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**What harmonised regulatory framework do we need
in order to substantially support the implementation
of separate collection and recycling of Biowaste in
Europe?**

– The Austrian Example and a Proposal for Europe –

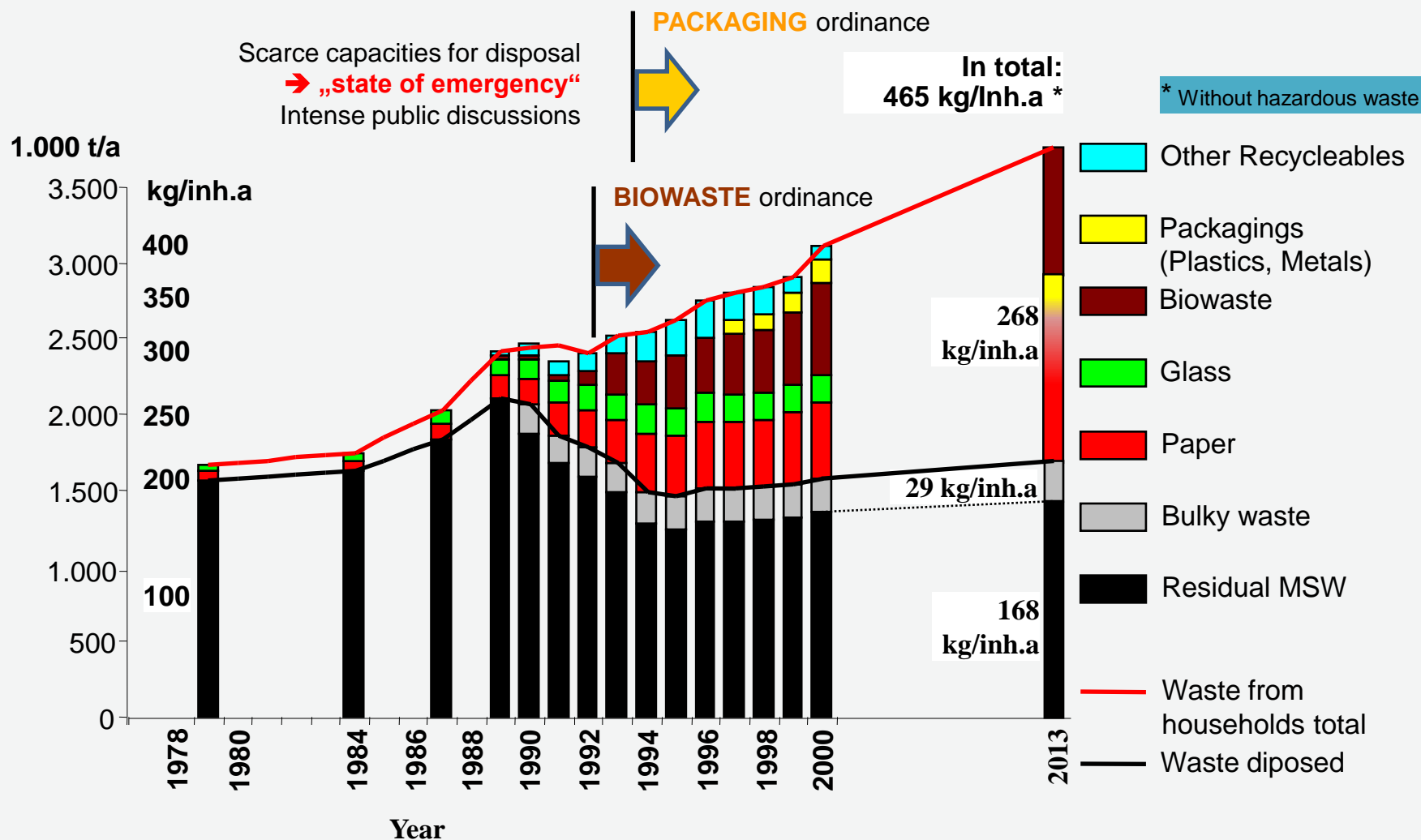
Austria's contribution to:

