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Extended Producer Responsibility applied to E-Waste and Beyond

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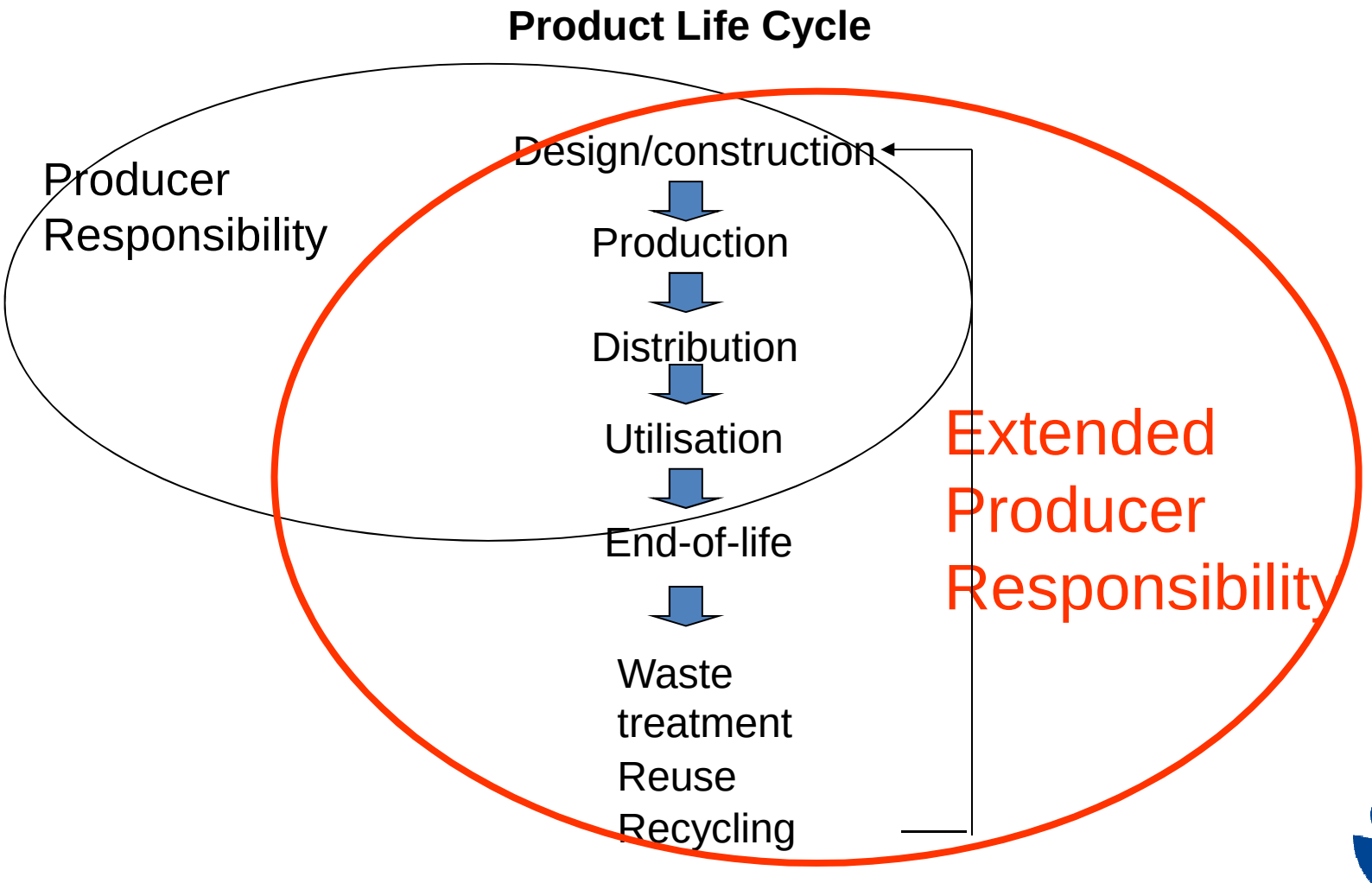
Source: The Standard, Zimbabwe 2014

Soource: TheRecycler, UK 2014

WHAT IS EXTENDED PRODUCER RESPONSIBILITY ?



