



PROMOTION OF
PUBLIC PROCUREMENT OF
INNOVATION
FOR RESOURCE EFFICIENCY AND
WASTE TREATMENT

PPI Training

MODULE 2 – The need to innovate in municipal waste management

PPI training – Location of the training

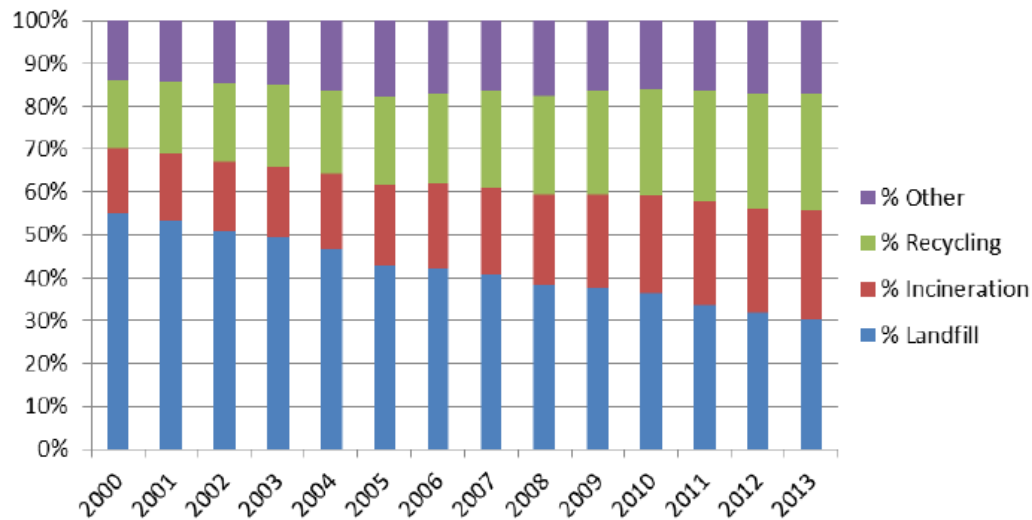
Date of the training

30/08/2017

PPI4Waste

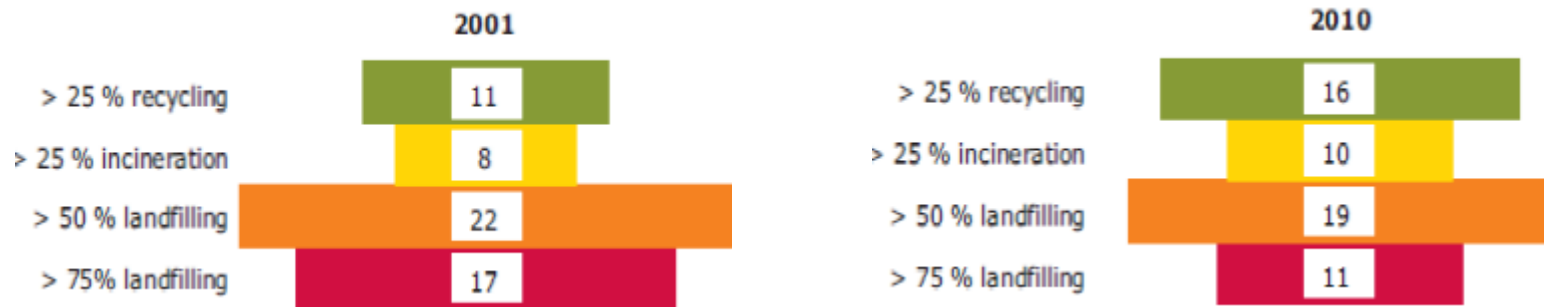
- Status quo - Waste management in Europe
- Drivers for innovation
 - Bio-waste management
 - Plastic separation and collection
 - Bulky-waste management

- Across member states, there are broad differences regarding waste production, collection models and treatment techniques applied as well as regarding the implementation of European Directives on waste.
- In 2013, 43% of MSW was recycled, 31% landfilled and the rest (26%) incinerated (Eurostat, 2015c)