**THE ROLE OF BIOWASTE IN THE EMERGING
CIRCULAR ECONOMY**

Creating new jobs from managing biowaste

Brussels, 24 June 2015

Historical Development of Quantities of household waste in Austria



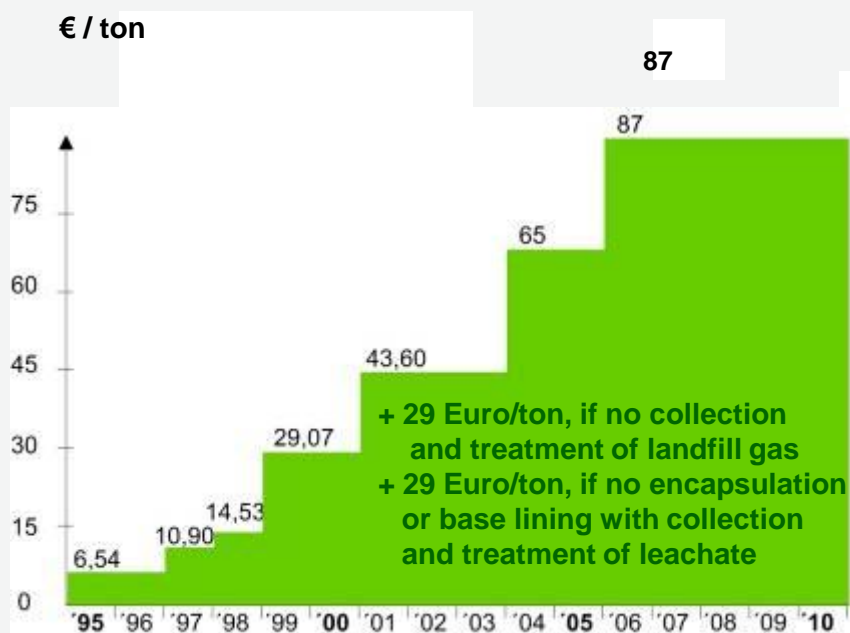
Source: National waste statistics and Waste Management Plans

Development of the Landfill Tax in Austria

The development of waste management in Austria towards reduction of landfilled waste as well as recycling and recovery has been very effectively supported by a stepwise increased landfill tax.

Landfill tax in € / ton of waste
(e. g. municipal waste)

Revenue from landfill tax in Mio. € / a
(total revenue per year)



3 criteria:

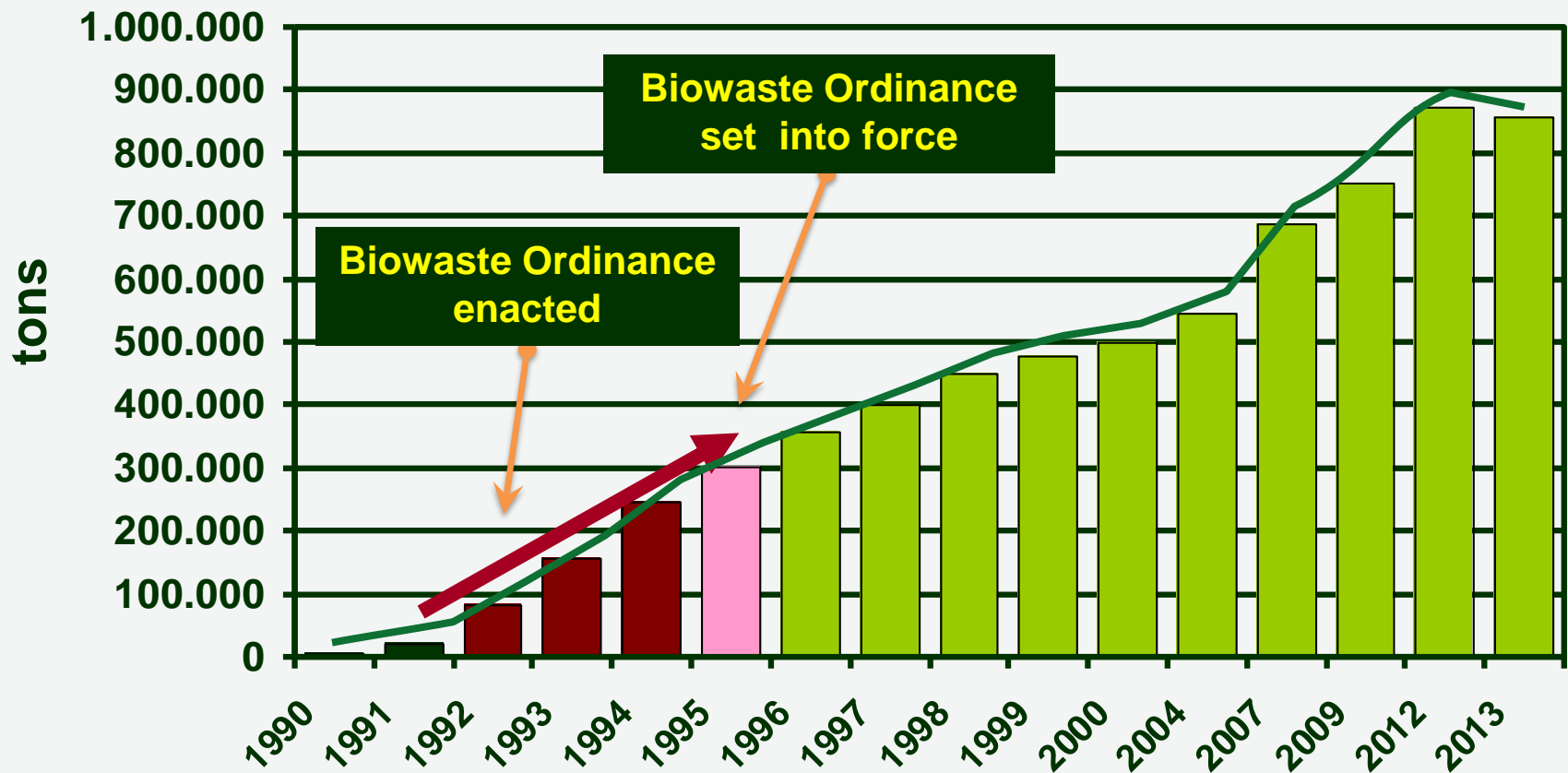
- Foreseeable for at least 10 years
- Environmental standard of the landfill
- Quality of waste to be landfilled