THE EPR PRINCIPLE IN EU WASTE POLITICS

- Applied in EU waste politics to:
  - Packaging and Packaging Waste(1994 etc)
  - Batteries and Accumulators (1994 etc)
  - End of life Vehicles (2002), tires
  - Waste Electronic and Electrical Equipment WEEE (2002)

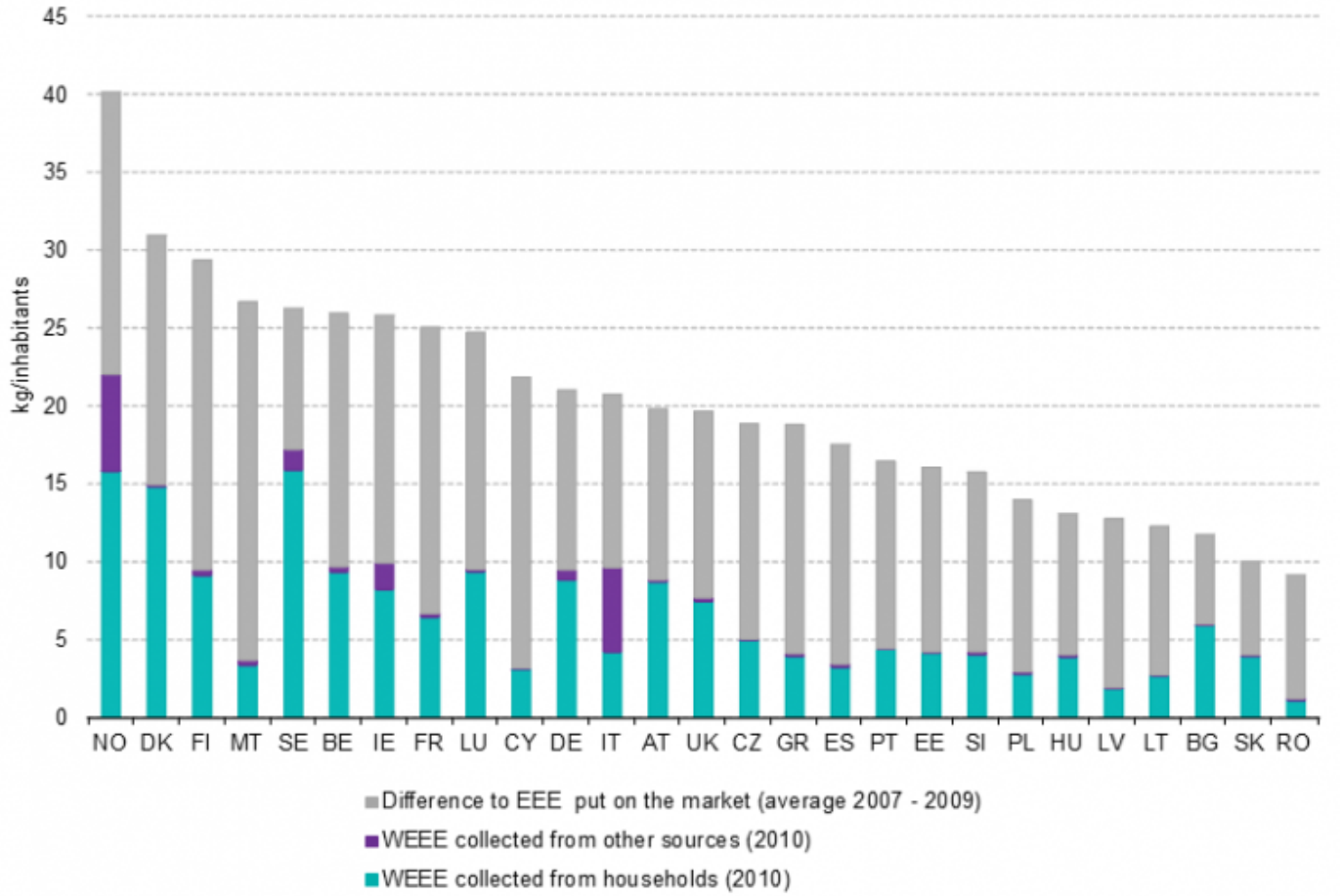
- Lead to establishment of compliance systems in all countries manage recovery and ecycling and collect industry fees

- Sufficient financing of recovery and recycling by industry is assured, no drop off costs for consumer

THE EPR PRINCIPLE IN EU WASTE POLITICS (CONT)

