



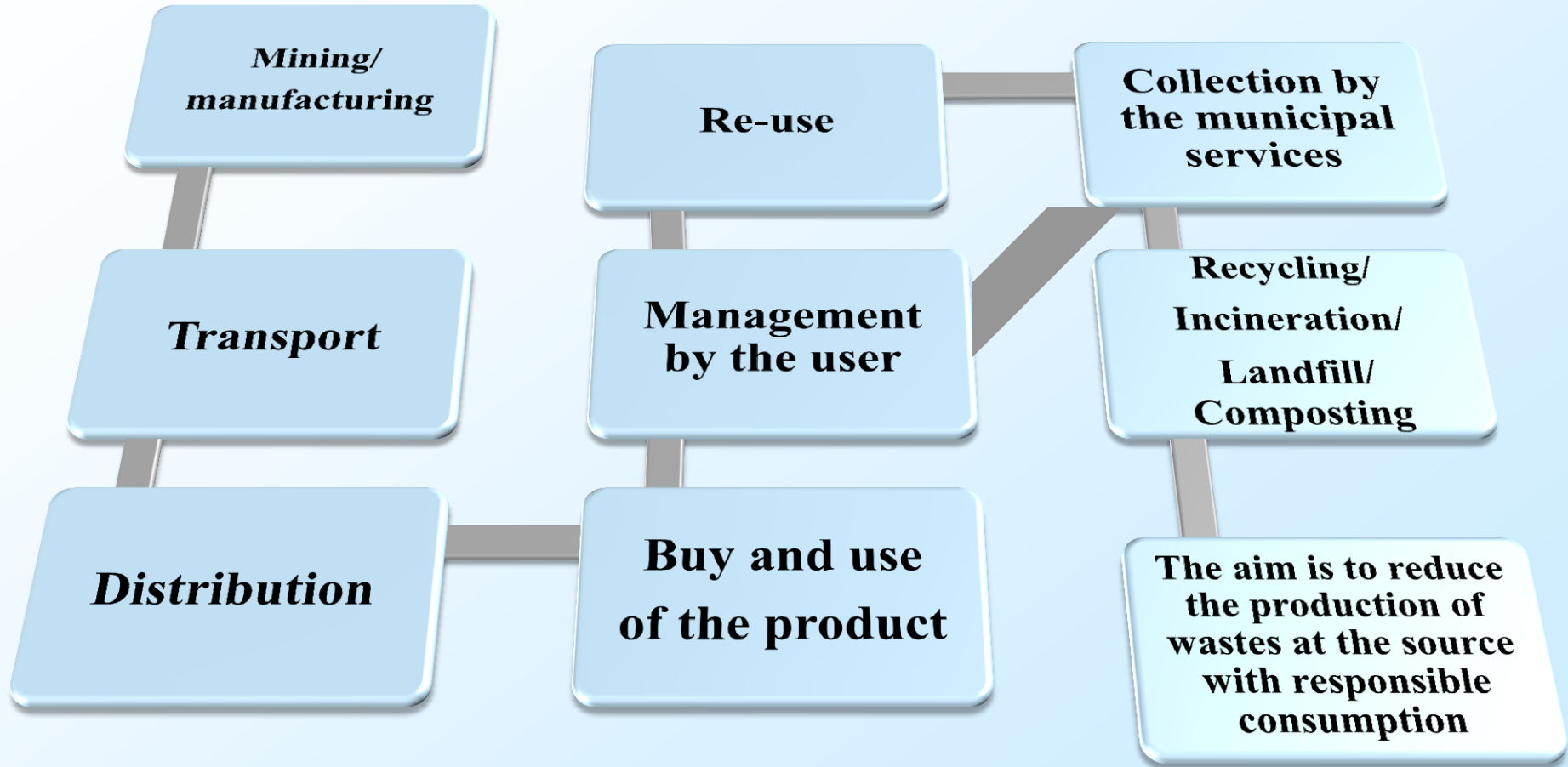
Session 7: Conceptual Issues Related to Waste Reuse and Recycling

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Life cycle of a product





The framework for the RRR practices

The 3R Policy: **Reduce**, **Reuse**, **Recycle** ► according to the precautionary principle and to protect the environment and the Health.

