

Sustainable resource- and waste management City of Copenhagen Susanne Lindeneg



**COPENHAGEN
TOGETHER**

CITY OF COPENHAGEN
The Technical and
Environmental Administration

Agenda

1. City of Copenhagen
2. Historical development of waste politics
3. Resource and Waste Management Plan 2018 and the next step ahead: RWMP 2024
4. Waste management in Copenhagen



Facts about Copenhagen

- Capital of Denmark
- 89 km²
- 602.481 inhabitants
 - ~300,000 households
 - 90% living in flats
- 355,000 workplaces
- 80,000 enterprises
- Increase in population
~ 10,000 / year
- 600.000 tonnes of waste/year



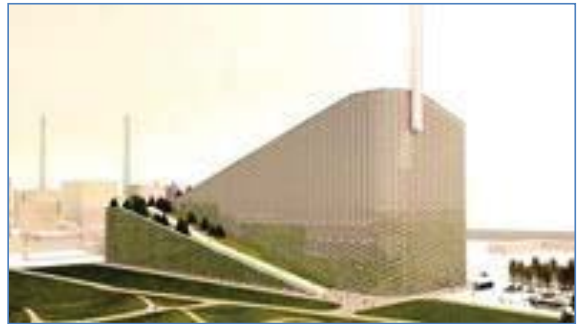
Before 1970 - Dumpsites



- Waste driven to dumpsites
- From the 1960ies:
 - Population growth
 - Rapid economic growth
 - Increasing amount of waste
 - Lack of capacity
 - Something had to be done

Instead of Dumpsites - Incineration

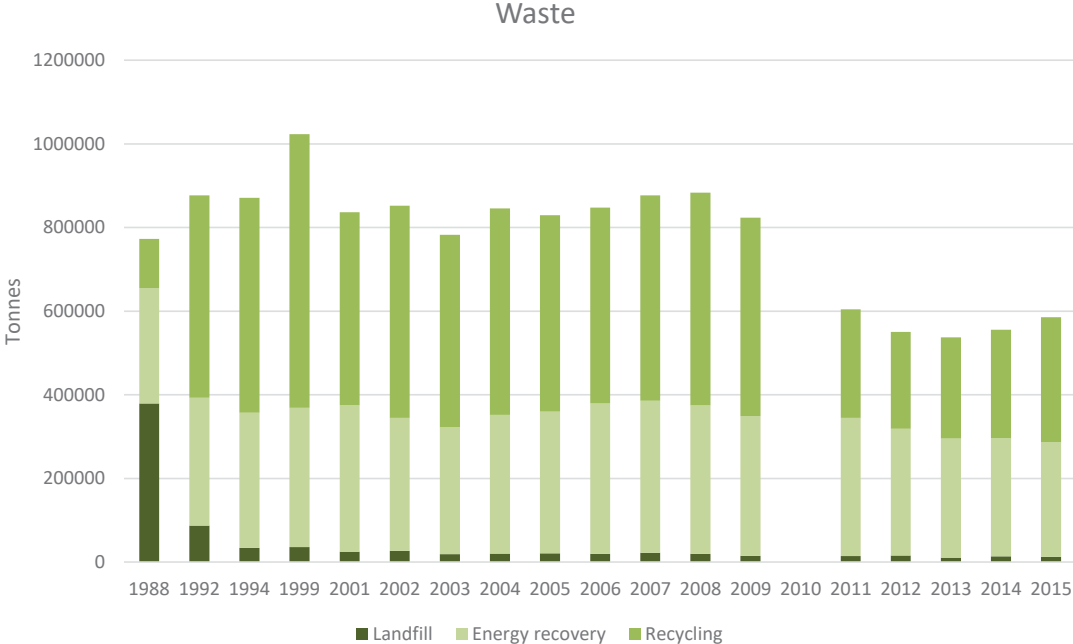
- In 1970, two incineration plants were opened in the vicinity of Copenhagen
- Managed and operated by waste management companies with public ownership
 - ARC in the east of Copenhagen
 - Vestforbrænding just north-west of Copenhagen
- Produce heat and electricity
 - Connected to an extensive district heating system



From Landfilling to Incineration

- **1960-ies** and onward: growing environmental awareness (protection of nature and groundwater)
- Late **1980-ies**: Again lack of landfilling capacity
- New legislation
 - Mandatory waste management plans at municipal level every four years
 - Responsibility for all waste handling placed at municipalities
 - Municipal recycling schemes for paper and glass made mandatory in 1990
- **1987**: New financial incentives from National tax on treatment
 - Recycling: 0 €/tonne
 - Incineration: 45 €/tonne – now transformed into a CO₂-tax
 - Landfilling: 50 €/tonne
- **1997**: Landfilling of combustible waste banned

From Landfill to Incineration and Recycling in Copenhagen



What are the drivers?

