



KESKKONNAMINISTEERIUM

# Economic instruments. MS experience.

## Estonia

ECRAN - 58849

19.03.2015, Tirana

Peeter Eek  
Waste Department,

*Ministry of the Environment of Estonia*  
*peeter.eek@envir.ee*



## Economic Instruments in Waste management

The definition of economic instruments varies in the literature.

However, there appears to be some general consensus in the definition of an economic instrument as ***a policy, tool or action which has the purpose of affecting the behaviour of economic agents by changing their financial incentives in order to improve the cost-effectiveness of environmental and natural resource management.***

### Could be divided as

- Revenue raising instruments
- Revenue providing instruments
- Non-revenue economic instruments

(source: [http://www.unep.org/PDF/Kenya\\_waste\\_mngnt\\_sector/chapter2.pdf](http://www.unep.org/PDF/Kenya_waste_mngnt_sector/chapter2.pdf))



## Some examples of the Economic Instruments in Waste management (2)

### Revenue raising instruments

- waste holder charges, based on collection and disposal services received (PAYT - *Pay-As-You-Throw*);
- **product charges** or fees to handle disposal of problem products, such as batteries, tyres and refrigerators, plastic bags etc;
- disposal taxes, added to disposal charges to influence disposal choices;
- resource taxes on virgin materials to influence demand for their use and motivate recycling of secondary materials



## Some examples of the Economic Instruments in Waste management (3)

### Revenue providing instruments

- charge reduction, based on proof of recycling or re-use in reducing wastes requiring collection or disposal;
- environmental improvement funds, established to support pollution reduction, resource protection, energy efficiency;
- host community compensation, incentives given by host communities to accommodate waste transfer or disposal facilities;



## Some examples of the Economic Instruments in Waste management (4)

### Non-revenue economic instruments

- Deposit-refund systems, deposit paid and refund given upon product/waste item is returned;
  - Take-back systems, where manufacturers take back used products or packaging; Procurement preferences, evaluation criteria adding points for products with recycled content or reduced resource demand;
- Etc...



## Use of Economic Instruments and Waste Management Performance, (Bio Intelligence Services, 2012)

Most widely used EI are covered in EU Commission ordered study:

### 1. Charges for waste disposal and treatment:

- a. **Landfill taxes** and fees (and restrictions/bans to provide context for the charges);
- b. Incineration taxes and fees (and restrictions/bans to provide context for the charges);