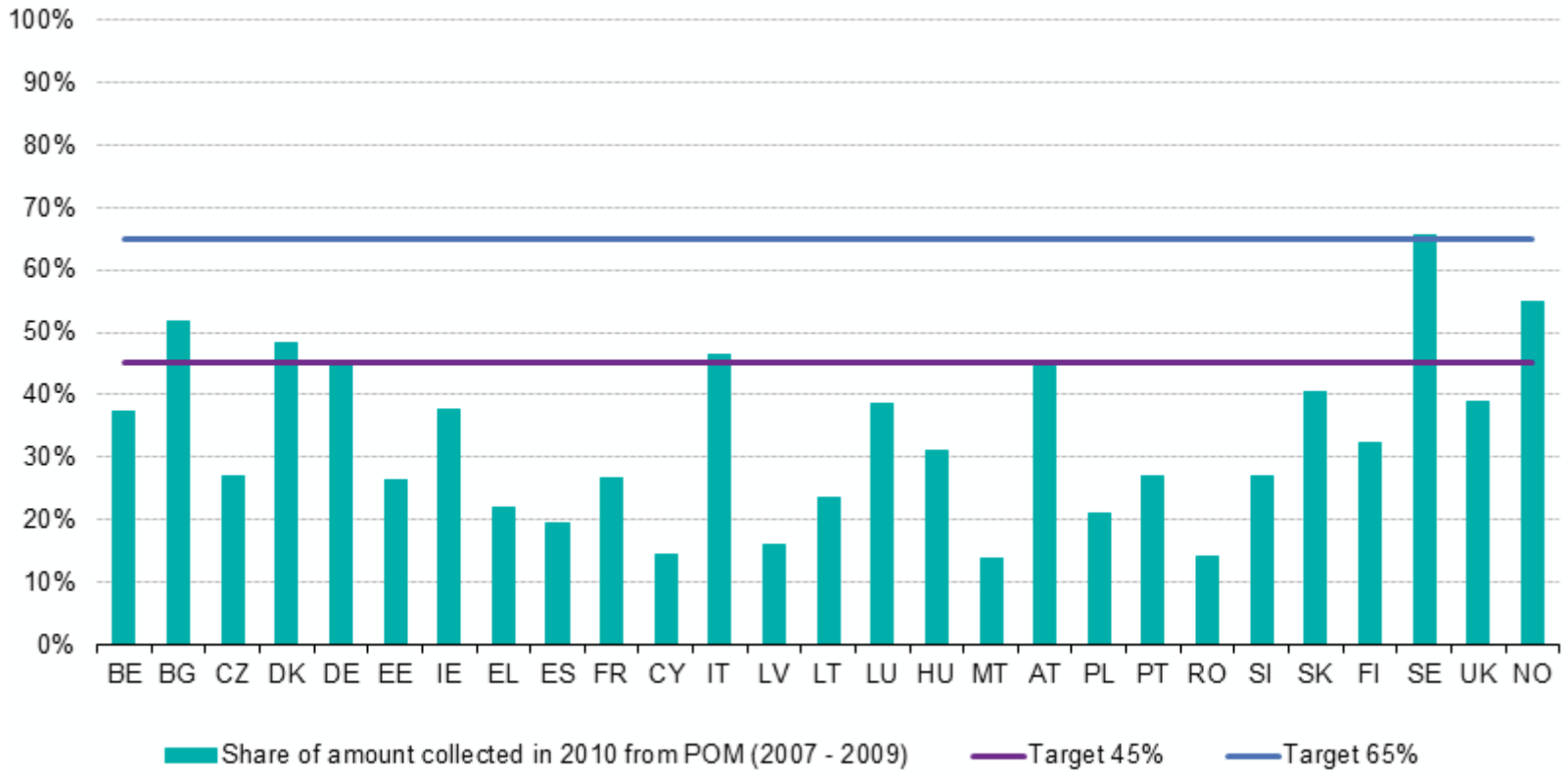
- Producer committment to recycling and compliance costs leads to improved design and construction
- „future waste“ recycling gets industry support
- Recyclability is becoming a product quality criteria
- „free riding“ is undermining industry committment and must be minimized