- **Reduce**: according to the EU Directive 2008/98/EC, the prevention strategy applied to waste management aims to reduce the amount of waste generation by limiting the packaging of products and by stimulating the re-use, recycling but also the recovery of energy from wastes.
- **Reuse**: shall mean any operation by which end of life products and equipment or its component, that are not waste, are use for the same purpose for which they where conceived. Direct reuse at the place of generation (i.e. establishment) is excluded. (Source: OECD, EU).
- **Recycle**: any processing of waste material in a production process that diverts it from the waste stream, except reuse as fuel. Both reprocessing as the same type of product, and for different purposes should be included. Direct recycling with industrial plants at the place of generation should be excluded. It includes the reprocessing of organic material but does not includes energy recovery. (Source: OECD, UNSD, EU).



Other related concepts

- **Recovery:** any waste management operation that diverts a waste material from the waste stream and which results in a certain product with a potential economic or ecological benefit. Recovery mainly refers to the following operations (material recovery, i.e. **recycling**; energy recovery, i.e. **reuse as a fuel**; biological recovery, e.g. **composting**; **reuse**). Direct recycling or reuse within industrial plants at the place of generation is excluded. (OECD/EU)
- **Composting:** a biological process that submits biodegradable waste to anaerobic or aerobic decomposition and that results in a product that is recovered and can be used to increase soil fertility. (OECD/EU/UNSD)



Data collection on recycling

- OECD: recycling by selected waste stream and by material characteristics considered to be important from an environmental point of view (i.e., plastic, paper, ferrous metals, etc).
- UNSD: recycling of hazardous wastes and municipal wastes.
- EU: according to the waste categories and on the basis of the treatment operations defined in the Directive 75/442/EEC and on a voluntary basis.



Some examples of good practices

- ▶ In Serbia: the Directive on packaging waste has been transposed in Serbian legislation, it prevents the production of Packaging waste hence reducing the need for disposal (polluter-pay principle).
- ▶ The “Green-Dot” system in the private sector and mandatory in some countries (France, Bulgaria, etc).
- ▶ In France and Germany the methanization process and the use of biogas from the fermentation can produce energy or steam to heat houses.

VALORGA Firm (right picture) is the pioneer for municipality and industry waste treatment with recovery and transformation of biogas.



Municipal waste production

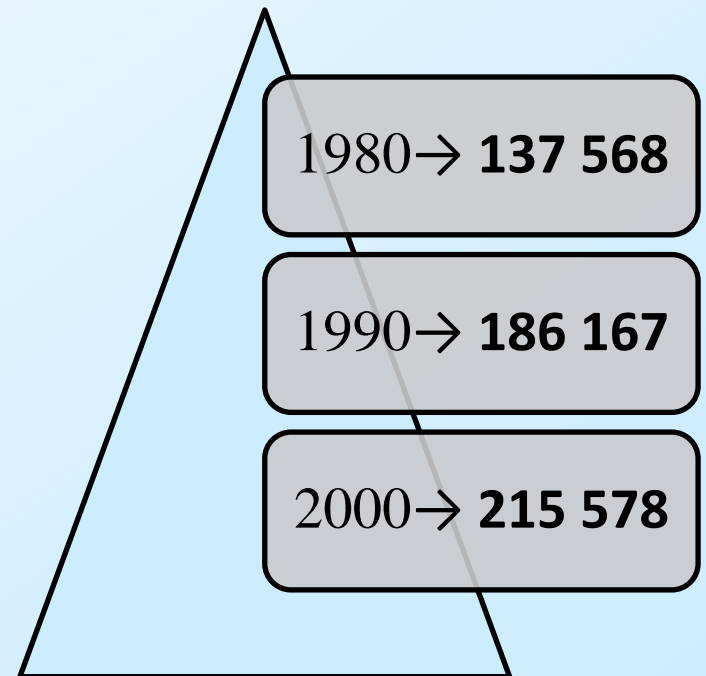


increasing trends

Source OECD Environmental Data Compendium, 1000 tonnes

- USA year 2005
- Municipal waste generation:
222 869
- **750** kg/capita
- Recycling: **52 980**
- Composting: **18 683**
- Percentage of recycled waste:
23.77%