### 2. **Pay-as-you-throw (PAYT)** schemes;

### 3. **Producer responsibility schemes** for specific waste streams (notably packaging, WEEE, ELV and batteries).



KESKKONNAMINISTEERIUM

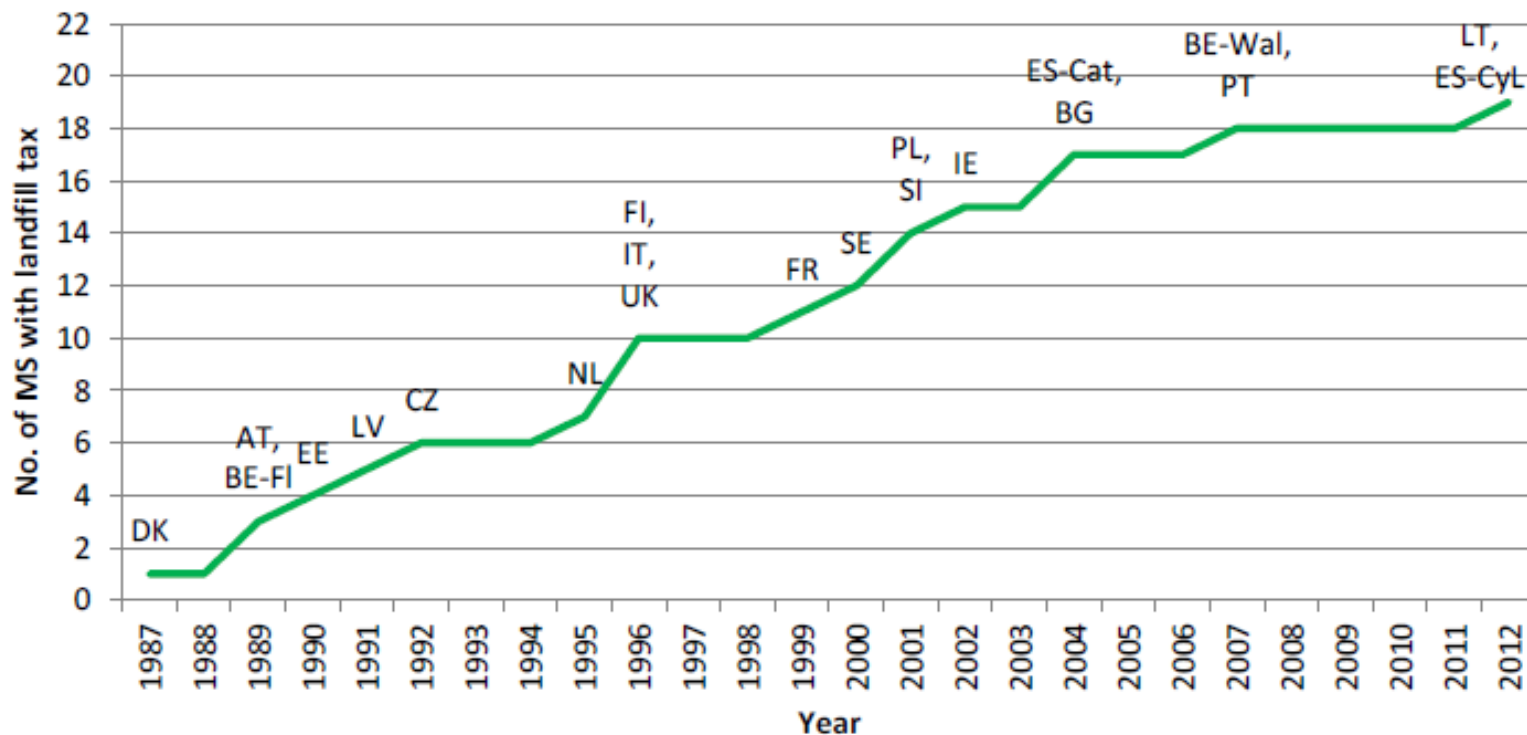
# Economic Instruments: Landfill Tax



## Landfill tax

### Introduction of the landfill tax in different EU MS-s

(Use of Economic Instruments and Waste Management Performance, Bio Intelligence Services, 2012)