EEE PUT ON THE MARKET AND WEEE COLLECTED, PER CAPITA AND YEAR



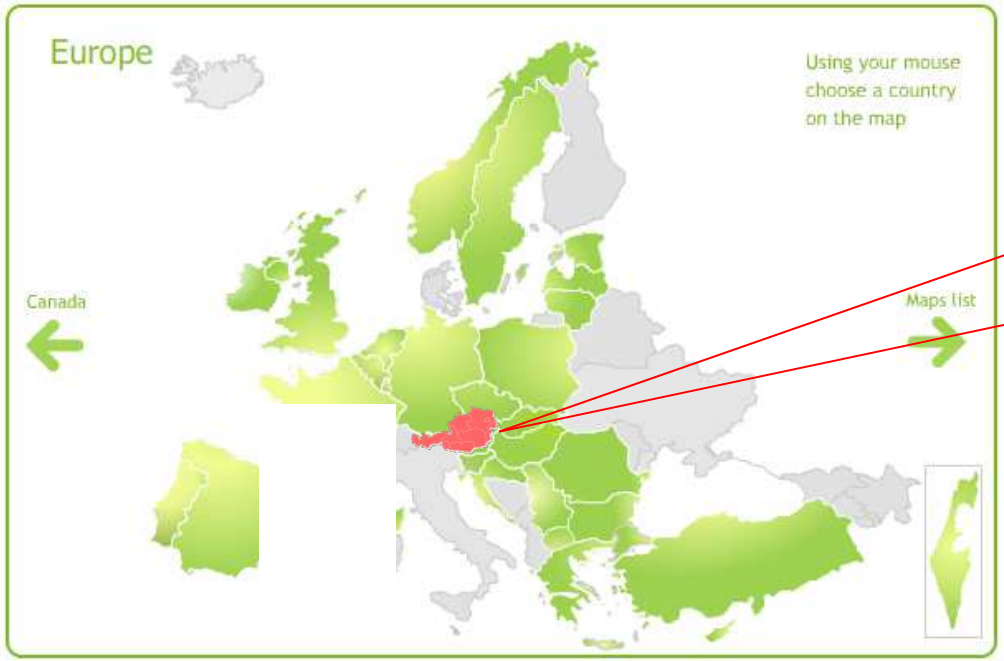
Source: Eurostat 2014

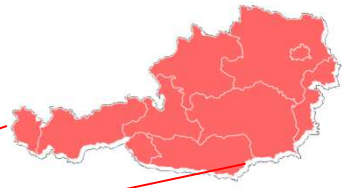
COLLECTION RATE IN PERCENT OF THE AVERAGE WEIGHT OF EEE



Source: Eurostat 2014

AUSTRIA





Capital:	Vienna
Area:	84,000 km²
Population:	8.2 million
GNP2013:	313 billion €
	(38 K€ per capita)

Total Waste Generation:	49 million t
(81million m³)	
Household waste (MSW):	3.1 million t
(25 million m³, 380 kg/cap.a)	
WEEE collected	75.000 t
(ca. 9 kg/cap. pa)	

WEEE MANAGEMENT IN AUSTRIA

- 4 competitive compliance systems (PRO) in place, of which 2 are profit oriented
- Collection through municipalities, retail chains, stores, producers, waste operators
- WEEE volumes collected in 2013: 75.000t, ca 50 % of EEE put on the market
- Ca 9 kg WEEE collected per capita
- Ca 100 companies or 30% of volume audited in 2013

OBLIGATIONS FOR MANUFACTURERS AND IMPORTERS

- ✓ Join a authorized compliance scheme PRO)
- ✓ Marking their products with the crossed over waste bin
- ✓ Register as a manufacturer
- ✓ Providing an area-wide collection system
- ✓ Reporting amounts of EEE put on market
- ✓ Reporting WEEE collected
- ✓ Ensuring treatment of WEEE according to the legal standards

→ transferred to PRO authorized by Ministry

- ✓ Reports quantities put on the market to PRO per month/quarter
- ✓ Pays the resulting fees (per weight or per piece) to PRO per m/qu

Obligations of retailers:

- ✓ Take back used devices on a 1:1 basis (take back one used similar device when a new one was sold)

TASKS AND RESPONSIBILITY OF PRO

- PRO achieves authorization from Government if legal requirements are fulfilled:
  - maintains nationwide collection organisation through contracts with municipalities , waste operators, retailers etc
  - transparent calculation, equal treatment contracts
  - Ministry approved prices
  - sufficient reporting and auditing system

