Kreislaufwirtschaft in Baden-Württemberg
Closed Cycle Waste Management in Baden-Württemberg

Introduction

Recycling management is governed by a variety of legislations (EU Law, Federal German Law, Law of Baden-Württemberg and municipal law). This legislation specifies how household waste, industrial waste and hazardous waste have to be treated with minimum impact on the environment.

In Germany waste streams and waste disposed on ground by the Kreislaufwirtschaftsgesetz (Closed Substance Cycle Act), which came into force in 2002. Whereas the previous version of this act focused on minimizing the impact on the environment and human health through proper disposal, the new act emphasizes waste prevention and, wherever possible, waste recovery. It calls for the use of state-of-the-art technology, and where waste cannot be avoided it stipulates that material shall be recycled as effectively as possible and used as a source for energy.

This indicates the importance of recycling management as it has to be harmonized with the disposal of solid waste. In Germany this is a task of the “dual systems” in use today for the return and recycling of packaging materials. Ten competitors are supposed to collect, sort and recycle packaging materials. The public waste disposal bodies in Baden-Württemberg are the 44 urban and rural districts or their special-purpose associations. The public waste disposal bodies in Baden-Württemberg are the 44 urban and rural districts or their special-purpose associations. They set up and manage the public waste disposal facilities within their area of responsibility. They collect, sort and transport non-hazardous waste, household waste, waste from commerce and industry, waste from construction and demolition, waste from manufacturing and waste from disposal or which, depending on their properties, are subject to more stringent recovery requirements before they can be disposed of in other countries. The following agencies in Baden-Württemberg are responsible for such waste transports in the Landesaltdichtung Baden-Württemberg GmbH (LUBW). The number of landfill sites in use will continue to diminish because of the considerable declines in the need for landfill volume. Incineration is the most important waste treatment method, mechanical biological treatment is another possibility. In the future incineration plants and biogas incineration plants may be utilized or landfill. Most of these materials are used as fuel for energy generation. They also contain easily recoverable metals. To permit long-term planning of waste disposal, the Ministry of the Environment, Climate Protection and the Energy Sector would like to manufacture and sell these waste materials. A key element is product responsibility, which applies to manufacturers and sellers and commences in advance of the next term of the substance cycle. Recycling management is governed by a variety of legislation.

The principles

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Product responsibility

The manufacturer and seller of products are responsible not just for their development and manufacture, but also for their disposal. The principle of product responsibility – enshrined in the Closed Substance Cycle Act – is to ensure resources through waste avoidance and to recirculate and regenerate the recovery of waste. Manufacturers of goods must consider the life cycle of their products when deciding on production strategies, the production design such that materials and substances can be easily separated in the aftermath of normal use or as little as possible – or if not possible – be set for disposal in a manner that has the minimum impact on the environment. The collection and treatment of non-hazardous waste must be treated in a similar way. As a result of this orientation, the phrase “product responsibility” is not used in the text today for recycling or waste disposal in the automotive industry.

VERPACKUNGSVERORDNUNG (ORDINANCE ON THE AVOIDANCE AND RECOVERY OF PACKAGING WASTES)

Since 2001 every manufacturer or seller has been responsible for collecting, sorting and recycling packaging materials. The idea behind “product responsibility” is not used in the text today for recycling or waste disposal in the automotive industry.

ALTÖLVERORDNUNG (WASTE OIL ORDINANCE)

This ordinance is the oldest from the area of product responsibility and combines the aims of environmental protection with those of resource management. Sales receipts for lubricating oils are obliged to take back, without charge, waste engine oils and all other waste oils in the same amount as they will need oil.

ELEKTRO- UND Elektronikanlagengesetz (ELEKTRO- AND ELECTRONIC EQUIPMENT ACT)

Consumers of waste electrical and electronic equipment (e-waste) are entitled to receive equipment in municipal collection points for free charge. Manufacturers of equipment must bear the costs of disposal of all electrical and electronic equipment within the framework of product responsibility. If the equipment cannot be recycled, it has to be treated as envi-

ALTFAHRZEUGVERORDNUNG (END-OF-LIFE VEHICLES ORDINANCE)

Since 2007 vehicle manufacturers have been obliged to take back from their last owners, free of charge, any end-of-life vehicles which they have manufactured. End-of-life vehicles can only be returned from their last owner, free of charge, any end-of-life vehicles which they have manufactured. The public waste disposal bodies in Baden-Württemberg are the 44 urban and rural districts or their special-purpose associations. They set up and manage the public waste disposal facilities within their area of responsibility. They collect, sort and transport non-hazardous waste, household waste, waste from commerce and industry, waste from construction and demolition, waste from manufacturing and waste from disposal or which, depending on their properties, are subject to more stringent recovery requirements before they can be disposed of in other countries. The following agencies in Baden-Württemberg are responsible for such waste transports in the Landesaltdichtung Baden-Württemberg GmbH (LUBW).