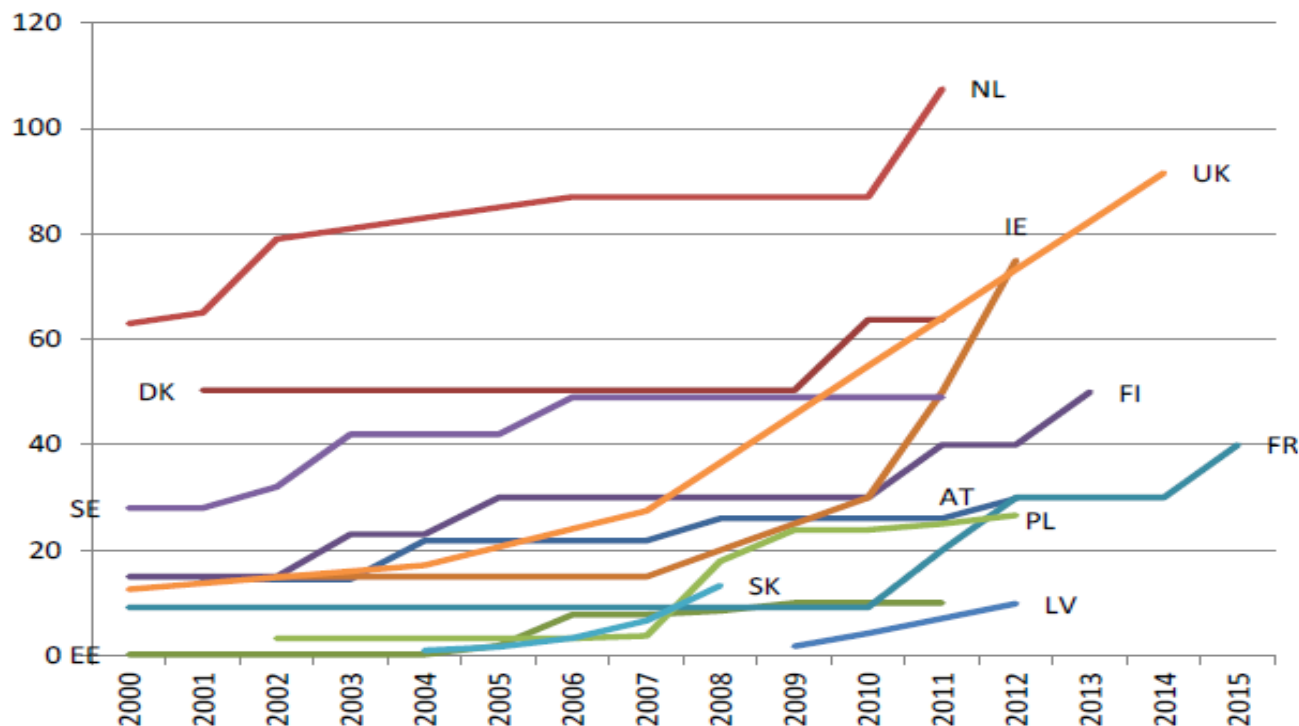




## Landfill tax (2)

### Evolution of landfill tax rates over time 11 MS

(Use of Economic Instruments and Waste Management Performance, Bio Intelligence Services, 2012)