- USA waste generation in previous years

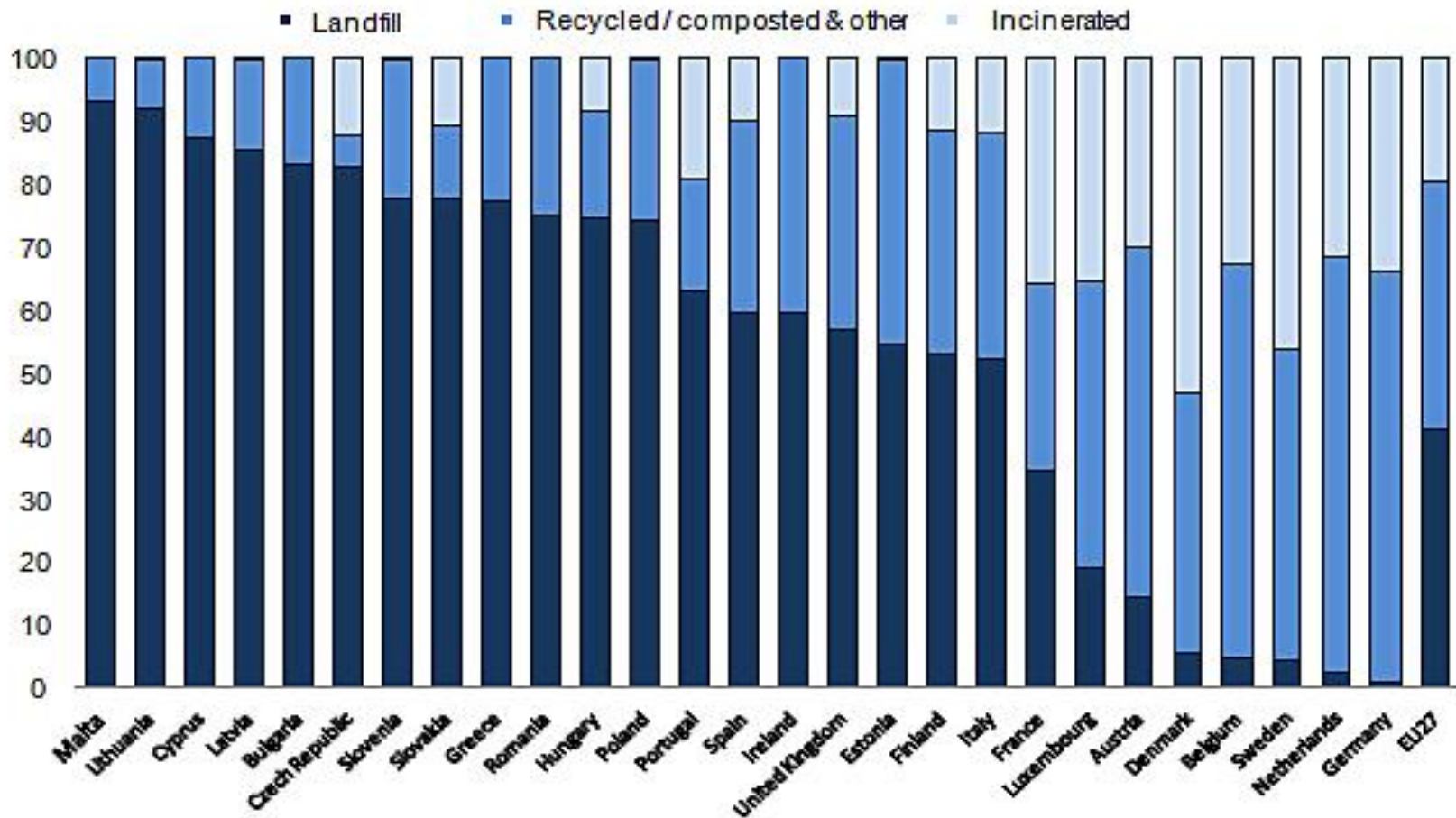


Waste management in Europe



Source: DEFRA

Municipal waste management in the European Union: EU27, 2007

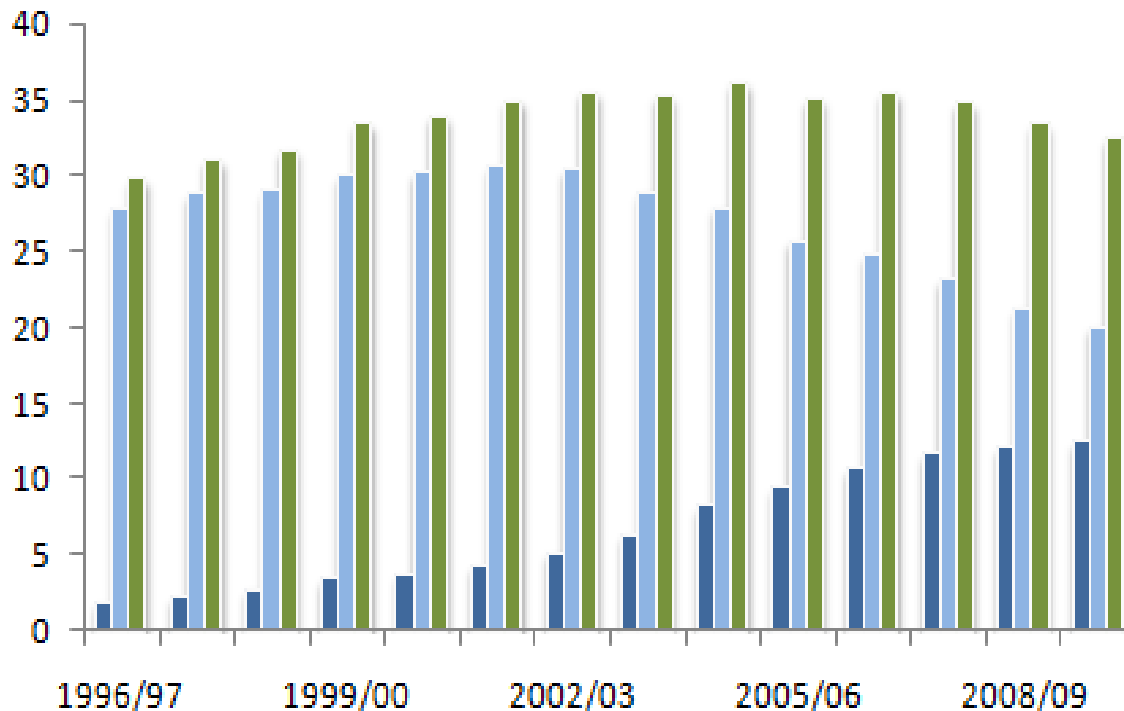


Waste reduction policy in UK



- Local authority collected waste sent for recycling/composting/reuse
- Local authority collected waste not sent for recycling/composting/reuse
- Total local authority collected waste

million tonnes



In 2009-10
32.5 million
tonnes of local
authority
collected waste
was generated,
less than the
amount generated
In 1999-2000

Source: DEFRA



Just Recycling...

Strengths

Recycling is a good practice it helps to reduce the impact on the environment and human health.
It increases the efficiency of resource use.

Weaknesses

Recycling is a form of treatment and since it is an industrial process it requires energy consumption.
It increases the costs linked to the treatment stream.

Opportunities

Recycling can reduce the need for virgin material, the air pollution and landfill leachates.
It creates new job opportunities.

Threats

The recycling processes create pollution, greenhouse gases and other wastes.



The new challenge: Re-use and Reduce

❖ What we consider waste can become a new object with some creativity



❖ New waste policies can improve the global reduction of wastes



In France the Law *Loi Grenelle 2* : reduction of 15% by 2012 of municipal wastes, increasing of recycling 75%



The “ecological backpack” notion

It estimates the quantity of natural resources needed to produce consumption goods:

- **A toothbrush : 1.5 kg**
- **A mobile phone : 75 kg**
- **A computer : 1 500 kg**

Since natural resources and energy are also required for recycling itself, then we should add other quantities from the recycling processes.



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Thank you.

Any questions?