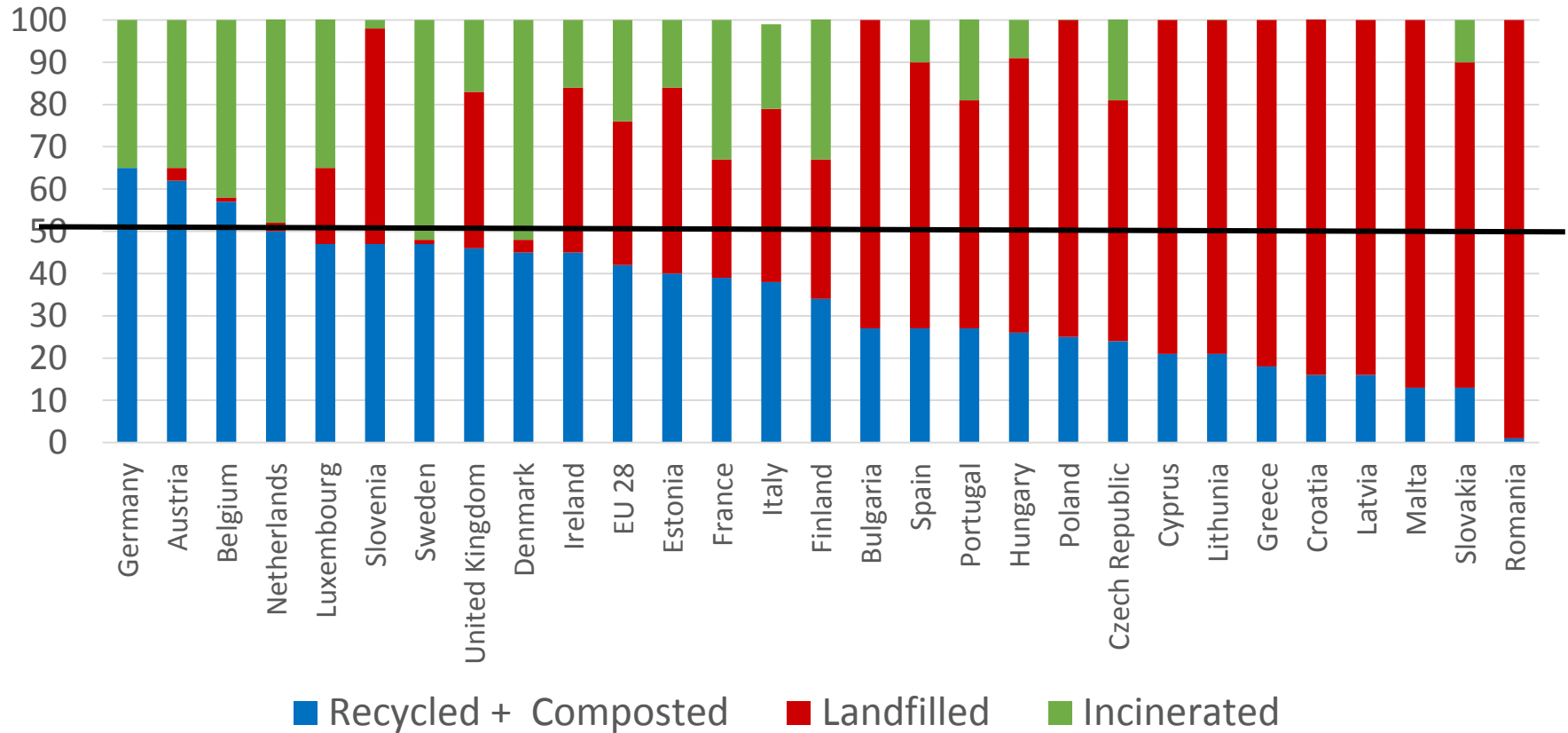


Development of municipal waste management in 27 European countries, 200-2013 (Eurostat, 2015c)

