1. Starting point

- 1992 Council decision for establishing a PPP (AVG)
  Main task: Realization of recycling facilities according to the SMW action plan
  - Realization of a composting plant until 1995
  - Realization of a commercial and a demolition waste sorting plant until 1995
  - Realization of a Waste to Energy incineration plant until 1998

- Realization of good recycling facilities in conjunction to the public tender and within the time limits, specified

- Selection and training of employees for effective running of recycling plants
2. Institutional setting

- National waste act from August 27, 1986
  - First-time implementation of a MSW recycling obligation

- 1988 Cologne City Council approved waste management plan
  - Main objectives of WMP:
    - Waste avoidance
    - Waste recycling
    - Development of future-oriented routes of waste disposal

- 1991 Introduction of separate collection of bio-waste

- 1992 AVG was established as a PPP-company after public tender

- 1995 Start of operation of the composting plant
3. Approach

- Analysis of the current situation
  - Bio waste generation (current state, 10 years forecast)
  - Determination of compost quality objectives
  - Search for best practice examples

- Procurement of the composting plant
  - Preparation of the tender
  - Designation and monitoring
  - Employee selection and training in other composting plants

Organic waste recycling in Cologne

Norbert Evermann
Projects/Consulting
Izmit, 04.07.2017
4. Outputs

<table>
<thead>
<tr>
<th>Type of waste</th>
<th>2001</th>
<th>2006</th>
<th>2011</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biowaste [Tonnes]</td>
<td>5,525</td>
<td>12,489</td>
<td>31,265</td>
<td>39,409</td>
</tr>
<tr>
<td>Greenwaste [Tonnes]</td>
<td>10,046</td>
<td>8,489</td>
<td>8,882</td>
<td>6,822</td>
</tr>
<tr>
<td>Population in Cologne</td>
<td>1,019,328</td>
<td>1,024,346</td>
<td>1,036,117</td>
<td>1,069,192</td>
</tr>
<tr>
<td>Organic waste/inhabitant [kg]</td>
<td>15,3</td>
<td>20,5</td>
<td>38,7</td>
<td>43,2</td>
</tr>
</tbody>
</table>

- **Municipality SWM facilities**
  - Composting plant about 109,000 t/y capacity
  - Commercial and demolition waste sorting plants
  - Incineration plant about 710,000 t/y capacity

- **Technical key figures of the composting plant**
  - **Input (2015):**
    - 101,000 (Municipality 46,000) t/y
  - **Output (2015):**
    - High quality controlled compost: 51,000 t/y
    - Energetic utilization (timbers): 16,000 t/y
    - Impurities for incineration: 1,000 t/y
5. Lessons

- Know how of the private partner (PPP) has been successful
- Organic waste recycling is established and proved right
- Despite technical progress, the separate collection of organic waste is still state of practice
- Organic waste recycling needs marketing channels to enter the agricultural sector and requires very good compost quality
- Establishment of an independent national centre for certification
- Quality requirements still rise on, over the decades
- Adaptation to technical progress by planning a new fermentation plant
6. Transfer

- Waste recycling requires political will, regulations and execution
- Securing of financing of recycling systems is necessary
- SWM-Plan should be the first step in recycling activities
- Successful international best practice examples are available
- Explaining to the public about the necessity of environment protection
- Big changes start small and utilize experiences through the process
- Present your success