External drivers

- Population growth
- Economic development
- Oil crisis (in the 70-ties)
- Environmentalism
- Climate agenda
- Resource agenda
- Circular economy

Policy drivers

- Environmental legislation
- Clear responsibility
- Financial incentives
 - Tax on Landfill/W2E
- Municipal strategies
 - Waste plan
 - Copenhagen vision
 - Climate plan
 - Intermunicipal cooperation

Resources

- Financial resources
- Know-how
- Technology available
- Decision power
- Citizen involvement

The waste-management in Copenhagen

— Principles

- Waste is a resource
- Change from incineration to recycling
- The local level can make a difference
- Every step up the waste hierarchy reduces CO2-emissions
- Focus on resource efficiency and green growth, innovation and circular economy
- Involving the citizen/user



Collection of waste from households in Copenhagen

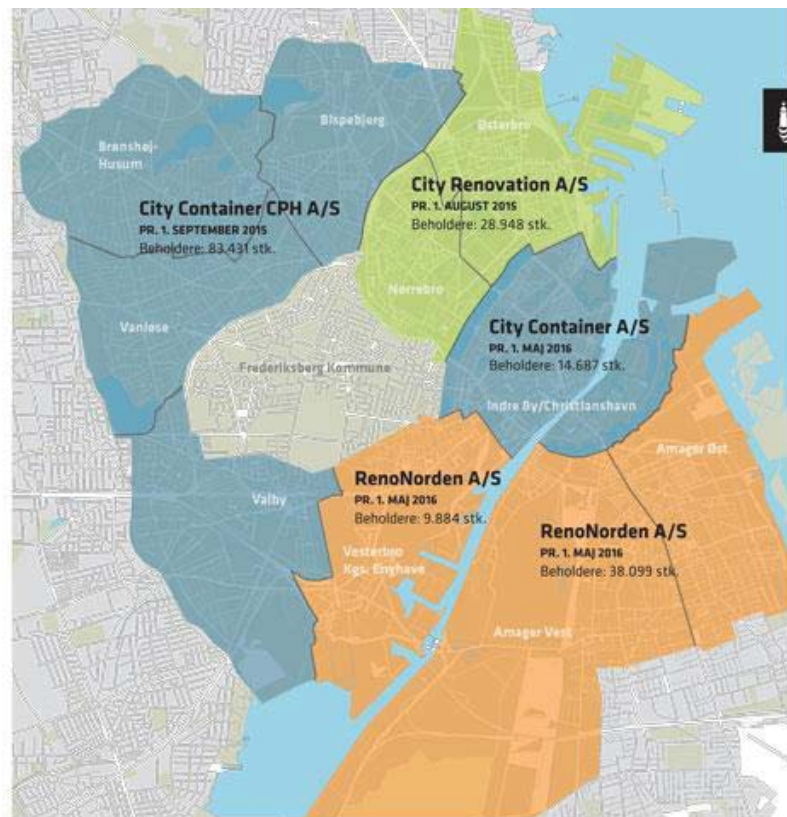
- Source separation
 - Collection schemes
 - Collect- and bring schemes
 - Proximity principle
 - Easy and logical
 - Economic incentive
 - Volume based for residual waste
 - Fixed price for recyclables
 - Waste fee collected with property tax
 - 5 recycling centers (32 fractions)
5 small recycling centers (11 fractions)
 - Free of charge/flat rate charge
- 10 per year



Collection of household waste

Now:

- Collection of waste is tendered
- Tendering in 3 city districts
- Tendering in waste fractions
- Five year contracts
- Service and reliability secured via contracts
- Future: Municipal collection



DE HENTER I HELE BYEN

Beholderservice: M. Larsen A/S pr. 1. november 2016

Mobilsug: RenoNorden A/S pr. 1. november 2018 (har genvundet kontrakten)