- Although recycling practices have been increasing each year, landfilling is still a widely used choice in waste management.
- The waste hierarchy established by the Waste Framework Directive constitutes the general European approach for waste management by Member States



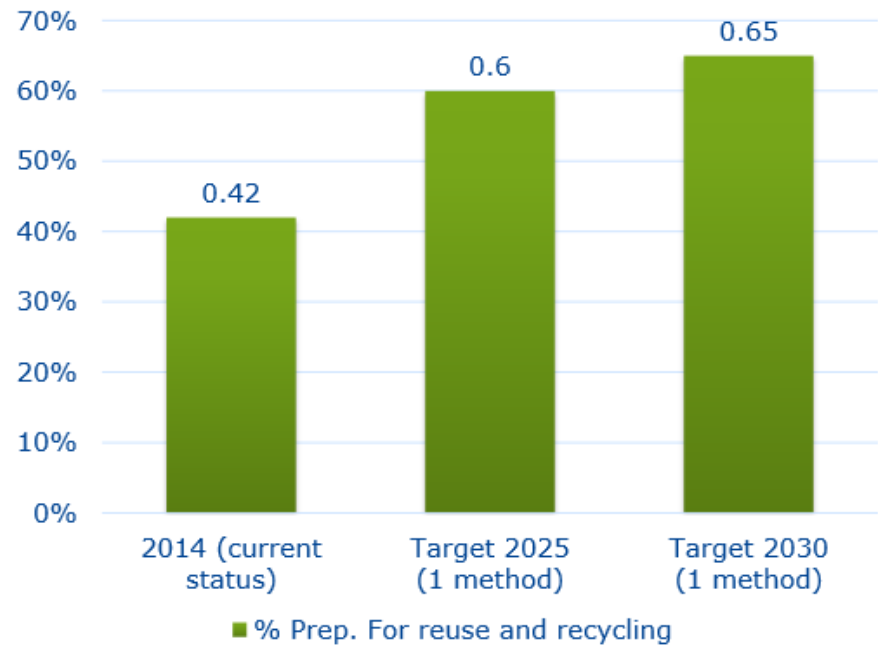
Number of European countries at different levels of the municipal waste management hierarchy, 2001 & 2010
(European Environmental Agency 2013, Eurostat, 2015c)



Current waste management hierarchy in Member States

Source: ACR+; based on data from Eurostat, 2014.

- The revised legislative proposals on waste set targets such as:
 - A common EU target for recycling **65% of municipal waste** by 2030;
 - A common EU target for recycling **75% of packaging waste** by 2030;
 - A binding landfill target to reduce **landfill to maximum of 10%** of municipal waste by 2030.



Current status of recycling of municipal waste
Source: European Commission

Drivers for innovation

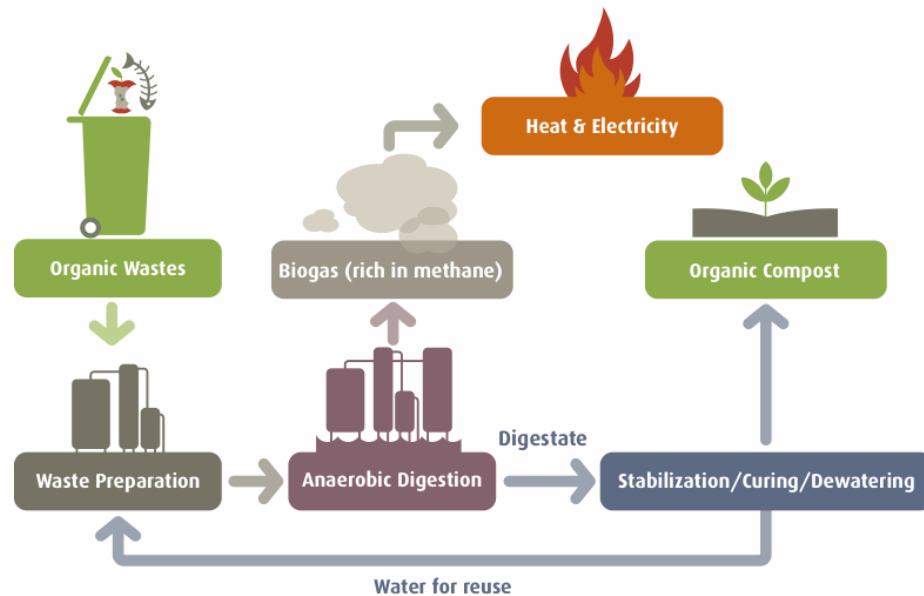
Priority areas defined by European Public Procurers