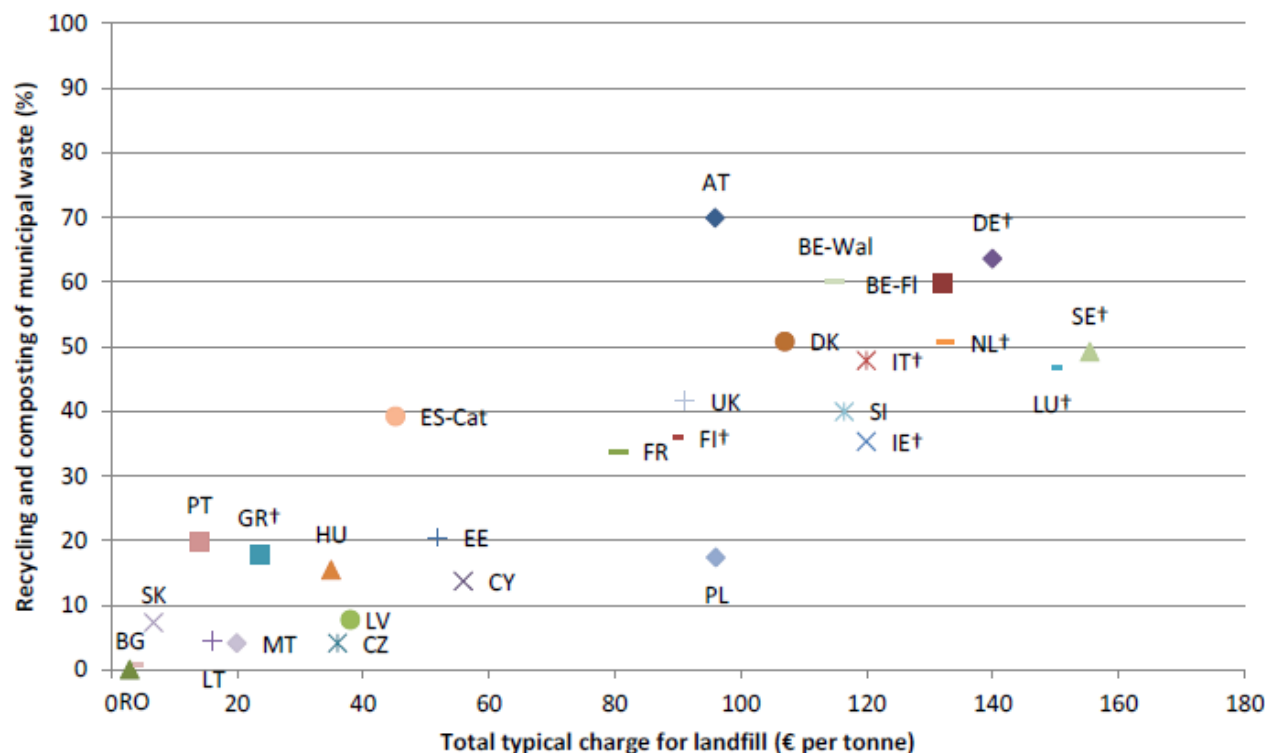




## Landfill tax (2)

### Landfill gate fee v Recycling (incl. composting) 2009

(Use of Economic Instruments and Waste Management Performance, Bio Intelligence Services, 2012)





## Landfill tax in Estonia

Environmental Charges, incl. 'Landfill tax' was introduced on 1991

On that time, were the Environmental Charges considered as main source of Income to the 'Environmental Fund' (since 2000 **Center of Environmental Investments**), which have been main financial institution for Environmental Projects, until the EU funding was opened after 2001 (ISPA, CF, ERDF etc.) - the aim to drive Waste management, was not primary on this time.

The landfill tax was applied to **all type of waste** (incl. industrial, thus with differentiated tax levels. As absolute majority of the landfilled waste was related to the oils-shale industry, then was tax level for Household was 'very low')



KESKKONNAMINISTEERIUM

## Landfill tax in Estonia

Tax rates, €/t,

draft proposal for non-Hazardous waste – 50 €/t on 2025



## Landfill tax in Estonia

**Paid to the Environmental Investments Centre Fund – re-divided to the different Environmental projects**

**The landfill tax revenue is not 'earmarked' for waste projects only**

**The income from total landfill tax ca 15M€ (> 10 €/inh/y), allocated for the waste projects ca 7-8 M€ (remaining part to environmental awareness, nature conservation etc).**

**75 % from the landfill tax for municipal waste, was\* paid back to the municipality, where the was collected, for the waste management related costs (first of all the costs related to the recycling yards)**

**\* There is nearly no landfilling of the Municipal waste on 2013, all is recycled or recovered, so far even treatments residues are recovered**



## Landfill gate fees

Gate fees nowadays ca **50-55 €/t**, were max **10 €/t** on 2001

Landfill gate fee is (until incineration or other large-capacity treatment) first economical benchmark, with which always **all recovery operations are compared with**

Subsidizing landfilling, keeping gate fees on low level, means as well **contra-subsidizing recovery**

As Funds have been delivered to landfilling, there is just not enough money for recovery operations



KESKKONNAMINISTEERIUM

# Investment supports



## Landfill tax revenues

The **Environmental Programme** (landfill tax revenues etc) finances following activities related to non-hazardous waste:

- 1) construction of waste management plants and reloading plants, if the cost does not exceed 300 th €, on the basis of local government waste management plans;
- 2) construction of waste collection points on the basis of local government waste management plans;
- 3) development and implementation of newer waste treatment systems and waste handling technologies.





## EU Cohesion Fund:

### Development of waste collection, sorting and recycling

The supported activities have to conform to the activities determined in the National Waste Management Plan for 2008–2013 in the area of waste recycling. The following activities are supported:

- 1) construction of a waste management centre or transfer station or waste management plant, the eligible costs of which are at least 300 th €
- 2) recycling of source-separated bio-waste;
- 3) development of the recycling capacities, where recovery options have formerly been non-existent or limited, related to the fulfilment of the waste recovery and recycling targets established by legal acts.



