Hungarian Waste Management Policy

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ECENA Train the Trainer Programme on Waste Landfill Directive and Waste Incineration

Amount of waste in Hungary, 2004

• Altogether 76 million tons
• 60.1 mln t production waste, non-hazardous
  – 25 mln t agricultural
  – 10 mln t industrial
  – Construction, etc.
• 7 mln t municipal liquid waste
• 4.6 mln t municipal solid waste (MSW)
• 4.3 mln t hazardous waste
Composition of MSW, 2004

- 37.5 % organic
- 14.5 % paper
- 12.1 % plastic
- 3.6 % glass
- 3.8 % metal
- 3.1 % textile
- 1 % hazardous waste
- 24.4 % other

This is what can be recycled 34 m%

Expected trends until 2010

- Paper increases up to 25-30 m%
- Plastic increases up to 15-17 m%
- Organic decreases down to 25-30 m%

Packaging
- Packaging reaches 807,700 tonnes – 17.4 m% of the total MSW
Waste amount

Waste generated by sectors, 1990–2002

- * estimated data

Waste composition

Composition of municipal waste in Budapest, 1980–2002
Waste amount in some countries

The composition of the municipal solid waste, 2004 (total amount 4.6 million tons/year)
Packaging emission by material type in 2005 (m%)

- Plastic: 28.60%
- Textile with natural base: 26.30%
- Glass: 7.39%
- Composite: 18.20%
- Wood: 16.10%
- Metal: 3.40%
- Paper and cardboard: 0.01%

Waste Management Act

Waste Management Framework Act
(came into force on 1st January, 2001 including 35 decrees)

- in every packaging material utilisation rate should reach 50%, recycling in the material itself should reach 15% at every type by 1st July, 2005
- compostable content of the landfilled waste should reach 75% by 1st July, 2004; 50% by 2007; 35% by 2014 (Hungary has the right for more 2 years)

- selective waste collection should be established for at least 4 million people by 2005, and for 6 million people by 2008
- waste management plans should be elaborated (regional for the 7 regions, local - for municipalities, individual - for companies)

Regional Waste Management Plans

- Data are different from the data of the National Waste Management Plan
- The regions are not compliant with the ISPA and Cohesion Fund waste management regions data
Regions of Hungary

Name of the regions

Translation of the regions is the following:

- Nyugat-Dunántúl – West-Transdanubia
- Közép-Dunántúl – Mid-Transdanubia
- Észak-Magyarország – North-Hungary
- Észak-Alföld – North-Alföld
- Dél-Alföld – South-Alföld
- Dél-Dunántúl – South-Transdanubia
- Közép-Magyarország – Mid-Hungary
Product fee

- Act came into force in 1995
- Due to the EU harmonisation the licence fee was introduced
- Several organisations were established for different types of waste (packaging, car battery, plastic, tyres, EEW etc.)
- Licence fee and product fee works parallel
- From 1 January 2008 the Custom office controls the payment

Strategies in Hungary (related to waste)

- Waste Management Act XLIII of 2000
- National Environmental Programme II. 2003-2008
- National Waste Management Plan 2003-2008 (under revision)
- New Hungary Development Plan
- Solid waste development strategy
- Solid waste supporting strategy
New Hungary Development Plan

- Period: 2007-2013
- Environment and Energy Operative Programme
  - Budget for environmental investments:
    4,916,289,813 euro

Solid waste development strategy

- Települési Szilárdhulladék-gazdálkodási Fejlesztési Stratégia
- Period: 2007-2016
- Assumptions:
  - Recovery of the MSW 40% by 2009-ig, 50%-by 2013 (in material or thermal)
  - Ensure the selective waste collection facilities for 60% of the inhabitants by 2009, for 80% by 2013
The packaging waste generation and the amount which have to be recycled (1000 tons)

<table>
<thead>
<tr>
<th>Class</th>
<th>Generated amount</th>
<th>Utilized</th>
<th>From recycled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glass</td>
<td>165</td>
<td>20</td>
<td>this:20</td>
</tr>
<tr>
<td></td>
<td>175</td>
<td>19</td>
<td>117-120</td>
</tr>
<tr>
<td></td>
<td>195-200</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paper</td>
<td>370</td>
<td>216</td>
<td>this:201</td>
</tr>
<tr>
<td></td>
<td>400</td>
<td>296</td>
<td>328-345</td>
</tr>
<tr>
<td></td>
<td>450-460</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metal</td>
<td>95</td>
<td>35</td>
<td>this:35</td>
</tr>
<tr>
<td></td>
<td>90</td>
<td>54</td>
<td>79-85</td>
</tr>
<tr>
<td></td>
<td>125-130</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plastic</td>
<td>160</td>
<td>29</td>
<td>this:15</td>
</tr>
<tr>
<td></td>
<td>170</td>
<td>43</td>
<td>45-48</td>
</tr>
<tr>
<td></td>
<td>200-210</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>790</td>
<td>300</td>
<td>this:271</td>
</tr>
<tr>
<td></td>
<td>835</td>
<td>422</td>
<td>535-550</td>
</tr>
<tr>
<td></td>
<td>970-1000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Waste amount:
- Home composting: 80
- Separate waste collection: 460 (10%)
- Mixed waste collection: 4050
- Incineration: 155
- MB waste: 40
- Loss: + 16
- Landfilling: 3904 (85%)
- Recycling from selective waste collection: 340
- Biological treatment: 120
The waste flow for 2016 (1000 tons)

Waste management financing strategy

A TELEPÜLÉSI SZILÁRDHULLADÉKGAZDÁLKODÁS TÁMOGATÁSI STRATÉGIÁJA

- Period: 2007-2015
- Assumptions:
  - the treatment capacities will be built by the end of 2015
  - The Budapest incinerator will burn the same amount (420.000 tons/year)
  - Selective waste collection must be increased
  - Organic fraction should be composted (home composting)
  - Waste landfilling is decreased (by using mechanical biological treatment)
Incinerator study