- The PPI4waste Project team conducted surveys to procurers and relevant stakeholders and the following priority areas were identified:
 - Bio-waste management
 - Plastics separation
 - Bulky waste management
 - Separate collection systems
 - Decision support systems
- Related to specific waste streams
- Transversal needs



PPI4waste workshop

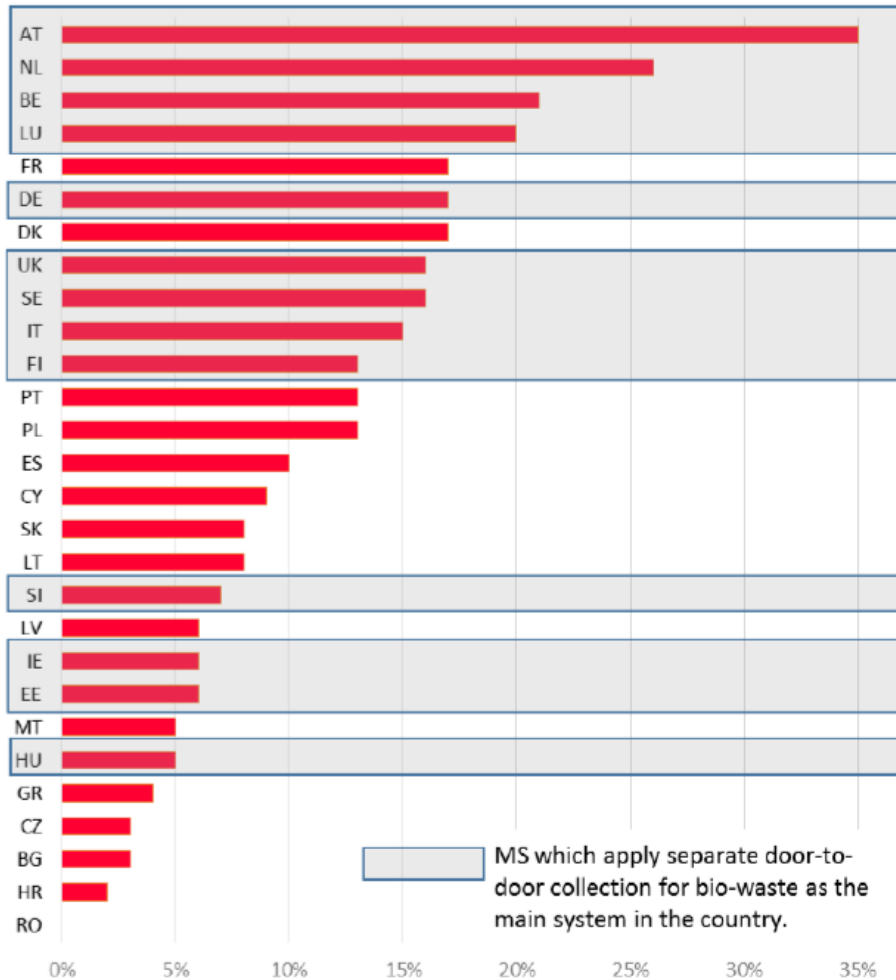
- Bio-waste was identified as one of the main priority areas, with following improvements needed:
 - Increase bio-waste treatment capacity in current facilities.
 - Improve the performance of current solutions applied, as anaerobic digester.
 - Set - up new facilities for appropriate treatment of bio-waste coming from expected separate bio-waste collection systems.