## **EU Cohesion Fund 2014-2020:**

**Based on Waste management hierarchy: supports delivered only to:**

- **Waste reductions (on industrial production)**
- **Reuse of products, incl catering on public events**
- **Preparation for reuse**
- **For listed waste streams also recycling and pre-treatment for recycling**



KESKKONNAMINISTEERIUM

# Economic Instruments:

## Packaging tax, other product taxes



## Thresholds for Packaging excise Duty

Introduced on 1996, as first step to the alcohol packages, on 1998 to non-alcohol beverages, on 2005 to all sales packaging, on 2009 to all kind of packaging

Principle: The Packaging excise Duty act sets the **compulsory recovery/recycling targets** – from the amount, which remained missing from the target, should be paid the duty.

It is not a 'automatic tax to be paid, when packages are put to the market', - it should only be paid, if the recovery targets are not fulfilled

In fact whether packaging enterprises should pay the duty, depends from themselves



## Thresholds for Packaging excise Duty (2)

The rates of the duty, calculated initially to be ca **4-5 times** higher, as collections recovery service prices on the market

### Packaging excise duty

		Target level (exemption from excise duty)	
Packaging material	Excise duty €/kg	Recovery	Recycling
1) glass	0,6		70
2) plastic	2,5	55	22,5
3) metal	2,5		60
4) paper and cardboard, inc composite cardboard	1,2	70	60
5) wood	1,2	45	20

For the deposit refund system (glas, PET) until 2012

From 2012

metal until 2012

75

85

40



KESKKONNAMINISTEERIUM

# Economic Instruments: PAY as You Throw (PAYT)



## Waste service fees v waste amounts

‘Flat fee model’ (all households pay exactly the same sum, generally to the Municipality) is not widely used in Estonia.

Everything, what is not the ‘flat fee model’, could also be considered

**‘Pay-As-You-Throw’ model (PAYT)**

There is no legal definition for PAYT, so at least three sub-options are considered, as

- 1) **Fee, based exactly on measured amount of service - per exact weight or volume delivered** (*Full-unit pricing*)
- 2) **Certain amount is included in ‘basic fee’, what goes above, is charged additionally** (*Partial-unit pricing*)
- 3) **The fees are based on different service packages, there is option to choose and change those packages** (*Variable-rate pricing*)



## 'Flat fees' or PAYT (Pay as You Throw) system

**Wider discussion** – how to motivate 'reduction of waste' and source separation on best, when up to 10-15 % (makes up to 75 % in some Country-side municipalities...) from waste holders are not been joined to the collection system?

**'Flat fee'** – every waste holder (household) pays equal sum, not depending the level of waste generated or separated

**PRO** – demotivates littering and 'fly-dipping and home incineration',

**CONTRA** – demotivates also sorting and waste reduction

**PAYT system**, based on really delivered weight or volume, also choice between different service packages (used in Estonia)

**PRO** – motivates sorting for recovery, and waste reduction

**CONTRA** – motivates also fly-dipping and home incineration'

**Conclusion:** In the dwelling houses (**70 %** of population) there is anyway a 'mixed approach', individual household efforts of reduction and sorting are dissolved in 'collective collection costs'

As a first step, the flat fee system is preferable, to join all waste holders to the collection system, with the aim to switch more towards to the PAYT system in next steps





## **Waste service fees v waste amounts**

**In the ‘free market’ conditions option 1 applies mainly, especially in one-family houses – as a result rather massive wild-dumping, home incineration, littering of other public, incl. source separation containers etc.**

**The ‘municipally organised waste collection’ is using option 2 or 3 - depends from the municipality – and there are critics, that it is destroying the motivation for source-separation**