Farligt affald: RenoNorden A/S pr. 1. maj 2017

Glas: RenoNorden A/S pr. 1. januar 2015

Haveaffald: M. Larsen A/S pr. 1. januar 2015

Waste collection from multi-storey buildings/flats



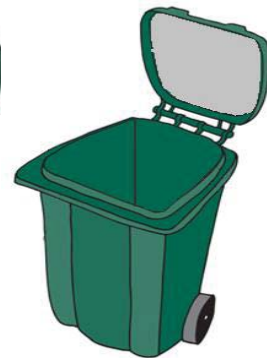
• Residual waste



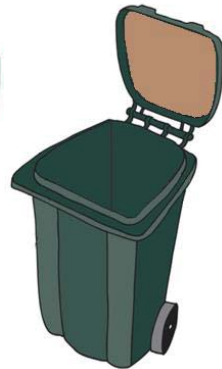
• Cardboard



• Paper



• Plastics



• Bio



- Bulky waste
- WEEE (big)



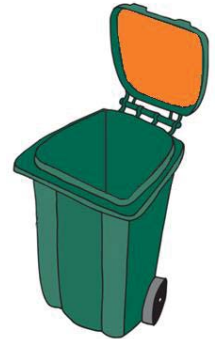
• Hazardous
Need caretaker



• Glass
Optional



• Metals



• Small WEEE

Waste collection from single-family households



- Residual waste
- Bio
- Paper
- Cardboard
- Bulky waste, incl. refrigerators and electronic equipments
- Gardening waste
- Hazardous waste and small weee (red box)
- Plastics
- Metals



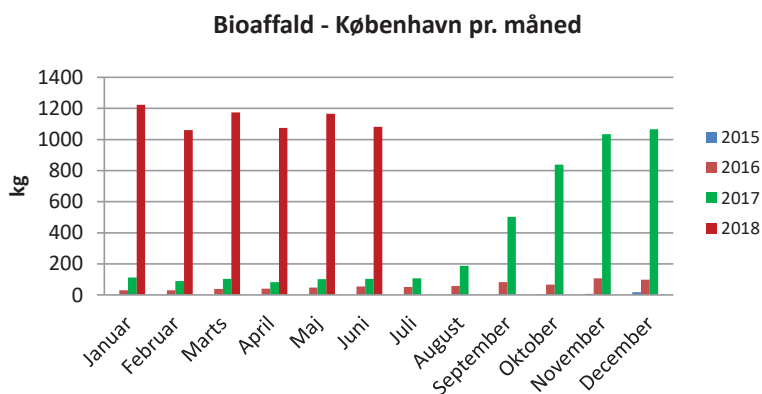
- Glass
- Medicine
- National refund system on bottles