Anaerobic digestion process for bio-waste.
 Source:
<http://www.ionacapital.co.uk/page/95/Anaerobic-Digestion-Adoption.htm>

Drivers for innovation

Bio-waste management



- Bio-waste constitutes between 30-40% of total municipal waste in Europe.
- Current production of bio-waste from municipal waste: 88 million tonnes annually.
- App. 45kg per capita and per year of bio-waste is separately collected.
- Austria has the highest amount of composted & digested bio-waste: 175kg per year per person.

Current situation regarding percentage of composting and digestion of MSW in the year 2013 by Member State (BIPRO/CRI, 2015)

- The EC carried out an [impact evaluation study](#) about the potential economic benefits and environmental impact reduction derived from compulsory separated collection and biological treatment in EU-countries. The study analysed two scenarios, for the period 2013-2020:

SCENARIO 1

- **60% food waste and 90% garden waste capture by 2020**
- **88 Mio. tonnes** removed from residual waste treatment
- **27 Mio. tonnes** of additional biowaste treatment capacity needed annually
- Net benefit: **3 Billion €**
- **80%** from benefits resulted from environmental improvements

SCENARIO 2

- **36.5%** separated bio-waste collection implemented by 2020.
- **21 Mio. tonnes** of waste removed from residual waste treatment
- **5 Mio. tonnes** of additional treatment capacity needed annually
- Net benefit: **668 Mio €**
- **80%** from benefits resulted from environmental improvements

- In 2014, app. **26 Million tonnes** of plastic waste were generated (Plastics Europe, 2015).
- The consumption of **Bioplastics** is increasing annually by 20% since 2009. Current waste treatment systems are not able to separate bioplastics from petroleum-based plastics; thus difficulting plastic waste treatment.
- Between 2006 - 2014 the amount of plastic waste deposited in landfills has **decreased by 38%** or app. 5% annually (Plastics Europe, 2015).
- The **construction sector** is one of the largest plastic consumers in Europe (app. 21%), but generates only 6% of the total plastic per year.
- Plastic packaging waste represents the majority of the plastic waste in Europe with a **share of 63%**.
- The packaging sector **generates 73% of the plastic waste from households**.
- The Circular Economy Package proposes a target of recycled or reused plastic of **60% by 2025 and 65% by 2030**.

Drivers for innovation

Plastic separation



Main actions defined to improve the recycling ratios of plastic are:

- Increase material recovery rate and sorting of different types of plastic (source separation);
- Obtain clean material to produce quality products

● Recycling rate
● Energy recovery rate
● Landfill rate

Plastic packaging recycling, energy recovery and landfill rates by Member State in 2014 (Plastics Europe, 2015)

- The definition of bulky waste varies across Member States. Several definitions compiled by ACR+ in the Bulky Waste Factsheet:
 - Waste which is not collected selectively, as well as, waste that is collected at clean points and large articles collected from private addresses (Brussels region).
 - Large size waste which is collected together and cannot be collected by common ways is considered bulky waste (Ile-de-France region and Lisbon).
 - Waste which is collected in determined areas such as re-use centres or clean points and/or some specific waste (Tallin).



Bulky waste. Image: ASF Freiburg

- Bulky waste requires special management systems due to its physical characteristics
- In 2019 the minimum percentage of WEEE collection should be 85% (2012/19/EC)



Reusing 30% by 2025 and 35% by 2030, app. 3 Million tonnes CO₂ eq. Could be saved. (3.5 Mt CO₂ per tonned furniture)