## **Ordinance of Sorting requirement for Municipal Waste January 2007**

**Following waste streams are subject to separate collection:**

- 1) paper and cardboard (20 01 01);different**
- 2) packages (15 01);**
- 3) Hazardous waste (in the Waste List 20 01 «\*» marked waste types);**
- 4) Bio-degradable garden- and park waste (20 02 01);**
- 5) Bio-degradable kitchen- and food waste (20 01 08);**
- 6) Wastes, covered with the Producer responsibility principle - ELV and parts (16 01), incl tires (16 01 03), WEEE and parts thereof (16 02), batteries and accumulators (16 06) etc.**

**The Municipalities are obliged to regulate and ensure the collection of waste types 1-4 , (i.e.- garden waste, but kitchen waste is voluntary) whereas the collection of packages and packaging waste is responsibility of Packaging organisations**

**For the separate collection the collection at source is necessary, but for several waste items also Waste stations are crucial!**



KESKKONNAMINISTEERIUM

# Economic Instruments:

## Extended Producer responsibility



## Manifesto 'back to the Roots' of PROs, January 2013

### PRO-s from the 11 EU MS-s:

Key points in the Manifesto include:

**EPR organisations should be owned by the obligated companies and run on a not-for-profit basis.** The best guarantee for the lowest cost to society and compliance with environmental and legal objectives is for an EPR organisation to be founded, run, financed and controlled by the obligated companies (i.e. the companies who put products on the market and are required to collect and recycle these products/ packaging once they have reached their end-of-life stage).

**There needs to be strong governmental support and monitoring.** National legislators should therefore set out clear criteria for the accreditation of EPR organisations. Municipalities also have a role to play, which is why it is crucial that there is a close partnership between the local authorities and the EPR organisation.

**There are many advantages of having one rather than multiple organisations in each country.** For example, this ensures that the government can execute effective and efficient control, that obligated companies are treated in a non-discriminatory manner and that there is an effective market-functioning.



## EU Circular Economy Waste Package, July 2014

### ANNEX VII Minimum requirements for extended producer responsibility

**When developing and applying extended producer responsibility, Member States shall:**

- 7.1. ensuring the transparency of the schemes in terms of contributions paid by the producers, including the impact on sale prices and in terms of the impact on competitiveness and the openness to small establishments and undertakings;
- 7.2. defining the geographical coverage of the schemes;
- 7.3. ensuring equal treatment for domestic producers and importers;
- 7.4. ensuring a self-control mechanism **via regular third party audits** of the schemes in terms of both:
  - 7.4.1. **sound financial management of the scheme** - calculation of the entire costs per type of products; use of the funds collected and;
  - 7.4.2. **appropriate collection and treatment of waste**, control over the legality of waste shipments and quality of data and reporting;



## Extended Producer Responsibility (2)

### Applied to:

1. Packages
2. WEEE
3. Batteries and accumulators
4. Tires
5. ELV
6. Agricultural plastics



## Extended Producer Responsibility

### Common requirements:

- 1) to set country wide collection network (different requirements for each product),
- 2) to guarantee free of charge take back of respective waste, recovery and recycling targets for each type of waste
- 3) Obligations to register by Ministry of the Environment, special labelling requirements for certain type of goods (EEE, batteries and accumulators etc)
- 4) Some additional requirements, to motivate establishing of Producer Responsibility Organisations (PRO)
- 5) Restriction of the hazardous substances in the products (different requirements for each product),

For all covered product types (except the vehicles) there are several PRO-s in operation.



## Lessons learned: Extended Producer Responsibility

**PRO:** cost are covered by producers, reduced need for public spending's- but the cost are added to the products, when put to the market  
Free of charge take-back improves collection

**CONTRA:** The producer responsibility organisations are sometimes non-transparent, ie controlled by very small group of producers → the proper use of recovery fees remains unclear

The legal requirements for wide and representative PRO-s is crucial!

Some companies hide from the obligations (free riders) – to participate in collective schemes, reporting, recovery obligations etc → The EPR sets high requirements for supervision, registering and reporting solutions

Division of costs with the 'historical WEEE' (requirement from the EU Directive 2002/96/EC).