- Not a separate strategy, it was made for in-house use for the Ministry by MKM-Consulting Kft.
- Main points: the waste which cannot be recycled will be treated by mechanical biological treatment. (→ landfilled or co-incinerated - 12-17 MJ/kg)

Co-incineration opportunities

- **Cement factories**
  - Beremend and Hejőcsaba, capacity 10-10 000 t/y

- **Power plants**
  - Mátra power plant: capacity for co-incineration: 200 000 t/y
  - Vértes power plant: 20 000 t/y
  - Bakonyi power plant: co-incineration is planned
  - Pannon Power (Pécsi power plant): co-incineration is planned
  - AES Borsod power plant: co-incineration is not planned

- **Assumptions:**
  - average waste amount: 2006 year: 357 kg/capita, 2015: 400 kg/capita, 2015: 439 kg/capita
  - Incineration project can start only in an area where there is no available minimum 5 year landfilling capacity
Incinerators in Hungary, 2006

- 1 piece of MSW incinerator (Rákospalota, Budapest), capacity: 420,000 tons/year
- Additional 21 pieces of incinerators at 19 locations (co-incineration, hazardous waste, medical waste, sludge)

Planned incinerators 1

- Regional systems (2007-2014) – EU funding
  - Inota-Várpalota: Közép-Duna valley waste management system
  - Tatabánya: Duna-Vértes waste management system
  - Orosháza: Dél-Kelet wms

Other waste management systems
- Miskolc/ Hejőpapi/ Visonta/ Eger (Heves or Miskolc wms)
- Sajókaza
- Hajdúbőszörmény surrounding
- Szeged
- Győr-Bácsa (Sopron)
Planned incinerators 2

Private funding
- Gyöngyös (Ecolnet-WTP) - 80,000 t/év
- Szentgotthárd-Heiligenkreuzi (Begas AG)
- (Dunakeszi) 50,000 t/év

Co-generation
- Nyergesújfalu - cementgyár - 75,000 t/év
- Visonta
- Pécs Pannon Power v. Beremend
- Polgár: gumihulladék

The planned collection regions of the planned incinerations
Landfill capacity in 2015

Waste treatment centres from ISPA and Cohesion projects
### Main characteristics of the regions

<table>
<thead>
<tr>
<th>Name of the region</th>
<th>Center of the Region</th>
<th>Area (km²)</th>
<th>Population (000)</th>
<th>Counties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Észak-Alföld</td>
<td>Miskolc</td>
<td>13 428</td>
<td>1 289</td>
<td>Borsod-Alajú-Zemplén, Heves, Nógrád</td>
</tr>
<tr>
<td>Észak-Alföld</td>
<td>Debrecen</td>
<td>17 749</td>
<td>1 554</td>
<td>Hajdú-Bihar, Jász-Nagykun-Szolnok, Szabolcs-Szatmár-Bereg</td>
</tr>
<tr>
<td>Dél-Alföld</td>
<td>Szeged</td>
<td>18 339</td>
<td>1 367</td>
<td>Bács-Kiskun, Békés, Csongrád</td>
</tr>
<tr>
<td>Közép-Magyarország</td>
<td>Budapest</td>
<td>6919</td>
<td>2 825</td>
<td>Pest</td>
</tr>
<tr>
<td>Közép-Dunántúl</td>
<td>Székesfehérvár</td>
<td>11 237</td>
<td>1 114</td>
<td>Komárom-Esztergom, Fejér, Veszprém</td>
</tr>
<tr>
<td>Nyugat-Dunántúl</td>
<td>Győr</td>
<td>11 209</td>
<td>1 064</td>
<td>Győr-Moson-Sopron, Vesz, Zala</td>
</tr>
<tr>
<td>Dél-Dunántúl</td>
<td>Pécs</td>
<td>14 169</td>
<td>989</td>
<td>Baranya, Somogy, Tolna</td>
</tr>
</tbody>
</table>

### ISPA and Cohesion Projects

- There are 12 ISPA and 1 Cohesion Fund project approved
- Process acceptance takes 4-5 years
- Cover 60% of the population
- Regional systems
- Big landfill, big transport, big facilities
- Prevention is highlighted only recently
Financing background in MSW

• EU funds
  – ISPA Fund for more than 4 million euro/project
  – Cohesion Fund for more than 10 million euro/project (before 2007)

• Hungarian State
• Municipalities

Changes in the Cohesion Fund

• The Hungarian state can make decisions no need to send it to Brussels (under a financial limit)
• No need to make large projects
• EU: cut offs
• More local initiatives are required
• Recultivation is taken out from the current projects, and will be treated separately
North East Pest system

• Problem: No place for the landfill
• Solution: Kerepes undertake the place of the landfill

North Balaton system

• Problem: Strong public opposition against the proposed place of the landfill in Szentgal
• Solution: Kiralyszentistván undertook the location
Mid Duna Valley system

- This is the first incineration project in the EU
- Incineration itself produces income, why finance?
- Problem: the location of the incinerator. Very strong public and political opposition in Inota
- Solution: ?

Conclusion

- As Hungary joined the EU the waste management system was also improved
  - Legislation: Waste management Act, regional waste management plans, operative programmes
  - Financing: EU financed app. 80% of the projects
- Problems:
  - regional planning was weak, not taking into account other projects
  - no adequate consultations for the public -> strong opposition from the inhabitants
  - not always the best technology is taken to Hungary (incineration, MBT)
- Waste management issue is highlighted, accepted
- The Ministry and the NGOs are able to work together