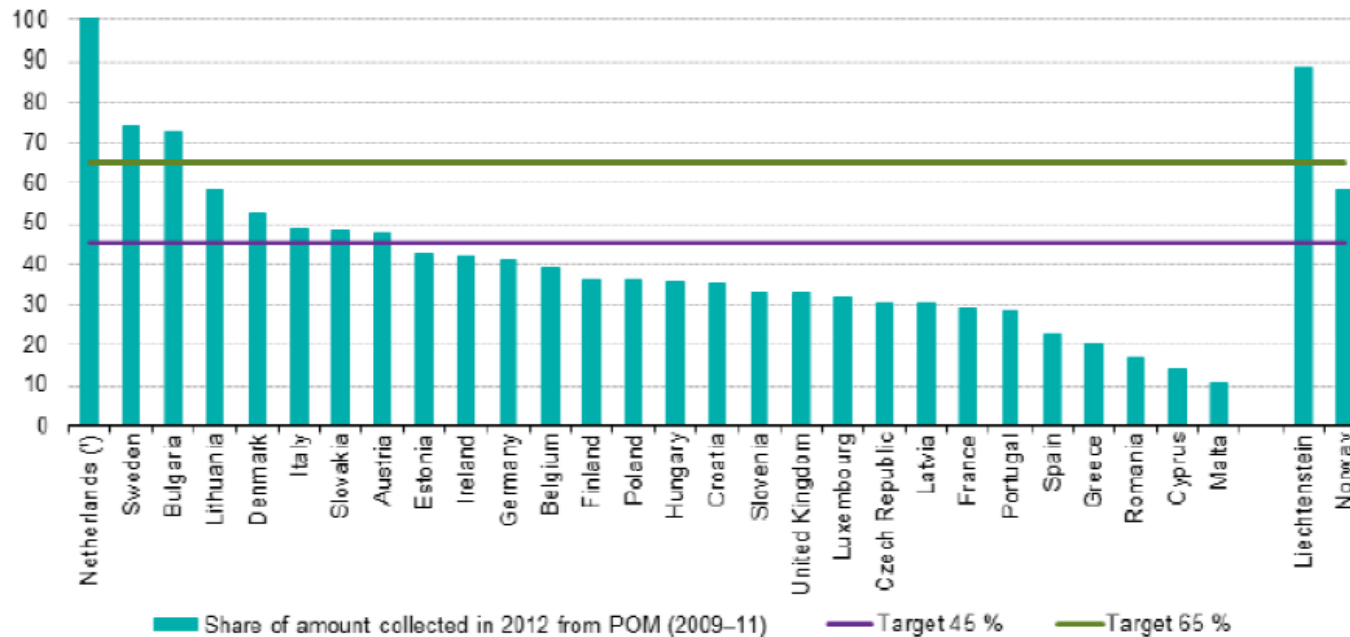
Photo: Warp-it.co.uk



The current level of washing machine reuse in the UK (10%) means savings of 2.5 Mt CO₂ eq. every year

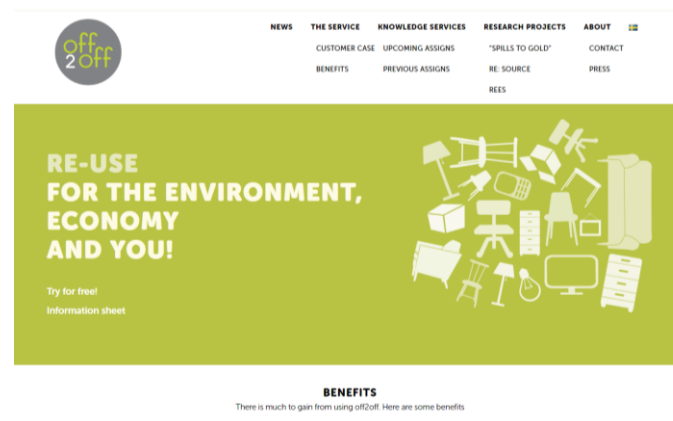
Photo: kooperera.org

- In 2012, the total quantity of WEEE generated in Europe reached 9 million tonnes, with only 3.5 millions of tonnes collected.
- Bulky waste generated in households have increased in the past years; in some countries mean 7% of the total households waste.



Ratio of collection for WEEE (2009 – 2011, EUROSTAT 2015b)

- **Main actions** needed to improve bulky waste management:
 - Increase of recovery rate through an improvement of the waste collection system
 - Development of industries for the preparation for reuse of bulky waste after its collection



A number of alternatives have started in Europe to recover and recycle bulky waste

Thank you for your attention

Name, Surname, Organisation

Email



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