- PRO takes over all obligations from the obligated manufacturers or importers

- PRO informs consumers

TASKS AND RESPONSIBILITY OF PRO (cont)

- PRO organizes and finances the environmentally sound collection and treatment of WEEE according to its market share (compensate municipalities, waste operators and recyclers)

- PRO reports
  - regularily amounts of EEE put on the market by its customers (quarterly report)
  - amounts of WEEE collected by PRO (monthly report) to the official clearing house

- PRO submits to yearly audit by Ministry

TASKS AND RESPONSIBILITY OF MUNICIPALITIES

- Establish WEEE collection facilities for consumer for free of charge drop off
- Ensure orderly collection and storage per category
- Inform consumer
- Hand over collected WEEE to PRO facilities or take care of legal collection directly
- Report to PRO and Government Authorities

WEEE FINANCING, COLLECTION AND RECYCLING

FINANCIAL IMPACT IN AUSTRIA

Total Collection and Recycling quantity p.a.	t	76.000
Total industry payments ca p.a	€	16-18 Mio

Impact on EEE (per unit):

Medium size Washing machine (8-35 kg)			€ 0,16
Medium size refrigerator			€ 6,00
Medium size TV (25 kg)	€ 0,19	per kg	€ 4,75
Mobile phone (200g)	€ 0,036	per kg	€ 0,072

Source: ERA, Austria

BENEFITS FROM THE WEEE REGIME IN AUSTRIA

- Before 2005
  - WEEE Treated as shredding material like cars
  - Little recovery of non ferrous components
  - No recycling of WEEE plastics
- Since implementation of WEEE regulation
  - Better recource recovery
  - Development of a small but vital and highly specialized WEEE recycling industry (>20 new plants, approx. 200 new jobs)
  - Increased industry support for recycling projects
  - Growth of organized reuse efforts

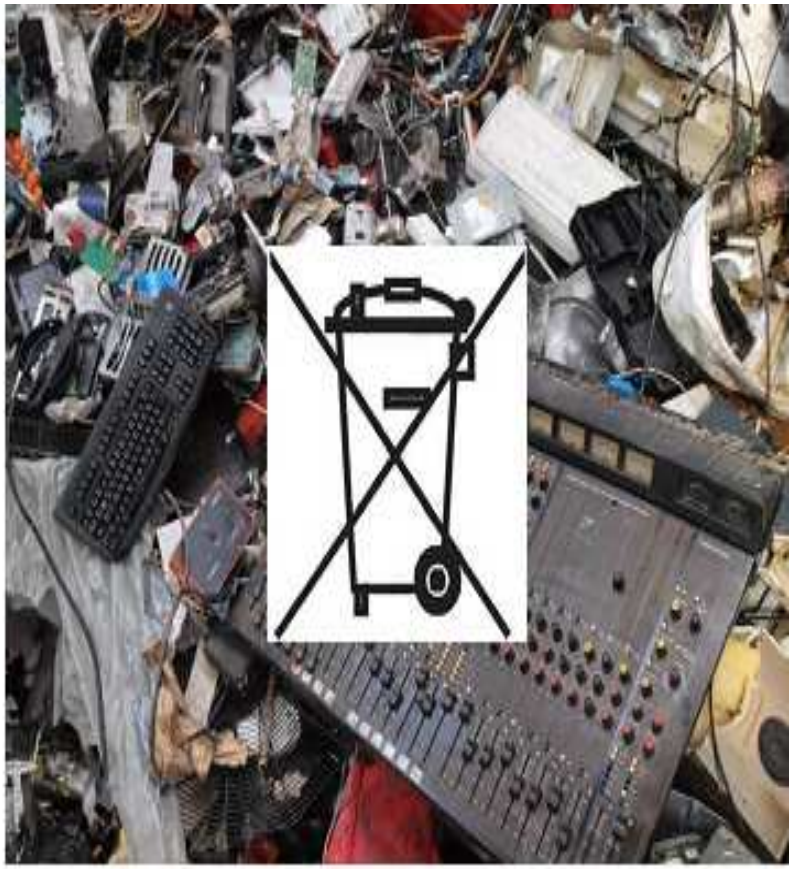
Source: ERA, Austria

SOME LESSONS LEARNED IN AUSTRIA

- handover from collection agents to systems not mandatory (depends on material market prices)
- EU definitions difficult to apply (dual usage etc)
- Illegal shipments (documentation of working order)
- Amount of reuse difficult to define
- Weight change issue (weight of new equipment is lower (payment base), weight of old equipment is higher (cost base)

Source: ERA, Austria, et.al

Waste of electrical and electronic equipment (WEEE) such as computers, TV-sets, fridges and cell phones is one the fastest growing waste streams in the EU, with some 9 million tonnes generated in 2005, and expected to grow to more than 12 million tonnes by 2020.

