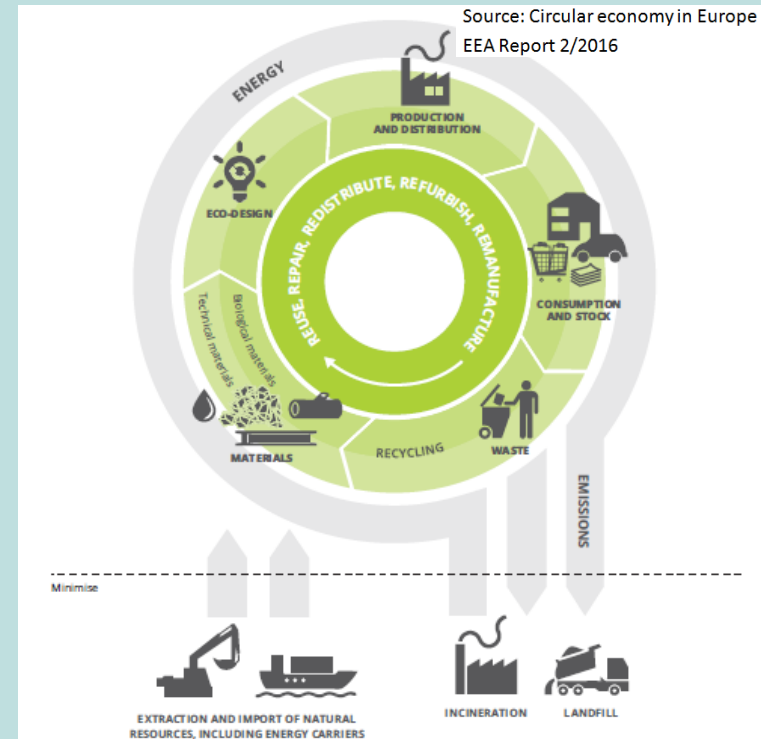


Source: Circular economy in Europe
EEA Report 2/2016



Circular Economy – Best international practices

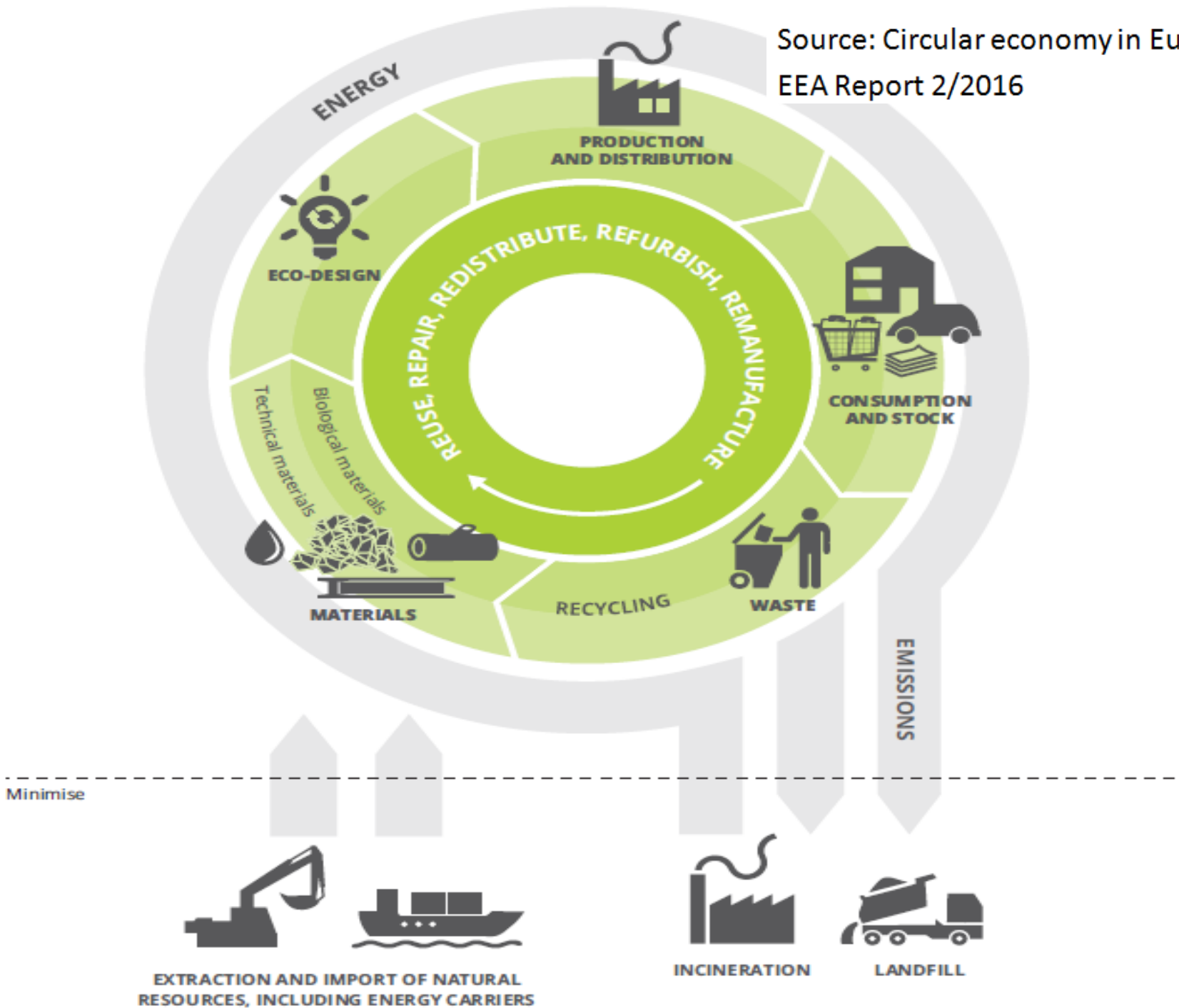
Belgrade, 25.11.2016

Key aspects of a „Circular Economy“

The value of products, materials and resources is maintained in the economy for as long as possible. The generation of waste minimised.

- ⇒ The need for new inputs of materials and energy is minimized
- ⇒ Environmental pressures linked to resource extraction, emissions and waste are reduced.

Source: Circular economy in Europe
EEA Report 2/2016



Elements of EC's action plan

Legislative proposals on waste

- ⇒ reduce landfilling
- ⇒ increase preparation for reuse and recycling of key waste streams (municipal waste and packaging waste)

Stimulating sustainable activity in key sectors and new business opportunities by

- ⇒ funding innovative projects (Horizon2020 research program)
- ⇒ commitments on eco-design
- ⇒ targeted action in areas such as plastics, food waste, construction, critical raw materials, industrial and mining waste, consumption and public procurement

Best Practice Examples

Service- and function-based business models in action

In 2010, **Xerox**, a producer of copying machines, ventured into the managed service sector:

- Leasing of printing and copying machines. Customers pay per print or copy made, with maintenance costs included in the cost per click.

The managed print services business model accounted for nearly 50 % of the company's revenue by 2011.

Rolls-Royce offers performance-based power-by-the-hour contracts in its civil aviation business:

- Customers paid a fixed maintenance price that guaranteed engine availability to lessees.

By 2011, this service accounted for 53.4 % of the total revenue.

Chemical leasing (Austria)

The business model Chemical Leasing provides product-oriented services instead of physical ownership of chemicals.

- Chemicals are leased instead of sold
- Chemicals risk management is provided.
- The responsibility of the producer and service provider is extended and includes the management of the entire life cycle.

The application of Chemical Leasing was assisted and monitored in a broad range of sectors and companies. Economic benefit for producers and users of chemicals could be achieved.

Collaborative consumption

Numerous projects for „food sharing“

- Dutch platform „Share your meal“
- Austrian initiative „Food is precious“:
=> Network of >100 charity organisation points was created, by which 11.000 tonnes/a food is distributed

Numerous projects for bicycle sharing

Austria, Belgium, Bulgaria, Cyprus, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Netherlands, Poland, Slovakia, Sweden, Switzerland, UK

Car sharing (short term car rental)