- Recycling stations (32 fractions of waste)
For all citizens and enterprises



Biowaste from 2015... expanded in 2017

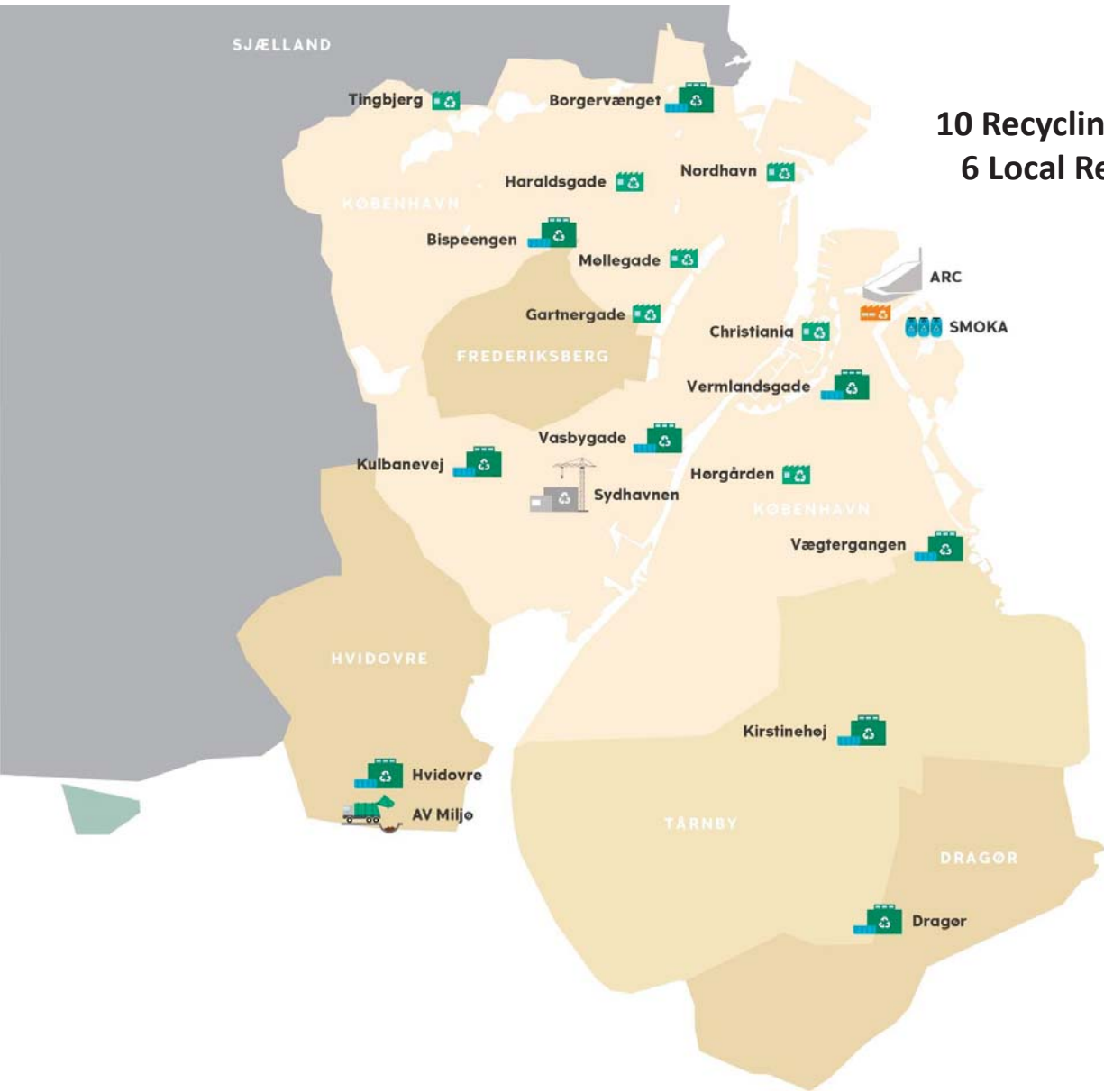


2020: 20.000 tonnes biowaste equals 1.7 mio. m³ of biomethane. CO₂-reduction of 3-5.000 tonnes.

2021: Plan to build a biogas-plant close to the city.

The future: Test and development of a feasible and operational valorisation technology (biobased chemical buildingblocks and proteines).





**10 Recycling Centres
6 Local Recycling Stations**



Waste fees 2017, payment per year

Single-family households	litre/week		
Residual waste bin	140	318	euro
Residual waste bin	180	381	euro
Residual waste bin	240	435	euro
Recycling fee, flat rate		123,3	euro
Total approximately		441–558	euro

Flats

Fixed fee per flat		31-52	euro
Bins, per litre/week		0,70	euro
Recycling fee, flat rate		130,3	euro
Administration fee		11,17	euro
Total approximately		300	Euro

Resource and Waste Management Plan 2018

Targets

- 20 % reduction in waste to incineration
- 45 % of household waste to recycling –
- double recycling of household waste from 2010 to in 2018