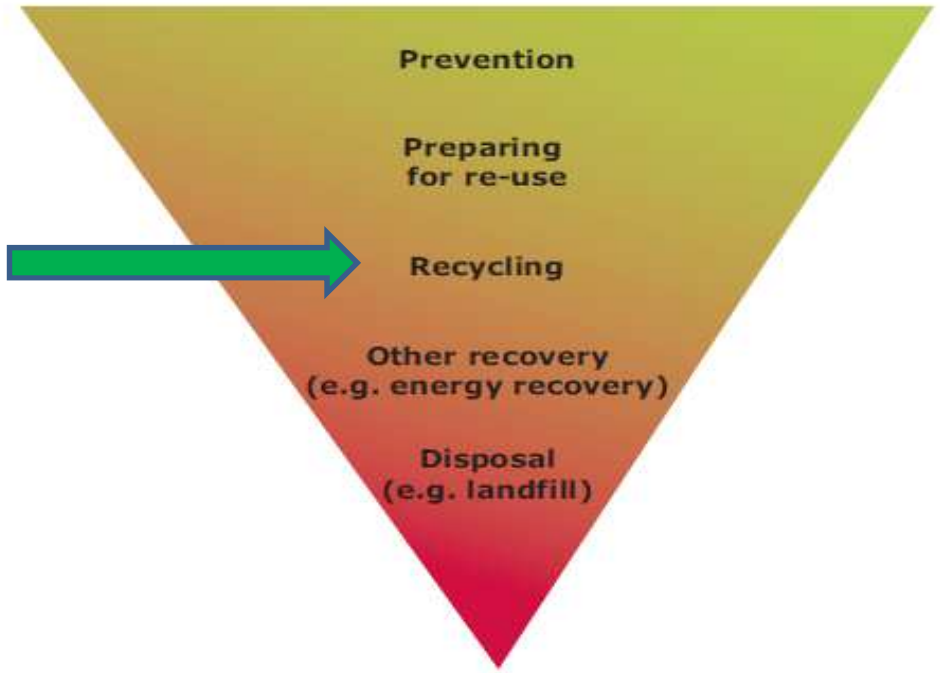


WEEE is a complex mixture of materials and components that because of their hazardous content, and if not properly managed, can cause major environmental and health problems. Moreover, the production of modern electronics requires the use of scarce and expensive resources (e.g. around 10% of total gold worldwide is used for their production). To improve the environmental management of WEEE and to contribute to a circular economy and enhance resource efficiency the improvement of collection, treatment and recycling of electronics at the end of their life is essential.

To address these problems two pieces of legislation have been put in place: The Directive on waste electrical and electronic equipment (WEEE Directive) and the Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS Directive)

The first WEEE Directive (Directive 2002/96/EC) entered into force in February 2003. The Directive provided for the creation of collection schemes where consumers return their WEEE free of charge. These schemes aim to increase the recycling of WEEE and/or re-use.

THE EU WASTE HIERARCHY



Source: European Commission (DG ENV) Use Of Economic Instruments And Waste Management Performances 2012

FINANCING OF RECOVERY AND RECYCLING OF WASTE

Waste Type	Construction Waste	Industrial Waste	Packaging Waste	Electrical and Electronic Equipment	Cars	Batteries
Treatment financed by	**Industry** through „**Polluter Pays**“ principle		**Obliged companies** through “**Extended Producer Responsibility**” principle			

Reover and reuse precious resources
Reduce hazardous substances in equipment
Reduce environmental and health hazards caused by informal recovery

Weee diretive provides for recovery at soource, export only of functioning equipment, but

WASTE RECYCLING – THE CHALLENGES

XIV Congreso Internacional Disposición Final de Residuos y Perspectivas Ambientales
Globalizacion, Sostenibilidad y Aprovechamiento

- Availablility and accessability of suitable materials

  - Sorting of resudual waste poduces low quality materials and increase reccling costs
  - Increasing capacities of energy recovery from waste reduce
  - of recyclable materials (plastics)
  - Separate source colection reaches natural limits (up to 80 % ecovery rate reached already in some countries)
  - Important role of Informal sector in Latinamerica!