KESKKONNAMINISTEERIUM

# Extended Producers responsibility

## Deposit-return system



## General Facts related:

**Environmental view** – deposit systems can collect between 80-95%, container systems 40-60% as average.

**Quality view** – material coming from deposit systems are of highest value and therefor guarantee near 100% recycling of collected material

**Consumer view** – gives clear message and motivation to consumers, even non- environmental consumers contribute

**Social view** – significant non-formal or “after collection”, income for less fortunate people

**Economical view** – if set up correctly, can be cheaper than container system



## Coverage of the deposit obligation

### Product groups:

beer, low alcohol beverages ( $\leq 6\%$ ), cider, perry, soft drinks (incl. water)

AND Packaging materials:

If packed in plastic bottles, metal cans and glass bottles – both refillable and one-way packages are covered

**Examples:** packages of the juice in PET bottle or metal can, still water in PET, non-alcoholic wine in glass bottle etc- should have deposit

Milk in PET bottle, juice in drink-carton, 'alcohol cocktail'  $> 6\%$   
In metal cans should not have deposit

The 'border' set by the product groups is easier to implement and monitor, although creates still some logical questions.

For example, why have the ciders (priced up to 5-10 €) deposit, but all wines does not ?

Answer : because are from different product groups



## Deposit system – investments

Initial Starting investments – ca **4 M€** (counting Centre etc)

ca 550 RVM-s so far (Reverse Vending Machines) – by Retailers ca **8 M€** - covered with 'take back compensation' – no state support

New counting and material treatment center opened on 2013 – **6 M€**, from that **50 % EU Funds**



KLAASPAKEND



## Deposit system – results

Return rates on one-way packages, also refillables around **86-89 %** ,  
on metal can **62 %**

On 2012 ca 12 th t of high quality packaging materials were collected  
(doe's not include refillables, as those are returned directly to the  
fillers).

From the whole packaging amount, put to he market, is deposit  
packaging ca **8 %**,

From the all recovered packaging makes it ca **15 %**

Yet it is **100 %** consumer packaging, most costly to collect in container  
system

**Anna taarale ilusam elu!**



Iga tagastatud plastpudel saab kuskil uue  
ilusa elu, näiteks mugava riideesemena.  
**Tagasta taarat!**

eestipandipakend.ee

**Anna taarale ilusam elu!**



Iga tagastatud plekkpurk saab kuskil uue  
ilusa elu, näiteks kasuliku autodetailina.  
**Tagasta taarat!**

eestipandipakend.ee

**Anna taarale ilusam elu!**



Iga tagastatud klaaspudel saab kuskil uue  
ilusa elu, näiteks kauni lauanoona.  
**Tagasta taarat!**