Development of Separately Collected Biowaste ..., „Brown Bin“



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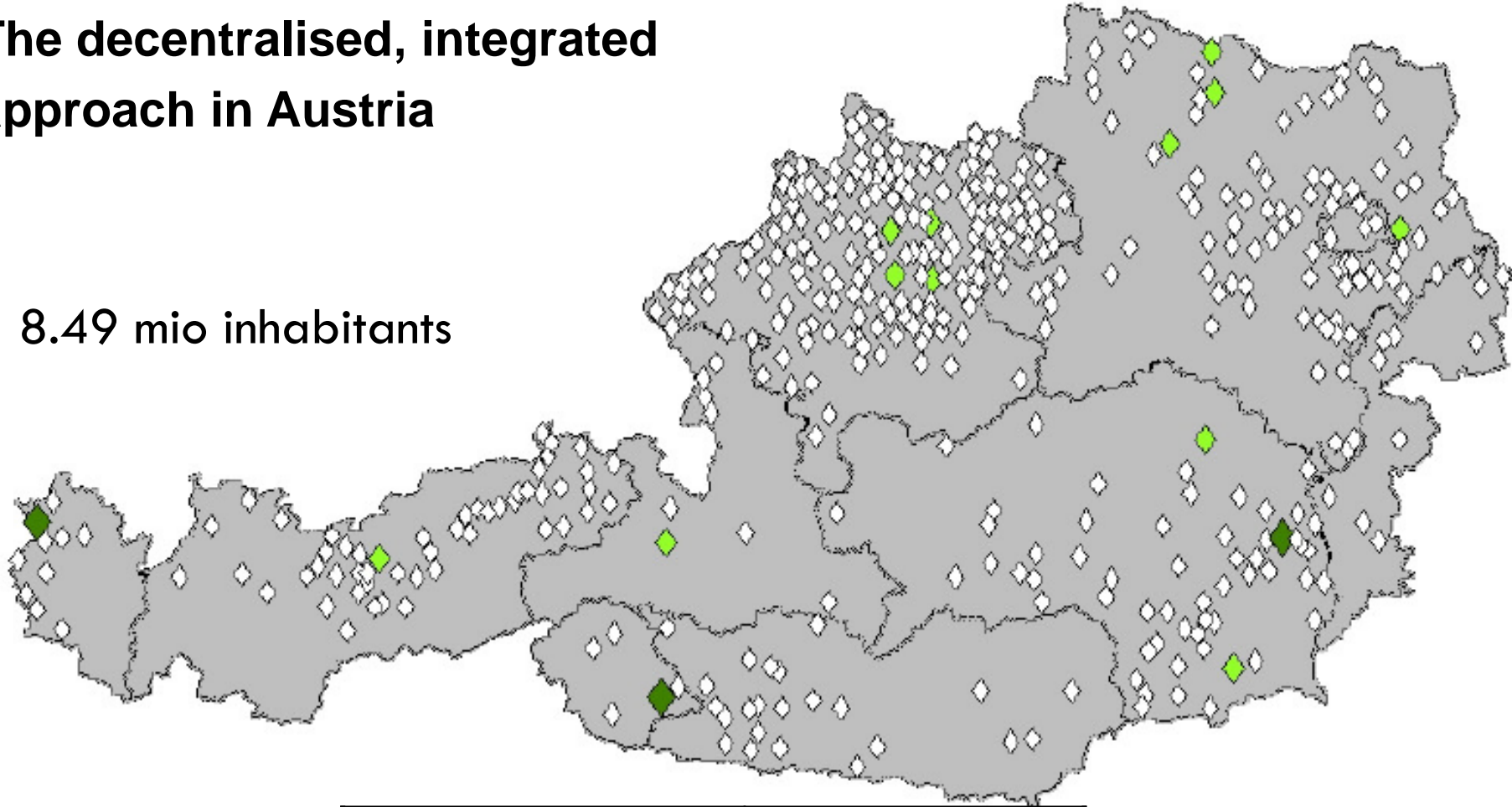
- The regulatory driver for introducing separate collection and recycling of biowaste



Source: F. Amlinger; national waste statistics and Waste Management Plans

The decentralised, integrated approach in Austria

8.49 mio inhabitants



	Composting
Number of plants	417
Total capacity	1.4 Mt
Average capacity	3 357 t

20 000 Inh. per composting plant

The pillars of decentralised biowaste management

High quality home
composting
(= prevention)