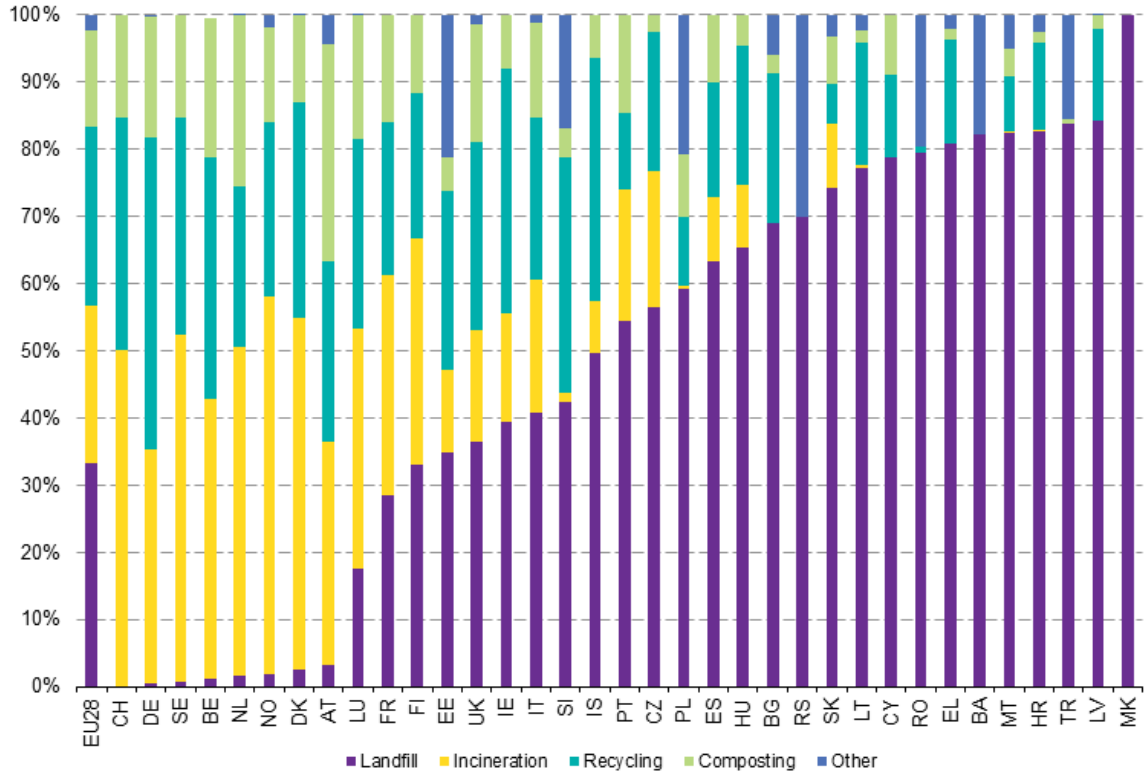
ei:ee

WASTE RECYCLING – THE CHALLENGES

- Costs of recovery and recycling increases exponentially with % of recovery

- Raw material market changes are unpredictable and can cause severe losses in secondary material trading (e.g.steel and Aluminium in 2006)

