The Austrian Experience in Waste Management Auditing

Dr. Carolin Heiß-Ziegler
Austrian Court of Audit
The Austrian Experience in Waste Management Auditing

Department for Comprehensive Environmental Protection, Agriculture and Forestry

- Audits on the implementation of the Austrian Landfill Directive
  6 Laender reports, 1 overall report
- Audits on municipalities associations
  Random samples, targeted audits
Austrian Landfill Directive:

- From 1 January 2004 only non reactive waste must be landfilled
- Implementation by the Laender
- Extention of time possible
- Waste incineration and mechanical-biological pre-treatment are regarded equivalent
Austrian Landfill Directive:

- Only 4 of 9 Land with landfill directive fulfilled landfill criteria in 2004.
- 2 Laender needed time extension to finish plants.
- 1 Land (Tyrol) still has no treatment option.
Austrian Landfill Directive:

- Even after the implementation of the Directive reactive wastes (textiles, screenings, bitumen) were landfilled (Source: Landfill Supervision Reports)

- Specific landfill prohibition disregarded:

Recommendations:
Check landfill prohibitions timely, inform landfill operators, control landfill input continuously
Austrian Landfill Directive:

- Waste incineration and mechanical-biological pre-treatment are regarded equivalent
- No coordination at federal level
- Only few Laender cooperated
- Several plants of uneconomic size
Austrian Landfill Directive:

<table>
<thead>
<tr>
<th></th>
<th>&gt; 300.000 t/a</th>
<th>&lt; 300.000 t/a</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste Incineration Plans</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>Mechanical-biological Pretreatment Plants</td>
<td>2</td>
<td>12</td>
</tr>
</tbody>
</table>
Mechanical-biological Pre-treatment Guideline, 2002:

- Benchmarks for equipment, operation, emissions of pre-treatment plants
- Legally not binding
- Unequal standards for Austrian plants esp. regarding gaseous emissions

Recommendation: legally binding directive
Austrian Federal Waste Management Plan 2001:
65 % minimum energy efficiency of waste incineration plants
The Austrian Experience in Waste Management Auditing

<table>
<thead>
<tr>
<th></th>
<th>Type</th>
<th>Location</th>
<th>Capacity (t/a)</th>
<th>En.eff. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carinthia</td>
<td>GF</td>
<td>Arnoldstein</td>
<td>80,000</td>
<td>23</td>
</tr>
<tr>
<td>Lower Austria</td>
<td>GF</td>
<td>Zwentendorf</td>
<td>300,000</td>
<td>29</td>
</tr>
<tr>
<td>Upper Austria</td>
<td>GF</td>
<td>Wels 1</td>
<td>75,000</td>
<td>25</td>
</tr>
<tr>
<td>Upper Austria</td>
<td>GF</td>
<td>Wels 2</td>
<td>230,000</td>
<td>25</td>
</tr>
<tr>
<td>Upper Austria</td>
<td>FB</td>
<td>Lenzing</td>
<td>300,000</td>
<td>80</td>
</tr>
<tr>
<td>Styria</td>
<td>FB</td>
<td>Niklasdorf</td>
<td>100,000</td>
<td>80</td>
</tr>
<tr>
<td>Styria</td>
<td>CM</td>
<td>Peggau</td>
<td>41,900</td>
<td>80</td>
</tr>
<tr>
<td>Styria</td>
<td>CM</td>
<td>Retznei</td>
<td>80,000</td>
<td>80</td>
</tr>
<tr>
<td>Vienna</td>
<td>GF</td>
<td>Flötzersteig</td>
<td>200,000</td>
<td>72</td>
</tr>
<tr>
<td>Vienna</td>
<td>GF</td>
<td>Spittelau</td>
<td>200,000</td>
<td>75</td>
</tr>
<tr>
<td>Vienna</td>
<td>FB</td>
<td>Simmering</td>
<td>270,000</td>
<td>75</td>
</tr>
</tbody>
</table>

GF ... grate firing  FB ... fluidised bed  CM ... cement mill
Austrian Federal Waste Management Plan 2001:
65 % minimum energy efficiency of waste incineration plants

Recommendation:
Waste heat recovery should be a fundamental criterion for selecting waste incineration sites
Waste Management Plans of *Laender*:
Differing quality of plans

**Recommendations:**
- Describe and analyse the present situation
- Precise and quantify targets
- Set measures for target achievement
- Evaluate target achievement
The Austrian Experience in Waste Management Auditing

Municipalities Associations:

• Regulations of Laender differ

Establishment: optional, obligatory

Tasks: collection / collection and pre-treatment of municipal solid wastes

• Many municipalities still operate collection on their own

Recommendation:
establish municipalities associations and delegate tasks extensively
Recycling Centres:

- Not available area-wide in some Laender
- Heterogeneous service (opening hours, types of wastes, costs)
- Complicated settlement of accounts between member municipalities

Recommendations: area-wide availability, simple settlement of accounts, finance by disposal fees, regulate services through subsidies
Separate Collection:


- Paper collection, Burgenland: change from bring system to collect system paper in residual waste 14 ➔ 9 %, collection rate 56,5 ➔ 65,5 kg/head.a
Separate Collection:

- Bulky waste:
  Problems with collect system

- Plastics:
  Only 1/3 is recyclable (e.g. plastic bottles);
  some Laender adjust collection system;
  additional expenses for municipalities (estimations up to 38 %), less expenses for ARA
Separate Collection – Recommendations:

- Develop fees to support separate collection (cost recovery versus cross-subsidy)
- Change collection of bulky wastes to bring system
- Cost savings from the separate collection of plastics must be passed on to municipalities
- Importance of residual waste analysis
The Austrian Experience in Waste Management Auditing

Sureties for landfill aftercare:

• Landfill operators had to provide surety for landfill aftercare (financial surety or declaration of liability) by 1 January 2004 – operator obligation

• Partly non-existing, partly insufficient, partly not available (despite charged within fees)

Recommendations:
Administration should demand sureties; Quantify declarations of liability to inform association / municipalities on future financial obligations;
Sureties for landfill aftercare:

- Aftercare and Commitment Fund (Vorarlberg)

Land has private-law contracts with all landfill operators; Operators contribute to Fund on the basis of tons of waste landfilled; Land finances aftercare measures after landfill closure;

Recommendation: trend-setting model
Sureties for landfill aftercare:

Mechanical-biological Pre-treatment Plant Stockerau:

Inappropriate plant, illegal accumulation of not pre-treated wastes around the plant, estimated costs for transport and treatment of wastes:

Recommendation:
Sureties also for treatment plants depending on waste types and capacities
The Austrian Experience in Waste Management Auditing

Thank you very much for your attention!!