juomapakkausten Kierrättäminen (Recycling of beverage packaging) [[website](#)]

# RESULTS

PALPA has approximately 72 million EUR and 320 million EUR in deposit turnover<sup>20</sup>. The costs of the system consist of the costs related to the operational activities and administrative costs (the latter represents very small percentage of the total since all operations are outsourced and PALPA staff consists of 13 employees). The revenues come mainly from fees and material sales (since return rates are very high, the share of unredeemed deposits is marginal). PALPA is a non-for-profit company so the costs and revenues of the system should be equal and the net balance close to zero. If there is any surplus, it is reinvested in the system or is kept as a reserve to cover a net deficit.

The return rates reached are as follows:

Table 4: Return rates and collected volumes

Material	Beverage can	PET bottle	Glass bottles
Return rate (2017) <sup>21</sup>	94%	91%	87% <sup>22</sup>
Volume (2016) <sup>23</sup>	1.2 billion returns 17,600 tonnes	380 million returns 12,700 tonnes	114 million returns 51,000 tonnes

Recycling systems operated by PALPA collect around 80,000 tonnes of material (1.7 Billion package units) into new packages or raw materials for other industries. Aluminium from returned beverage cans is melted for recycling in the UK, Germany and France. PET bottles are shipped to recycling plants in Finland, Latvia and Germany: clear PET is recycled to new bottles and other food packages; coloured PET-bottles are recycled for other packaging or for the textile producers. Glass bottles are recycled in Finland to new glass bottles or to raw materials (such as insulation products in construction producers).

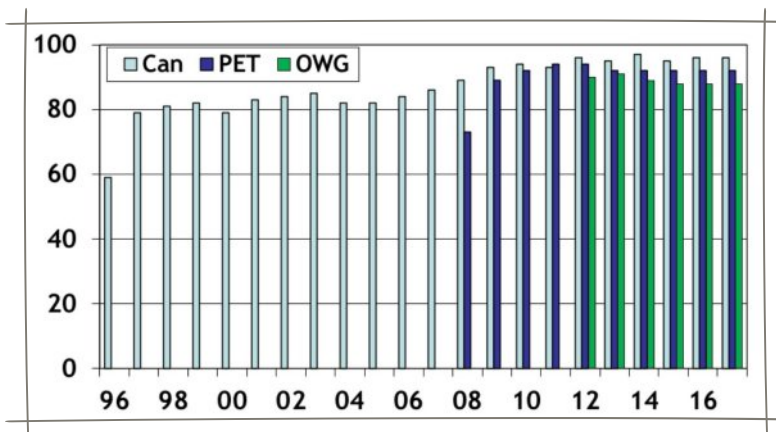


Figure 1: Returned packages per type of one-way container<sup>24</sup>

No specific studies have been done concerning litter, perception of stakeholders or comparisons with a container-based system. General studies indicate that Finnish consumers have a high level of environmental awareness, enhanced by a long history of recycling and taking care of the environment.

<sup>20</sup> PALPA – What is PALPA [\[website\]](#)

<sup>21</sup> PALPA – Refund rates [\[website\]](#)

<sup>22</sup> If counted in units, the return rate is below 90%. However, counted in tonnes the return rate is above (taking into account international packages from imports which are not registered in the system).

<sup>23</sup> PALPA “1.7 billion environmental acts a year”, presentation by delivered by Pasi Nurminen, Managing director of PALPA

<sup>24</sup> PALPA – Case study: Finnish deposit refund system (DRS) [\[document\]](#)

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### **Disclaimer**

This country report is based on publicly available information gathered by ACR+ team and validated by Suomen Palautuspakkaus Oy (PALPA).

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## **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](http://www.acrplus.org).

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