WASTE MANAGEMENT STATISTICS IN THE CZECH REPUBLIC

Iva Ritschelova
Institutional conditions: 
Waste management legislation

- 1991: initial act in the field of waste
- 1997: new waste act
  - two categories: hazardous and other waste
  - restricted operation of hazardous waste
- 2001: current act on waste
  - + Decree of the Ministry of the Environment (MoE) on details of waste management
  - compatibility with waste management legislation of the EU
- 2015-2016: new act on waste
  - comment procedure going on
Institutional conditions: Waste statistics

- Legal Basis
  - State Statistical Service Act
    - guarantee of individual information protection
  - Annual Program of statistical surveys
    - duty to respond
- Regular waste generation survey since 1992
- CZSO environmental department
  - Established in 1993
  - Personnel capacity aprox. 8-9 employees
  - 2 full-time positions performing survey in the field of waste management statistics (excluding processing staff)
Waste statistics evolution (1/2)

- **80’s:** 2 stand-alone surveys of waste landfills and waste production (1980 and 1987)
- **1992 – 1997 regular survey:**
  - Only hazardous and special waste waste covered
  - In 1995 the survey was expanded by the ID of the organization to which the given waste was transferred
- **1998 survey:**
  - new waste list
  - new codes for the disposal and use
  - “other waste” category
  - more extensive set of respondents
Waste statistics evolution (2/2)

- 1999-2008 survey:
  - data on waste generated by enterprises
    - (broke down by hazardous and other waste)
  - waste generated by municipalities
    - (including separately collected categories)
  - waste management
    - (recovery, disposal, etc.)
- 2009: „rotary“ survey model
- 2012: introduction of secondary raw materials indicators
  - reflects the latest political and economic conditions
  - exceptional attention at the EU level – „circular economy“
Report on waste: Data production cycle

1. Business Register
2. Coordination DB
3. Set of municipalities
4. Record DB
5. Data acquisition
6. Input DB
7. Input data verification
8. Central processing
9. Verification of provisional data
10. Saving definitive data
11. Central DB

- Sending out statements
- Checking of set of respondents
- Generation of set of respondents
- Data acquisition
- Input data verification
- Central processing
- Verification of provisional data
- Saving definitive data
Contents of the technical project

4. Report form

6. Primary input data
   6.1. Survey structure
   6.2. CZSO data sources
   6.3. Technical medium
   6.4. Definition of reporting units
       6.4.1. Sampling criteria

7. Other data sources

8. Processing technology
   8.1. Technology description
   8.2. Comment

9. Controls, corrections and derived variables
   9.1. Definition of responsibilities
   9.2. Control operations
   9.3. Description of controls
   9.4. Error reports
   9.5. Control tables
   9.6. Reverse data corrections

10. Databases
    10.1. Input databases
    10.2. Source databases
    10.3. User databases

11. Project schedule

12. Verification schedule

13. Routine processing schedule

14. Data sets structure

15. Annexes

16. Changes compared to previous year and additional adjustments
Report on waste Registers and classifications

- Business Register (CZSO)
- Register of municipalities (CZSO)
- CZ-NACE (CZSO)
- CZ-NUTS (CZSO)
- List of waste (MoE decree)
  - waste codes + hazardous and non-hazardous
- List of recovery/disposal (EU Regulation) and other treatment operations (MoE decree)
- List of waste treatment facilities (MoE evidence)
Waste generation and treatment by businesses: Basic sampling set of respondents

- CZ NACE codes with No of employees greater than a threshold
- **Core** respondents (*annual reporting*)
  - the most significant respondents with the highest amount of waste generation and treatment + extra facilities significant for different reasons
  - Total of 300 companies generating approx. 75% of waste
- **Annex** respondents (one [out of 3] parts *once every 3 years*)
  - all the rest divided into thirds (Part I, Part II, Part III)
  - e.g. Part I reports data and data for Part II and Part III is imputed from previous years

<table>
<thead>
<tr>
<th>Number of employees</th>
<th>NACE Rev. 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 0</td>
<td>37, 38, 39, 46.77</td>
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<tr>
<td>&gt;= 5</td>
<td>46.75</td>
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<tr>
<td>&gt;= 20</td>
<td>41-43, 74.2, 81.2, 81.3</td>
</tr>
<tr>
<td>&gt;= 25</td>
<td>01-36, 45.1, 45.2, 47, 49.1-49.4, 55, 56, 59, 61.1-61.2, 96.01-96.03</td>
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<td>&gt;= 50</td>
<td>86, 87.1-87.3</td>
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Waste generation and treatment by businesses: Rotary model details

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Registered businesses</td>
<td>units</td>
<td>1 269 221</td>
<td>1 256 771</td>
<td>1 345 589</td>
<td>1 399 983</td>
<td>1 513 556</td>
</tr>
<tr>
<td>Selected businesses</td>
<td>units</td>
<td>18 106</td>
<td>16 896</td>
<td>16 369</td>
<td>8 812</td>
<td>7 392</td>
</tr>
<tr>
<td>Businesses response</td>
<td>units</td>
<td>15 865</td>
<td>14 104</td>
<td>13 673</td>
<td>6 833</td>
<td>7 255</td>
</tr>
<tr>
<td>Businesses response</td>
<td>%</td>
<td>87,6</td>
<td>83,5</td>
<td>83,5</td>
<td>77,5</td>
<td>98,1</td>
</tr>
</tbody>
</table>