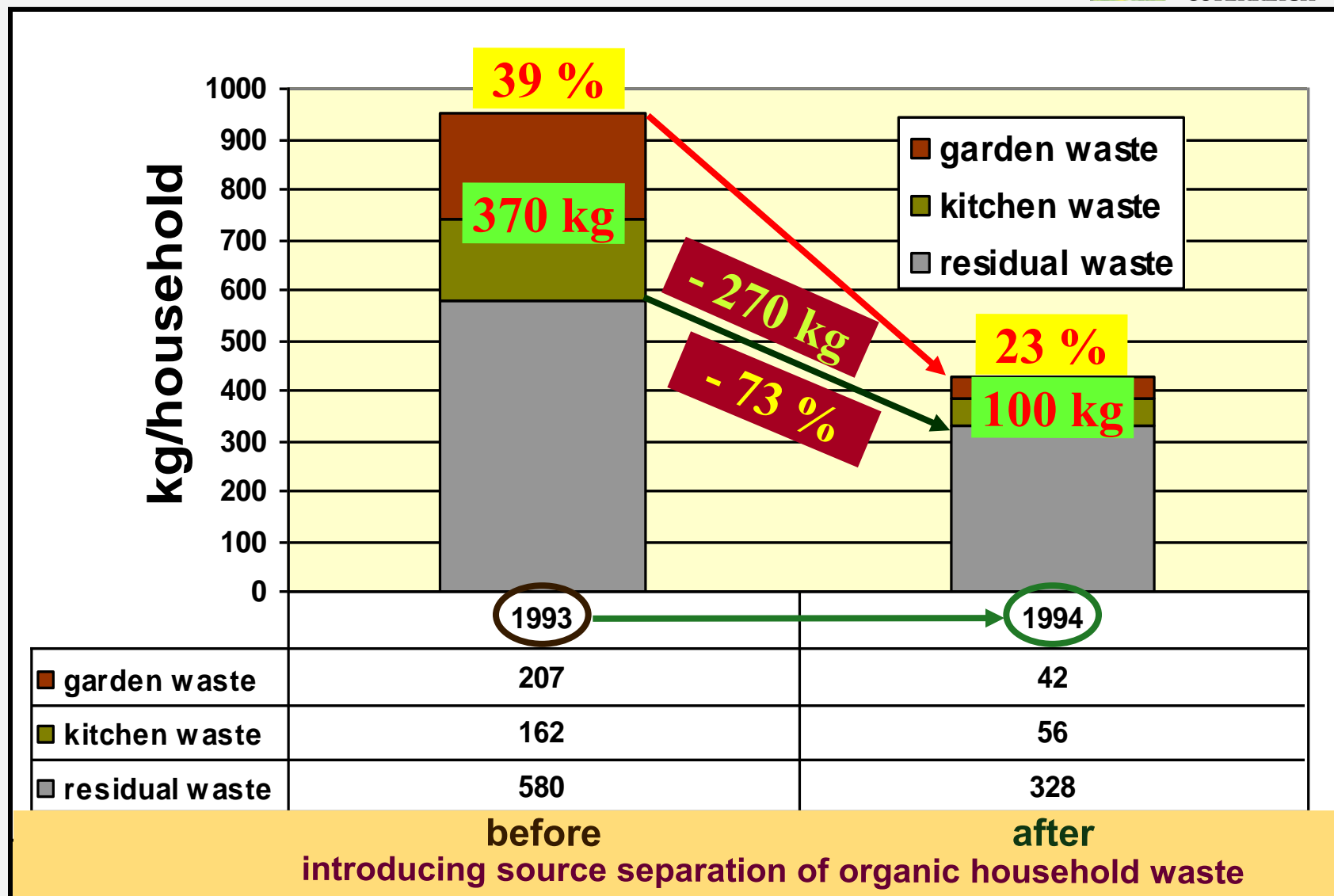
Separate collection
where home compostis not feasible



Favouring
decentralised on-farm or
municipal composting



Possible reduction of biowaste in residual waste after 1 year separate collection: The example of a municipality with 5 800 Inhabitants



Arguments for binding separate collection targets for *biowaste* at the source

Source separation & biological treatment vs mixed waste treatment

- **Incineration** → > 70 – 100 €/t ... *
 - has a negative energy yield for humid biowaste!
 - blocks at least ~150 000 t of municipal waste per year (400 000 – 500 000 INH) that needs to be fed to the boiler on a daily basis
- **MBT ,Composting‘** → 90 – 120 €/t *
of ,non-source separated‘ mixed municipal waste in a MBT plant?
 - Low quality output (impurities, heavy metals) – restricted use options (e.g. land reclamation, landfills, mining areas, street construction)
 - Attention: distributing macro – and micro plastics in the environment!
 - Losing valuable humus for food production and peat substitute in growing media!
 - Costly mechanical pre-treatment
- **Composting** → 35 – 55 €/t *
applicable for all types of biowaste and scales from 1 to >100 000 t/a
- **Anaerobic Digestion** → 70 – 90 €/t * ... for liquid and pasteuse food waste (separated liquids recycled in process, in post-composting or used as liquid fertiliser!)

* Assessment of ranges based on Austrian experience

Implementation times for the main waste treatment options for biodegradable / biowaste



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The longer the planning and construction time, the more time passes without effective reduction of the negative environmental impact stemming from disposal of biodegradable waste.