The new Closed Substance Cycle Act determines which companies or entities are responsible for the recovery and disposal of different types of waste.

The treatment of waste originating from householders (in particular bulky waste and organic waste) is the most important duty of the state in the case of public waste disposal bodies. In addition, they are responsible for the disposal of commercial waste and building waste (recycled material and demolition waste) if recovery is not possible. The recovery of organic waste from municipal collection points for free charge.

The public waste disposal bodies in Baden-Württemberg are the 44 urban and rural districts or their special-purpose associations. They dispose of the most appropriate type of waste disposal within their area of responsibility. They are set up and managed the required waste-recycling and disposal facilities or use the facilities of commercial enterprises that they have rented into disposal agreements with. In the case of waste disposal, responsibility for waste disposal has been transferred fully to the municipalities.

The municipal waste levy underpins the duties of waste collection and the waste taxes that must be paid for disposal services. In the case of waste disposal, public liability and facility capacities is provided in the annual waste reports.

Depositing of organic municipal waste in landfills has been prohibited since 2007 under the Deponieverboteverordnung (Landfill Ordinance). Domestic waste and composite waste may only be disposed in landfill after treatment.

Household waste

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The number of landfill sites in use will continue to diminish because of the considerable declines in the need for landfill volume. Incineration is the most important waste treatment method, mechanical biological treatment is another possibility. In the future incineration plants and biogas incineration plants may be utilized or landfill. Most of these materials are used as fuel for energy generation. They also contain easily recoverable metals. To permit long-term planning of waste disposal, the Ministry of the Environment, Climate Protection and the Energy Sector would like to manufacture and sell these waste materials. A key element is product responsibility, which applies to manufacturers and sellers and commences in advance of the next term of the substance cycle. Recycling management is governed by a variety of legislation.

Commercial and industrial waste

Waste producers are responsible for recovering their own commercial and industrial waste, i.e. producers must recycle waste or convert it to valuable disposal companies. In the cycle and recycling recovery of the Closed Substance Cycle Act, the Gesundheitsgefährdung (Commercial and Industrial Waste Ordinance) 020s producers of commercial and industrial waste, including construction and demolition waste, to keep specific waste fractions separate and recycle them or to collect them and then dispose them through their intermediate suppliers such that the waste can be very largely recycled. Mixed industrial waste may only contain certain waste fractions, even if it is to be used as a source of energy. Under the Commercial and Industrial Waste Ordinance (Gewerbeundindustrieabfallverordnung) mixed waste is divided into two categories: commercial waste and industrial waste. A mixture of these materials is allowed.

Hazardous waste

Waste is classified inlandfills it is particularly dangerous to humans, as it may cause harm, or if it is exploitable or combustible. Such material is generated primarily by commercial and industrial production processes. Other sources are highly contaminating materials and contaminated soil. It is not possible to handle hazardous waste without permission. An application (a so-called notification) and a permit are required for wastes which are destined for disposal or which, depending on their properties, are subject to more stringent recovery requirements before they can be disposed of in other countries. The following agencies in Baden-Württemberg are responsible for such waste transports in the Landesaltdichtung Baden-Württemberg GmbH (LUBW). If this waste is not recovered it has to be disposed; then it is subject to the Grundwassergesetz (Groundwater Protection Ordinance) and it does not pollute the central facility in Baden-Württemberg (the hazardous waste landfill in Brühlberg or a hazardous waste incineration plant. This requirement does not apply to hazardous household waste. The private disposal enterprises in Baden-Württemberg have until special facilities for the pre-treatment and recycling of hazardous wastes, primarily physical-chemical treatment systems.

Addresses

Information and publications on waste can be found on the Web site of the Ministry of the Environment, Climate Protection and the Energy Sector.

