Waste Management
In The City Of Munich
Waste Management Corporation Munich – Position within the Municipality of Munich

- The Waste Management Corporation AWM is an enterprise of the municipality of Munich
- It receives no benefits from the City's budget
- It is the largest entrepreneur in Munich's environmental sector
- The AWM has no private shareholders and is not a public-private partnership
The Staff

<table>
<thead>
<tr>
<th>The staff (Date: 31.12.2008)</th>
<th>2008</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collectors</td>
<td>513</td>
<td>527</td>
</tr>
<tr>
<td>Drivers</td>
<td>263</td>
<td>261</td>
</tr>
<tr>
<td>Craftsmen</td>
<td>66</td>
<td>60</td>
</tr>
<tr>
<td>Workers</td>
<td>169</td>
<td>173</td>
</tr>
<tr>
<td>Employees</td>
<td>212</td>
<td>208</td>
</tr>
<tr>
<td>Civil Servants</td>
<td>81</td>
<td>75</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,304</strong></td>
<td><strong>1,304</strong></td>
</tr>
</tbody>
</table>
Legal Regulations

• EU-Legislation: Waste Framework Directive

• German Legislation: Act for Promoting Closed Substance Cycle Waste Management and Ensuring Environmentally Compatible Waste Disposal

• Bavarian State Law: Bayerisches Abfallgesetz

• Municipal Bylaws: Abfallsatzung der Stadt München
Waste Management Corporation Munich – Duties (1)

- Collection and treatment of residual waste, paper and organic waste (3-Bin System) and hazardous waste
- Reutilization of recyclable material
- Operation of the landfill
- Operation of 12 recycling centers
- Consulting of households and commercial enterprises
Waste Management Corporation Munich –
Duties (2)

- Generation and application of the municipal waste bylaws
- Generation and implementation of the municipal waste management concept
- Generation and implementation of waste avoidance strategies
- Collection of the waste treatment fee
- Technical planning of waste treatment facilities
Facilities of the Waste Management Corporation
The Waste Management Concept – Legal Objectives

Waste Reduction (quantitative/qualitative)

Reuse and Recycling (material/energetic)

Waste Treatment (thermic treatment)

Waste Disposal (Landfill)
Breakdown of Munich’s Residential Waste – Percentage of Weight

- 40% Organic waste
- 24% Other separately collected waste
- 20% Paper
- 16% Residual waste
Household Waste Management Plan
Cooperation Between the City of Munich and DSD (German Dual System)
Vehicle Fleet

- 180 trucks with waste compactors suitable for all 3 types of waste
- Emptying of all container types possible
- Water-proof containers for organic waste
- Drip pan for organic seepage water collection
- Vehicles with 3 axles to maximize transport capacity
Logistics

- 140 collection crews with 429 collectors
- One crew collects all 3 types of waste
- All containers types in use can be emptied into one collection truck
Offers for Separate Collection

1,32 Mio. inhabitans in 741,000 households

1000 container (Duales System Deutschland)

52 stops of the hazardous waste collection truck, every 4 weeks for 1 hour

12 recycling yards, open 60 hours per week

1 waste incinerator
Münchner Straße 22
85774 Unterföhring

1 waste disposal area (Freimann)
W.-Heisenb.-Allee 62
80939 München

carbside collection
– residual waste
– paper waste
– organic waste
– bulky waste and refrigerators per order

in the street about 200 m
– glass
– metal
– plastic

in the street about 2000 m
– hazardous waste

enclosure about 3000 m
– hazardous waste
– recyclable material
– bulky waste
– garden waste

– waste for thermal treatment
– waste for energy recovery

Landfill, Dry Fermentation Plant Recycling Center for
– large volumes of bulky waste
– recyclables
– asbestos and mineral fibres

date 04/2009
Waste Incineration Plant at Munich North –
Using Combined Heat and Power Generation

• 700,000 t waste incineration capacity
• 661,900 t of waste incinerated in 2007
• 127,128 MWh production of electrical power
• 792,351 MWh production of heat for district heating