- **Pros:**
  - Reduction of respondent number by almost a half
  - Data meets requirements of Regulation on waste statistics

- **Cons:**
  - Limited range of data
  - Data is only good for tracking development trends
  - Detailed regional breakdown (e.g. NUTS III) impossible
Waste generation and treatment by municipalities: Basic sampling set of respondents

- Random selection procedure stratified according to NUTS2 regions and number of inhabitants
  - In 2014: 1501 from total number of 6253
- Exhaustive survey of municipalities with over 10 thous. inhabitants

<table>
<thead>
<tr>
<th>Number of inhabitants</th>
<th>Number of municipalities</th>
<th>Response in %</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>selected</td>
<td>response</td>
</tr>
<tr>
<td>under 200</td>
<td>121</td>
<td>113</td>
</tr>
<tr>
<td>201 to 999</td>
<td>489</td>
<td>478</td>
</tr>
<tr>
<td>1 000 to 9 999</td>
<td>760</td>
<td>753</td>
</tr>
<tr>
<td>10 000+</td>
<td>131</td>
<td>131</td>
</tr>
<tr>
<td>CR total</td>
<td>1501</td>
<td>1475</td>
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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Registered municipalities units</td>
<td>6 249</td>
<td>6 249</td>
<td>6 249</td>
<td>6 250</td>
<td>6 251</td>
<td>6 253</td>
</tr>
<tr>
<td>Selected municipalities units</td>
<td>981</td>
<td>979</td>
<td>994</td>
<td>982</td>
<td>1 503</td>
<td>1 501</td>
</tr>
<tr>
<td>Municipalities response units</td>
<td>923</td>
<td>915</td>
<td>947</td>
<td>957</td>
<td>1 429</td>
<td>1 475</td>
</tr>
<tr>
<td>Municipalities response %</td>
<td>94,1</td>
<td>93,5</td>
<td>95,3</td>
<td>97,5</td>
<td>95,1</td>
<td>98,3</td>
</tr>
</tbody>
</table>
Data verification

- **Respondent unit ID:**
  - formal requirements (e.g. No of company ID symbols)
  - accuracy (e.g. Business Register presence)

- **Classifications and code lists:**
  - logical control of impermissible codes with regard to classifications and code lists

- **Completeness:**
  - filling in of the required lines
  - balancing and check sums

- **Empirical checks:**
  - relation to the legal standards
  - methodological instructions
  - experience with collection
For more technical details...
Outputs:
Primary users

- The European Commission
- State administration:
  - the Parliament, MoE, Ministry of Industry, Regional Authorities
- International organizations:
  - OECD, EUROSTAT, UN, WB, EEA
- Academia
- National and regional media
- General public
Administrative Data of the MoE

- MoE has its own administrative information system
- Known issues:
  - Administrative burden (80 thous. of respondents (MoE) vs. 10 thous. (CZSO))
  - Double counting
    - No company register
    - Reporting units are local units of companies and municipalities
  - “Waste generation” and “waste treatment” are not strictly separated from each other (i.e. no separate classification system)
  - Collection, processing and dissemination is not in line with international statistical classifications (e.g. NACE, NUTS, etc.) and with international legislation (definitions and terms)
  - No binding deadlines for collection, processing and dissemination
  - “Non-waste” (secondary raw materials) is not covered by the law
Waste management data for the Czech Republic: National Level – CZSO vs. MoE

Municipal waste generation in the Czech Republic

kg/cap


MoE (CENIA)
CZSO
CZSO (municipal waste + similar commercial, industrial and institutional wastes)

Sources: CZSO, MoE
Waste management data for the Czech Republic: Regional Level - CZSO

<table>
<thead>
<tr>
<th>Year</th>
<th>Hl. m. Praha</th>
<th>Středočeský</th>
<th>Plzeňský</th>
<th>Královehradecký</th>
<th>Olomoucký</th>
<th>Moravskoslezský</th>
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<tr>
<td>2008</td>
<td>300</td>
<td>350</td>
<td>320</td>
<td>280</td>
<td>260</td>
<td>250</td>
</tr>
<tr>
<td>2009</td>
<td>310</td>
<td>340</td>
<td>330</td>
<td>270</td>
<td>250</td>
<td>240</td>
</tr>
<tr>
<td>2010</td>
<td>320</td>
<td>355</td>
<td>340</td>
<td>285</td>
<td>265</td>
<td>255</td>
</tr>
<tr>
<td>2011</td>
<td>320</td>
<td>350</td>
<td>340</td>
<td>280</td>
<td>260</td>
<td>250</td>
</tr>
<tr>
<td>2012</td>
<td>310</td>
<td>340</td>
<td>330</td>
<td>270</td>
<td>250</td>
<td>240</td>
</tr>
<tr>
<td>2013</td>
<td>300</td>
<td>330</td>
<td>320</td>
<td>260</td>
<td>240</td>
<td>230</td>
</tr>
<tr>
<td>2014</td>
<td>290</td>
<td>320</td>
<td>310</td>
<td>250</td>
<td>230</td>
<td>220</td>
</tr>
</tbody>
</table>

Municipal waste generation (kg/cap) in selected Czech regions

Source: CZSO
Waste management data for the Czech Republic: Regional Level - MoE

Municipal waste generation (kg/cap) in selected Czech regions

Source: CENIA
Waste management data – Slovak case: Regional Level

Municipal waste (kg/cap) in the Slovak Republic

Source: Statistical Office of the Slovak Republic
Thank you for attention!