Typical implementation periods:

- **Incinerator** → **10 years**
- **MBT plant** → **2 – 4 years**
- **Composting plant** → **1 year**
- **Biogas plant** → **1 – 2 years**

The impressive economic performance of biowaste recycling: collection / treatment / market value...



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Composting

AD

Total for Composting & AD

Quantities collected & processed

Bio-Bin	0.77 Mt
Green waste	0.73 Mt
TOTAL	1.407 Mt

Bio-Bin	0.075 Mt
Commercial food waste	0.41 Mt
TOTAL	0.49 Mt

1.89 Mt

Turnover for collection, treatment & marketing

Collection	47.4 M€
Composting	45.0 M€
Compost market	9.5 M€
TOTAL	101.9 M€
	= 72 €/t

Collection	34.0 M€
Digestion	41.2 M€ *
* Including "green Energy" revenue of €12,-/t biowaste	
TOTAL	75.2 M€
	= 155 €/t

177 M€

= 94 €/ton

= 20 €/Inhab.

Seperate collection and recycling of biowaste create green jobs ...

	Total WPs	Tons / WP	Relative
Composting	1 019	1 318	56,1 %
AD	752	645	41,4 %
Biomass Inc.	45	2 222	2,5%
TOTAL	1 816 WPs	1 100 Tons/WP	

- In case of waste Incineration ...
 - ... only 10 to 20% of working places would be created for the same amount treated

WP ... full working place
Biomass Inc. ... Incineration of wood chips from source separated woody bush and tree cuttings

Conclusion for the economic / job creation performance of separate collection and recycling with special focus on biowaste



- **Recycling/recovery strengthens the national economy.**
It delivers an important contribution for **reducing the import of raw material** and reduces the volatility of raw material prices
- On volatile raw material markets recycling needs a **clear regulatory framework for recycling**
- Starting/Improving separate collection and recycling needs a national investment – a **concise regulatory framework delivers long term strategic and investment security**
- Austria recycles **1.89 Mt** in total or **210 kg/Inhabitant and year of biowaste** via composting and AD. Including the compost and renewable energy market, the **economic value** of separate collection and biological treatment of biowaste equals **94 €/t biowaste** or **20 €/Inhabitant**.
- Based on 25 years experience in Austria in average each **1 100 tons of separately collected and recycled biowaste creates ONE full GREEN JOB.**

- What the new **Waste Package** should include :
 - **Recycling targets:**
 - Setting ambitious common EU-wide targets for recycling with traceable reporting scheme
 - **Taking up BIOWASTE** as mandatory fraction in the targets for recycling. (... as a classical *PREVENTION* measure, **home composting should not be included here!**). This offers sufficient flexibility for individual MSs considering the variation of settlement density (urbanisation) existing level of recycling and infrastructure.
 - **Mandatory separate collection**
 - Mandatory separate collection schemes for paper, metal, plastic and glass in order to facilitate the high quality of recycling materials; **introducing mandatory separate collection for biowaste by 2020;**

- What the new **Waste Package** should include :
 - **Enforcing / strengthening further the diverting of biodegradable / recyclable waste from landfills**
 - Introducing an obligation for MS to establish a **TAX FOR LANDFILLING** for **non stabilised biodegradable waste** and for incineration of recyclable waste
 - Establishing **STABILITY (BIODEGRADABILITY) STANDARDS** for landfilled **RESIDUAL waste** by adequate pre-treatment techniques (e.g. bio-stabilisation) ...
 - ... in junction with the obligation for recycling of source separated biowaste in the catchment area of the respective landfill site.*
 - Strictly **limiting incineration**, with or without energy recovery, **by 2020, to non-recyclable and non-biodegradable waste;**
 - Encourage Member States to **make use of available EU funding to invest in biowaste separate collection and treatment infrastructure**
 - **Establishing a focussed and experience based education programme on best practice** (affordable, local, from practice to practice) **separate collection systems, treatment of biowaste and marketing of compost and digestate** as integral part of the roadmap towards the recycling society.
 - On this route, also ensuring that the **vocational training** and **higher education** available in the regions of the European Union take account of this aim.