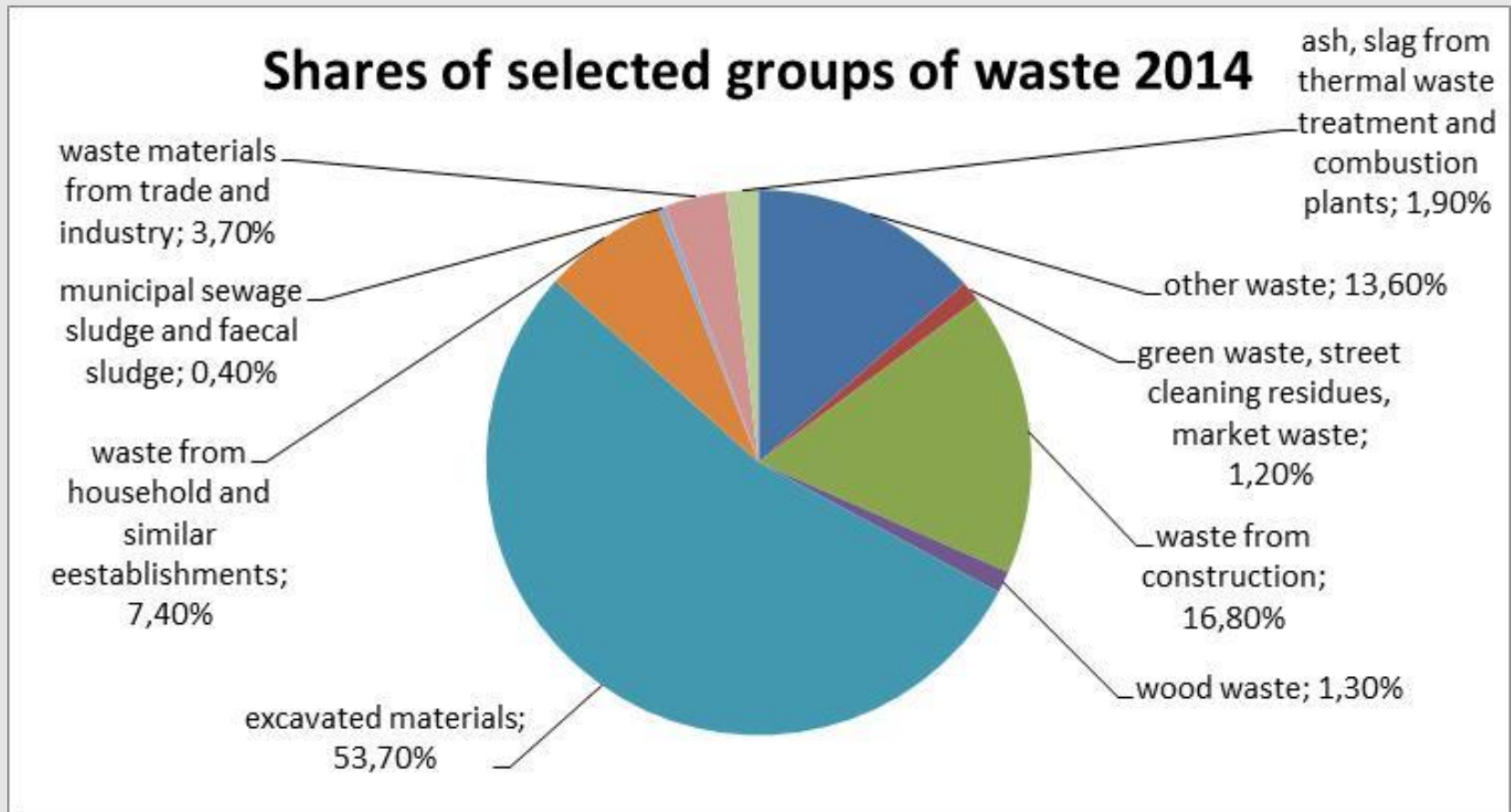
Car2go, Zipcar, ...

Waste-to-resource business model

- The National Industrial Symbiosis Programme (UK) is a network of more than 15 000 participating industrial companies that identifies mutually profitable transactions between companies to optimise the use of underused or undervalued resources, including energy, water, waste and logistics. So far, NISP has enabled its members to divert 47 million tonnes of industrial waste from landfill, generated GBP 1 billion in new sales and created and safeguarded more than 10 000 jobs.
- In Austria, emphasis is put on the reuse of products in the construction sector: Prior to demolition of a building it must be ensured that components which can be reused, and for which there is a demand, are removed in such a way that subsequent reuse is feasible => business models start to develop.

Waste recycling in Austria

Waste generation in Austria 2014



100%: 56,7 Mio. t; 4,17 Mio. t municipal solid waste

Waste treatment plants in Austria 2014- preparation for recycling or recycling

- 411 composting facilities (up to 100.000t capacity)
- 150 biogas plants
- 167 Plants for sorting and processing separately collected recoverables and other wastesorting plants
- 94 Recycling plants for separately collected recoverables (glas, paper, metall, plastic, wood)
- 411 treatment plants for construction and demolition waste
- 10 shredder and processing plants for metal waste

Waste Treatment plants in Austria 2014 - pre-treatment for disposal or disposal

- 11 thermal treatment plants for municipal solid waste (capacity: 96.000t to 525.000t)
- 14 mechanical-biological treatment plants (capacity: 4.500 to 140.000t)
- 48 Physical-chemical treatment plants
- 238 landfills (without landfills for excavated soil)

Treatment plants in Austria

...waste collection centre (Lower Austria)...