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www.gewerbeaufsicht.baden-wuerttemberg.de
www.grs-batterien.de (GRS)
www.klb.baden-wuerttemberg.de

Publication Information

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Visor address:
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70182 Stuttgart

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70022 Stuttgart

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www.lubw.baden-wuerttemberg.de
www.klb.baden-wuerttemberg.de

Publication Date December 2012
Total generation of waste in Baden-Württemberg 2011

Waste quantities:

In 2011, approximately 40.6 million tonnes of waste were generated in Baden-Württemberg. This waste was either left to the public waste disposal bodies or reported to the SAA in the hazardous waste disposal verification process or notification process for exported wastes. The figure also includes mechanical waste recovered via trade disposal companies, which does not have to be handled by the public waste disposal bodies. The only statistics available for it are those provided by the State Statistical Office of Baden-Württemberg. Included in this category are excavated material used for backfilling quarries, construction rubble used to replace sand, gravel, crushed stone or wet mix aggregate as concrete material, and production specific waste such as metal scrap, waste paper, waste wood or plastics that enter production processes again or are directly recycled.

Disposal paths:

- **INCINERATION**
  Energy recovery or thermal treatment in waste-fired power stations. Also co-incineration of processed waste in power stations or cement kilns.

- **LANDFILL**
  Above-ground storage of waste on landfill sites - classes I (non-contaminated excavated soil), classes I and II (non-hazardous waste, previous landfill sites for demolition waste and municipal waste), class III (hazardous waste landfill) and underground storage (class IV), including storage of waste in mines.

- **MBT**
  Mechanical-biological treatment of waste.

- **RECOVERY**
  Use of waste as a direct substitute for raw materials (e.g., construction waste recycling, use of scrap, waste paper, plastics or waste wood), incineration and power waste treatment, also mechanical waste treatment processes, such as sorting of waste or dismantling of equipment, which gives rise to various material flows for further recycling or use as an energy source.

- **PCT**
  Physicochemical treatment of hazardous waste.

- **OTHER RECOVERY**
  Intern storage of hazardous waste, biological soil treatment and treatment methods other than physicochemical treatment.

**4.0%**

**hazardous waste**

<table>
<thead>
<tr>
<th>type of waste</th>
<th>volume</th>
<th>recovery in 1,000 t</th>
<th>waste disposal in 1,000 t</th>
</tr>
</thead>
<tbody>
<tr>
<td>contaminated soils and building rubble</td>
<td>608.1</td>
<td>596.0</td>
<td>12.1</td>
</tr>
<tr>
<td>hazardous waste from production and waste treatment</td>
<td>918.7</td>
<td>633.2</td>
<td>285.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,624.8</strong></td>
<td><strong>1,229.2</strong></td>
<td><strong>395.6</strong></td>
</tr>
</tbody>
</table>

**14.4%**

**household waste**

<table>
<thead>
<tr>
<th>type of waste</th>
<th>volume</th>
<th>recovery in 1,000 t</th>
<th>waste disposal in 1,000 t</th>
</tr>
</thead>
<tbody>
<tr>
<td>household and bulky waste</td>
<td>1,555.0</td>
<td>1,555.0</td>
<td>0.0</td>
</tr>
<tr>
<td>organic waste</td>
<td>1,372.5</td>
<td>1,372.5</td>
<td>0.0</td>
</tr>
<tr>
<td>recyclable material</td>
<td>1,773.3</td>
<td>1,773.3</td>
<td>0.0</td>
</tr>
<tr>
<td>electrical and electronic equipment</td>
<td>90.3</td>
<td>80.3</td>
<td>0.0</td>
</tr>
<tr>
<td>other household waste</td>
<td>1,075.6</td>
<td>776.5</td>
<td>299.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>5,862.9</strong></td>
<td><strong>5,603.6</strong></td>
<td><strong>299.3</strong></td>
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**4.8%**

**commercial and industrial waste**

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<tr>
<td>soils and stones (excavated soil)</td>
<td>21,147.2</td>
<td>17,381.7</td>
<td>3,765.4</td>
</tr>
<tr>
<td>building rubble, roadway rubble</td>
<td>9,323.1</td>
<td>9,323.1</td>
<td>0.0</td>
</tr>
<tr>
<td>other building rubble and demolition waste</td>
<td>30,975.3</td>
<td>28,716.2</td>
<td>2,259.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>51,446.6</strong></td>
<td><strong>46,421.0</strong></td>
<td><strong>5,025.6</strong></td>
</tr>
</tbody>
</table>

**76.2%**

**construction and demolition waste**

<table>
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**0.6%**

**sewage sludge from municipal sewage plants**

<table>
<thead>
<tr>
<th>volume</th>
<th>energy recovery</th>
<th>agriculture</th>
<th>cultivation</th>
<th>other</th>
</tr>
</thead>
<tbody>
<tr>
<td>241.7</td>
<td>217.9</td>
<td>5.3</td>
<td>16.2</td>
<td>2.3</td>
</tr>
</tbody>
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