Waste Management in Vienna
Vienna in figures

<table>
<thead>
<tr>
<th>Vienna (capital of Austria)</th>
</tr>
</thead>
<tbody>
<tr>
<td>area</td>
</tr>
<tr>
<td>inhabitants</td>
</tr>
<tr>
<td>density [Inh/km²]</td>
</tr>
<tr>
<td>Number of houses</td>
</tr>
<tr>
<td>Number of households</td>
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</tbody>
</table>
MSW in Vienna: 1,1 Mio. t

waste collected by MA 48 (2012): 1,055,000 tons (609 kg/inh.)

MSW landfilled
7%

MSW recycled
22%

MSW to Waste to Energy
62%

MSW composted
9%

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Approaches in waste management

- separate collection of recyclables
- thermal treatment of residual waste with energy recovery
Waste Collection
## Collection Schemes

<table>
<thead>
<tr>
<th>Type of Waste</th>
<th>Main Collection Schemes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Backyard Collection</td>
</tr>
<tr>
<td></td>
<td>(Pick up system)</td>
</tr>
<tr>
<td>Residual waste</td>
<td>XXX</td>
</tr>
<tr>
<td>Paper</td>
<td>XXX</td>
</tr>
<tr>
<td>Biowaste</td>
<td>XX</td>
</tr>
<tr>
<td>Glass</td>
<td>X</td>
</tr>
<tr>
<td>Metal</td>
<td>X</td>
</tr>
<tr>
<td>Plastics</td>
<td>X</td>
</tr>
<tr>
<td>Other recyclables</td>
<td></td>
</tr>
<tr>
<td>WEEE</td>
<td></td>
</tr>
<tr>
<td>Hazardous waste</td>
<td></td>
</tr>
</tbody>
</table>

*Images of collection bins and recycling centers are shown.*
Residual Waste

- Containers from 120 l up to 2.2 m³
- full service

- Difficulty:
  in old houses containers often situated in the basement (stairs)

=> new buildings must have “waste rooms” near the street on street level

299 kg/inh. 56%
Glass

16 kg/inh.

- since 1977
- separate containers for clear and coloured glass
- collection truck with two-chambers
- since 2004: hook-lift containers (3 m³) (lower noise emission, reduced collection costs)
Paper & Cardboard

- since 1986
- containers in use:
  - 240 l: old buildings (space, stairs)
  - 770 l: new buildings, kerbside collection

71 kg/inh.

13%
Organic Waste

43 kg/inh.

- since 1987
  only “green waste”, no food waste!
  => composting

- since 2007
  collection of kitchen waste offer for restaurants
  => biogas production
Metals

- since 1988
- combined collection of packaging and scrap metal

in addition:
- metal separation (ferrous and non-ferrous) from residual waste after incineration (equiv. 8.0 kg/inh.a)

2 kg/inh.
0.3%
Plastics

- since 1988
  - high share of impurities (~ 40%), low recycling rates

- since 2004 new collection system: only plastic bottles:

  8,000 containers were replaced by so-called “Kermit” containers

Results:
  - Share of impurities < 10%
“Bulky” Recyclables/ Other Waste collection via 19 recycling centers

- since 1988
- opening hours:
  Mo – Sa; 7:00 – 18:00
  (1 recycling center opens on sundays)
- free of charge
Waste Treatment
Treatment of residual waste

c.a. 650,000 t/a
residual waste, bulky waste etc.

incineration plant Flötzersteig

incineration plant Spittelau

incineration plant Pfaffenau

fluidized bed incinerator 4

mechanical treatment

storage

approx. 200,000 t/a
residuals from incineration (ashes/slags)

treatment of slags with separation of metals

approx. 240,000 t/a
stabilized ash-/slag concrete

landfill site Rautenweg

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landfill site Rautenweg
# Waste Incinerators

<table>
<thead>
<tr>
<th></th>
<th>Flötzersteig</th>
<th>Spittelau</th>
<th>WSO4</th>
<th>Pfaffenau</th>
</tr>
</thead>
<tbody>
<tr>
<td>in operation since</td>
<td>1963</td>
<td>1971</td>
<td>2003</td>
<td>2008</td>
</tr>
<tr>
<td>type</td>
<td>grate</td>
<td>grate</td>
<td>fluidised bed</td>
<td>grate</td>
</tr>
<tr>
<td>lines</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>capacity</td>
<td>200,000 t</td>
<td>250,000 t</td>
<td>80,000 t</td>
<td>250,000 t</td>
</tr>
<tr>
<td>heating capacity</td>
<td>66 MW</td>
<td>89 MW*</td>
<td>38 MW</td>
<td>80 MW</td>
</tr>
</tbody>
</table>

* after plant optimisation (2012 – 2015)
Waste to Energy

pipeline length: 1,100 km

flats: 330,000 (of 863,000)

major customers: 6,400

district heat: 5,500 GWh/a

~30 % by incineration of waste and sewage sludge
Treatment of Biowaste

**Kitchen waste, biowaste**
- 20,000 t (inner districts)
- Fermentation plant (since 2007)
- 12,000 MWh/a
- District heating

**Biowaste**
- 100,000 t (outer districts)
- Composting plant (since 1991)
- 40,000 t
- High quality compost (A+)
- Organic agriculture
- Offer to take at recycling centers (free of charge)
- Potting soil (free of peat)
Waste treatment plants

• situated in Vienna

• operated by the City of Vienna

=> high level of self-sufficiency and short distances

- Landfill site Rautenweg
- Incineration plants
- Waste logistic center (incl. bale storage)
- Fermentation plant
- Waste treatment plant (Rinter-Zelt)
- Composting plant
Financing
Financing

- Residual waste
- Biowaste
- Recyclables (non-packaging)
- Hazardous waste

\[\Rightarrow\]

- Waste fee
  - Revenues for recyclables

**Shared producer responsibility:**
- WEEE
- Batteries

\[\Rightarrow\]

- Waste fee
  - 4 collection and recovery systems

**Full producer responsibility:**
- Packaging waste

\[\Rightarrow\]

- 1 collection and recovery system (ARA)
Waste fee

- since 1934 (!)

- charge for residual waste (depending on number of emptyings & bin seize)

example:

- landlord pays for residual waste
- City of Vienna
- residual waste
- fee covers
- biowaste
- waste call-center 546 48
- collection for hazardous waste
- recycling center
- paper + metals (no packaging)

- charge for residual waste (depending on number of emptyings & bin seize)

example:

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More „Waste Management in Vienna“:

Presentations at the „Vienna Waste Management Conference“ (as part of the ISWA WC 2013):

- „We are orange! – Internal & external communication in Vienna“
- „Waste Minimisation – chances and limits of Municipal Waste Management“
- „Acceptance through participation – Strategic Environmental Assessment“
- „Further development of waste collection in Vienna“
- „Closing the loop – Recycling management of organic waste in Vienna“
- „Modernisation & energy optimisation of waste incinerator Spittelau“
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