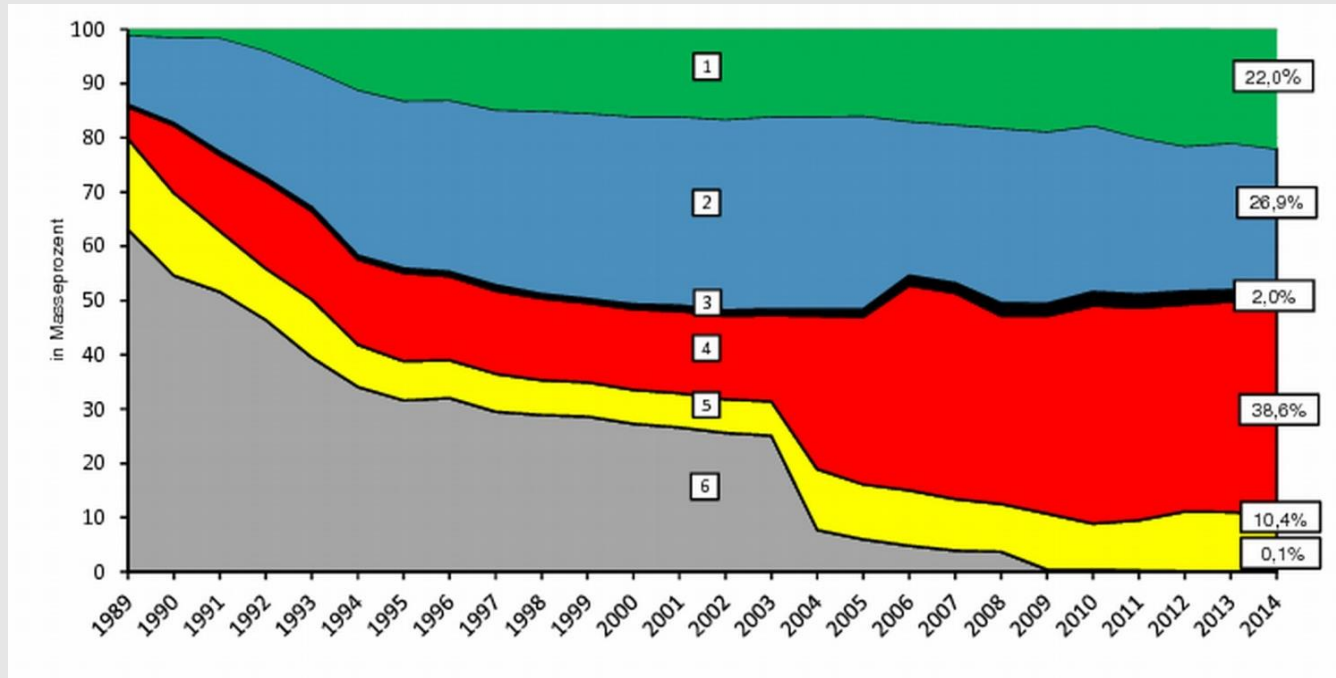
...waste incineration plant (Vienna)...



...mechanical-biological treatment plant (Styria)...



Treatment of MSW in Austria



- 1 Recovery of biogenic waste, particularly from separate collection and from green waste
- 2 Recovery of recoverables, especially from separate collection
- 3 Treatment of hazardous household waste and waste electrical and electronic equipment from separate collection
- 4 Thermal treatment (incineration or co-incineration)
- 5 Biotechnical treatment in (mechanical) biological treatment plants
- 6 landfilling

Key success factors for Austria's Waste Management System

- Separate collection of recyclables from households and small-size enterprises (glass, paper, plastics, metal, textiles, kitchen waste, garden waste)
- Producer-responsibility for packaging waste, WEEE, batteries, end-of-life vehicles
- Separate collection for hazardous household waste
- Tax on landfill and waste incineration which is a strong incentive to divert waste from disposal to recovery operations

Key success factors for Austria's Waste Management System

- Establishment of a fund for the remediation of historical contaminated sites.
 - financed through fees on waste treatment activities (landfill, incineration)
 - used as an instrument to speed up the adaptation of (hazardous) waste management to the state-of-the-art,
 - used to achieve environmental policy goals (circular economy).
- Close monitoring of hazardous waste from generation to final treatment, by implementing a shared IT-system.
- Establishment of a public investment fund for co-financing of investments in waste management infrastructure (money comes from general budget, guidelines for granting subsidies can be adapted very flexibly to new challenges).

Contact & Information

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Circular economy in Serbia
Belgrade ■ 25.11.2016