eestipandipakend.ee

# Reverse vending machines (RVM)

Collection structure : 550 RVMs

90% of packages from RVMs

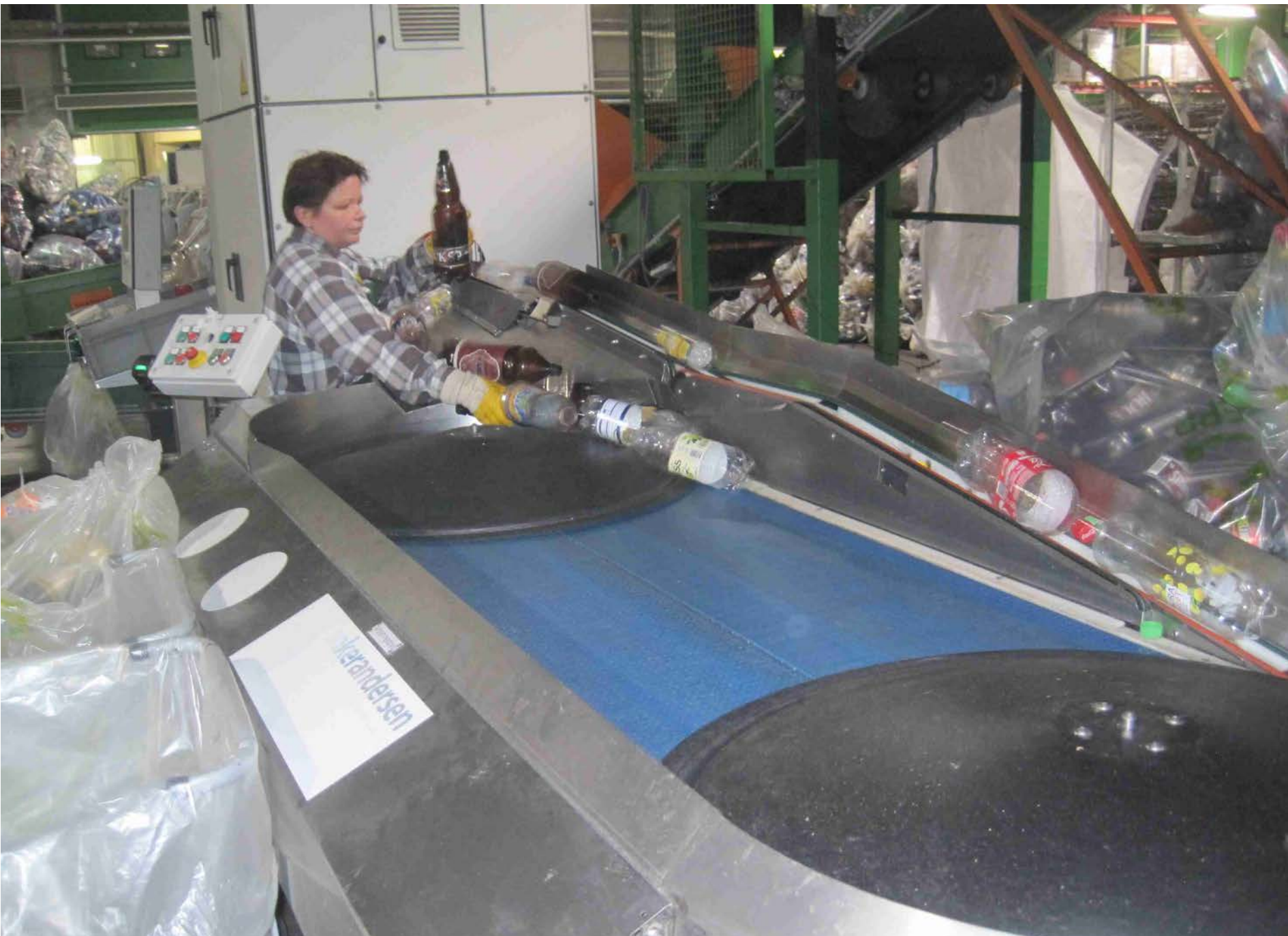
10% of packages from manual take-back





















## Lessons learned: Deposit-refund system

**PRO:** very effective, collection rates **80-90 %**, very clean material, suitable near 100 % for high quality recycling

**Visibly reduces littering in public places, but also in nature**

Gives an option to keep also refillable bottles on the market

Producers fees have changed in time, and on certain period been on €/kg bases even higher, then in container collection, but currently are remarkably cheaper (**0 – for all packages since 2014 !**) due to the efficiency of work, higher material prices and unredeemed deposit

**CONTRA:** retailers disliked the take back obligation in shops at the starting phase, strong economic motivations could motivate also fraud



KESKKONNAMINISTEERIUM

# Conclusions



## Economic Instruments in Waste management

- There are many possible options to choose from
- If carefully prepared and implemented, could provide a very essential support for the waste management aims.

**Modern waste management system, based on the principle of the EU Waste hierarchy , is difficult to adopt without Economic Instruments.**



KESKKONNAMINISTEERIUM

# Thank You!