• 238,000 t reduction of greenhouse gases per year
Weight of Waste Collected

<table>
<thead>
<tr>
<th>Waste and recyclables from Munich's households</th>
<th>2006</th>
<th>2007</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residual waste</td>
<td>311.502 t</td>
<td>304.662 t</td>
<td>233 kg/EW/a</td>
</tr>
<tr>
<td>Paper</td>
<td>101.297 t</td>
<td>104.684 t</td>
<td>80 kg/EW/a</td>
</tr>
<tr>
<td>Bulky waste</td>
<td>46.152 t</td>
<td>45.022 t</td>
<td>34 kg/EW/a</td>
</tr>
<tr>
<td>Organic</td>
<td>35.826 t</td>
<td>38.681 t</td>
<td>30 kg/EW/a</td>
</tr>
<tr>
<td>Glass</td>
<td>26.194 t</td>
<td>25.990 t</td>
<td>20 kg/EW/a</td>
</tr>
<tr>
<td>Wood</td>
<td>25.990 t</td>
<td>25.738 t</td>
<td>20 kg/EW/a</td>
</tr>
<tr>
<td>Garden waste</td>
<td>15.843 t</td>
<td>14.138 t</td>
<td>11 kg/EW/a</td>
</tr>
<tr>
<td>Packaging</td>
<td>7.199 t</td>
<td>6.902 t</td>
<td>5 kg/EW/a</td>
</tr>
<tr>
<td>Textiles</td>
<td>1.417 t</td>
<td>1.461 t</td>
<td>1 kg/EW/a</td>
</tr>
<tr>
<td>Hazardous waste</td>
<td>801 t</td>
<td>694 t</td>
<td>1 kg/EW/a</td>
</tr>
<tr>
<td>Cork</td>
<td>10 t</td>
<td>6 t</td>
<td>0 kg/EW/a</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>571.651 t</strong></td>
<td><strong>568.020 t</strong></td>
<td><strong>435 kg/EW/a</strong></td>
</tr>
</tbody>
</table>

date 04/2009
## The Waste Fee

<table>
<thead>
<tr>
<th>Size of the bin</th>
<th>Weekly collection</th>
<th>Collection every 14 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>80 litres</td>
<td>274.56 Euro/year</td>
<td>141.96 Euro/year</td>
</tr>
<tr>
<td>120 litres</td>
<td>365.04 Euro/year</td>
<td>188.76 Euro/year</td>
</tr>
<tr>
<td>240 litres</td>
<td>641.16 Euro/year</td>
<td>332.28 Euro/year</td>
</tr>
<tr>
<td>770 litres</td>
<td>1.750.32 Euro/year</td>
<td>909.48 Euro/year</td>
</tr>
<tr>
<td>1100 litres</td>
<td>2.330.64 Euro/year</td>
<td>1.243.32 Euro/year</td>
</tr>
</tbody>
</table>

The collection of the blue bin and the brown bin is included in the waste fee.
The Waste Fee Provides the Following Services

• Collection of the bins for residual, paper and organic waste
• Using the Recycling Centers for 30 different waste fractions
• Collection of hazardous waste
• Collection of Christmas trees
• Information material
• Consulting
• Providing the waste collection bins (10 different sizes)
• Rearrangement of waste bins
• Call-Center
Conclusions

• Substance recycling has more environmental benefits than energy recovery
• Comfortable separate collection at the source fosters substance recycling
• Waste incineration ensures the sustainability of waste management concepts
• It saves fossil fuel and lowers emissions of greenhouse gases
• Combined heat and power generation (KWK) should be preferred
• The NIMBY-effect may slow down the planning process of incineration plants
Outlook

- The new EU waste legislation confirms Munichs‘ waste strategy
- The approved separate collection via 3 bin-system will persist
- Targeted public relations and awareness campaigns will enhance the systems efficiency
- Energy generation from organic waste will lower greenhouse gas emissions
- Waste incineration with combined heat and power generation will remain the backbone of Munichs‘ waste management system
Thank you very much for your interest!

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