- ~ Budget of 300 mio. DKK – 40 mio. EUR

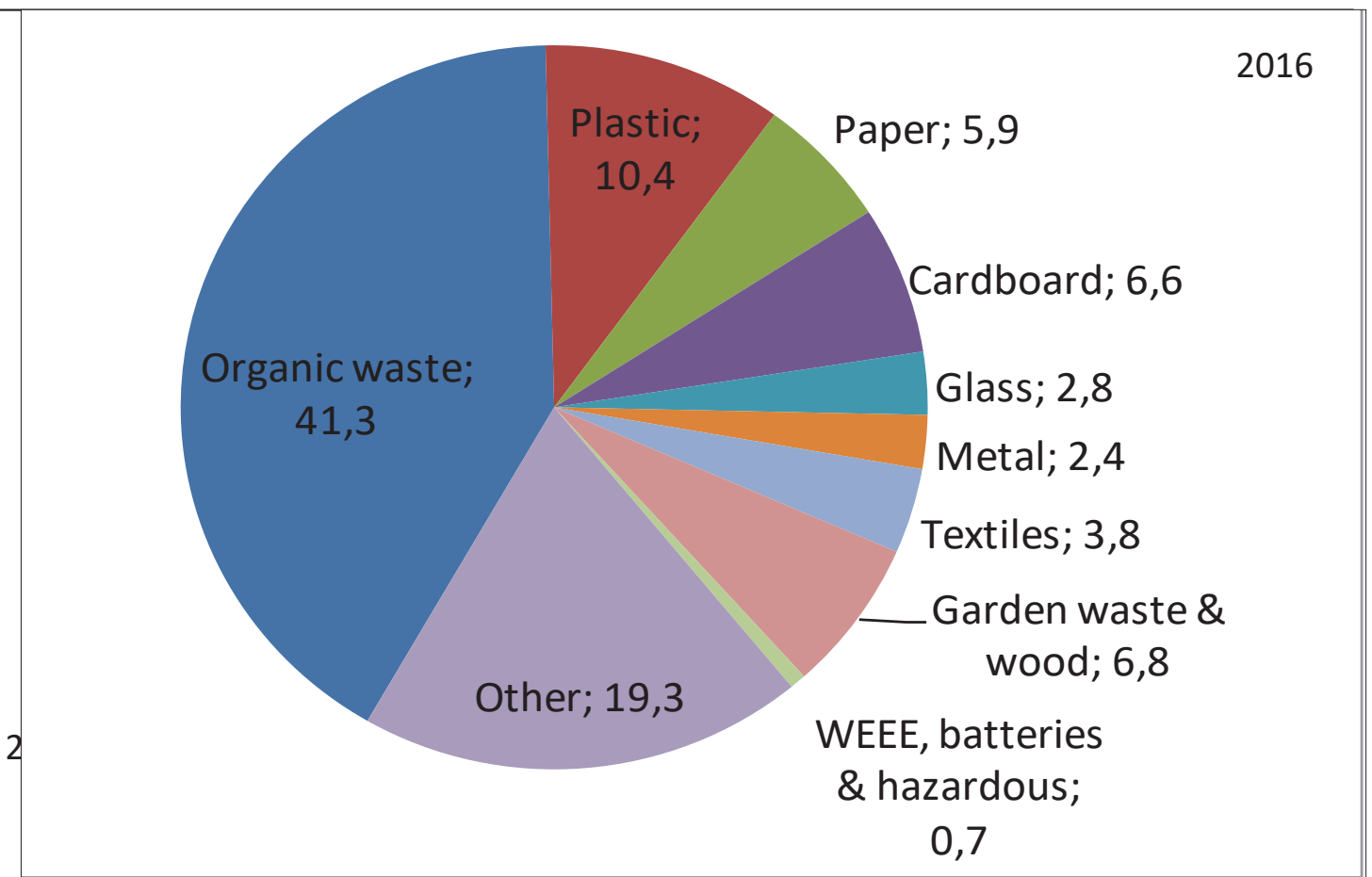


Targets in EU, Denmark and Copenhagen

	EU	Denmark	City of Copenhagen
Recycling-Targets	55 % in 2025, 60 % in 2030 65 % in 2035.	50 % in 2022	45 % in 2018 Both dry and wet fractions (including biowaste) (70 % in 2024)

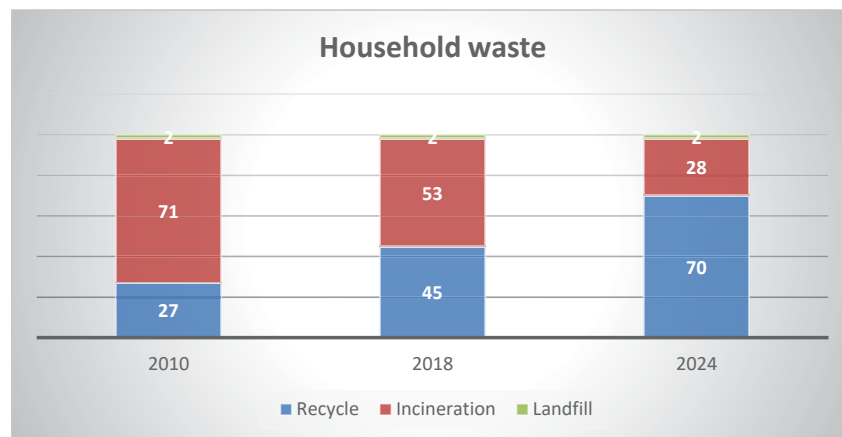
What is in the residual waste-bin?

2016



Ressource and Waste Management Plan 2024

- **70 % recycling** of household waste (70 % recycling of light industry waste)
- **Reduction of 59.000 tons of CO2** in 2024
Carbon neutral CPH in 2025. (Focus on biowaste and plastics)
- Circular Economy – partnerships with enterprises, use of resources, technology development and public procurement.
- Triple reuse
- 120 million EUR



Thank you for your attention!



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