MUNICIPAL WASTE TREATED BY COUNTRY AND TREATMENT CATEGORY SORTED BY LANDFILLING 2012



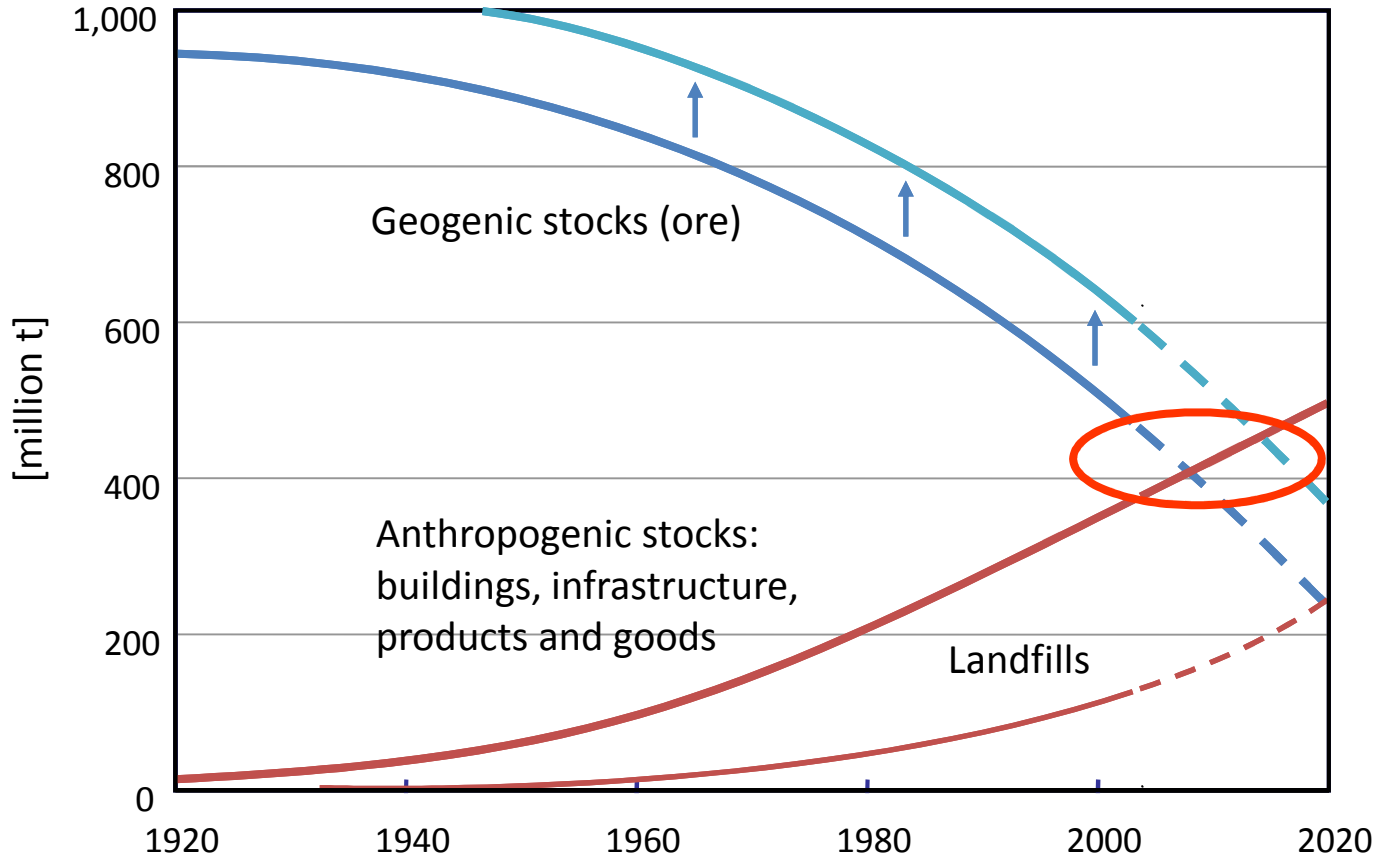
URBAN MINING

- Cities are a huge resource of secondary raw materials built into infrastructure, buildings, etc since centuries
- Most have high value, e.g.copper, steel, iron, plastics
- Volume are huge: in Austria alone (8 Mio inhab)
  - 3.800 Mio t materials used in existing buidings in Austria
  - 2 Mio t Copper contained in built-up area
  - 40-80 Mio t Steel etc

URBAN MINING (cont)

- With increasing raw material prices secondary raw material recovered from existing buiding cites will play a growing role in material sourcing.

ANTHROPOGENIC STOCKS AND URBAN MINING: COPPER



Source: Rechberger, 2004, ARA AG.

WASTE RECYCLING:

- Next best after waste reduction and reuse
- Essential for resource protection – sustainability
- Challenge for scientific progress: material stream mapping
- Huge business opportunity
  - Logistics
  - Sorting technologies
  - Waste Coolection
  - Informal sector
  - Recycling technologies
  - etc