25 November 2009

Reporting by Germany on

WASTE MANAGEMENT

1. Introduction and general issues on hazardous wastes and solid wastes

The objective of the German government's policy on waste is to achieve a recycling-based economy that conserves resources and reduces adverse impacts on the environment. The aim is to increase and optimise the efficient use of raw materials, to maximise recovery quotas and to permanently remove from our environment that residual waste which can no longer be used. This will lead to a substance management within closed substance cycles, i.e. turning today's trash into tomorrow's treasure-trove. Activities on waste are part of the Federal Environment Ministry's action programme to increase the productivity of resources.

Waste management legislation is based on European law, German Federal law, the regional laws of the Federal *Länder* and the statutes of the local authority waste management services. It is also based on the precautionary principle, the polluter pays principle and the principle of co-operation. The main pillar is the Closed Substance Cycle and Waste Management Act. This act will be further developed until the end of 2010 based on the new EU Waste Framework Directive in order to strengthen waste prevention and recovery. Through this act, industry and the commercial sector have been made responsible for the recovery of waste, i.e. they have also to bear the costs. All waste from private households and waste for disposal from other generators have to be left to waste institutions subject to public law; for this service, fees have to be paid. For waste destined for disposal, a priority for disposal within Germany has been laid down (self-sufficiency principle) whereas waste destined for recovery underlies the free movement of goods within the EU.

The enforcement of the waste legislation in Germany is mainly a task of the Federal *Länder*. It is governed by requirements for waste supervision in the Closed Substance Cycle and Waste Management Act and supported by requirements on waste recovery and disposal records, transport licenses and specialized waste management companies.

The modern waste policy in Germany has triggered the rapid evolution of recovery and disposal technologies – an important green market. Today, the waste industry employs over 200,000 people and generates an annual turnover in excess of 40 billion Euros. Infrastructure for all types of waste is available.

Various activities on capacity-building, education, training and awareness-raising are carried out on Federal level, *Länder* level and community level as well as by the private sector and non governmental organisations. Trade unions and private-sector businesses are playing an active role in shaping integration of ecological and business concerns in waste management.

The structure of this report is based on the theme-specific issues in the guidelines for national reporting; however the sections on hazardous and non hazardous waste have been merged.

Further information is available at www.bmu.de/3865 (general information on waste management), www.bmu.de/38067 (brochure) and www.bmu.de/42826 (data).

2. Prevention, minimization and environmentally sound management of hazardous wastes and of solid (non-hazardous) wastes and sewage

2.1 Prevention and minimization of wastes

The Closed Substance Cycle and Waste Management Act aims to ensure the complete prevention and recovery of waste including hazardous waste. Thus, prevention takes precedence over recovery, which in turn comes before disposal. Waste prevention is implemented inter alia through extended producer responsibility which on the one hand involves developing products and substances with the longest possible service life and on the other introducing production techniques which generate the minimum possible volume of waste through

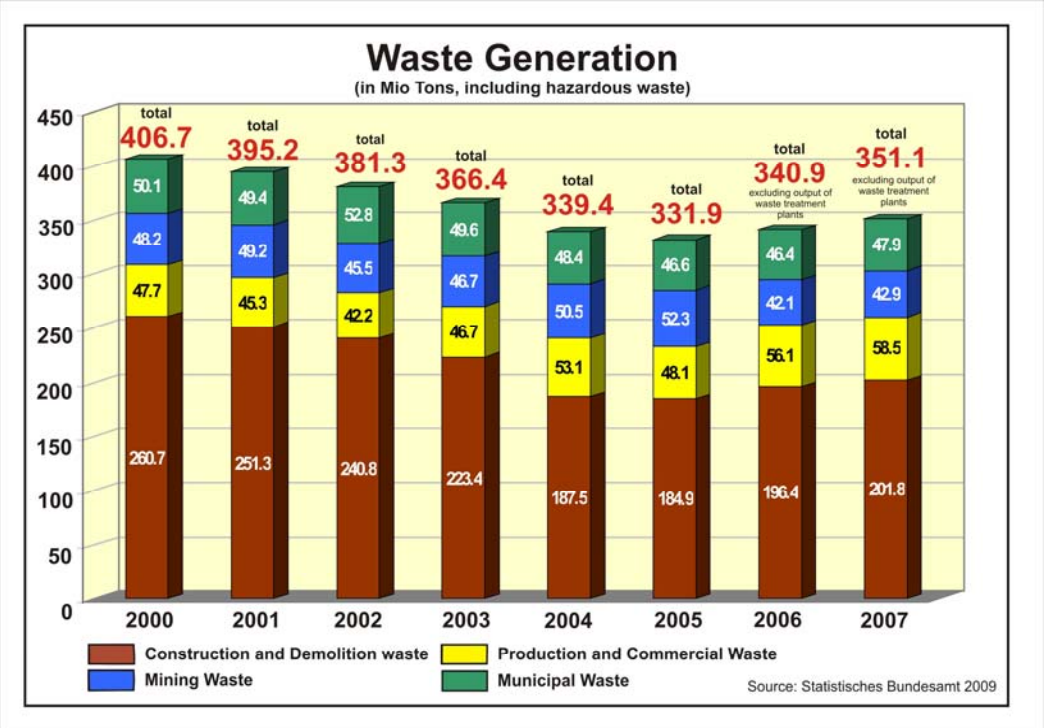
best available techniques (BAT) requirements as part of a permitting system for industrial installations. Under the extended producer responsibility, producers of a commodity are required to consider the environmental impacts and possible risks of a product during its entire lifecycle (precaution). In collaboration with the other parties involved – producers, distributors, consumers, disposal and recycling companies, as well as government offices (co-operation) – the producer is required to create a system which minimises the adverse environmental impacts and maximises the recovery of resources (recycling, reuse).

In addition, laws and ordinances containing provisions on product responsibility for packaging, batteries, electrical and electronic appliances, end-of-life vehicles and waste oil contribute to waste prevention.

The Packaging Ordinance from 1991 was a prototype for legislation designed to close substance cycles. It generally requires manufacturers and distributors to take back packaging and to re-use it or recycle its constituent materials. “Dual systems” organize the collection of waste packaging directly from private households, the sorting of this waste into material groups, and the recycling of these materials. There is a levying of charges, on a scale related to the type of packaging material used. A compulsory deposit of 25 cents on non-reusable drinks packaging has been introduced. This deposit is payable on all non-ecologically favourable packaging containing mineral water, beer, soft drinks and alcoholic mixed drinks. The main objective of the compulsory deposit is to stabilise the proportion of reusable drinks packaging and put an end to the throw-away mentality.

Furthermore, the ambitious requirements for waste recovery and disposal (see below) have indirectly contributed to waste prevention.

Less waste has been produced overall in recent years (see the figure below). The total volume of domestic waste has remained virtually constant over many years. The link between economic growth and the volume of waste has thus been severed.



2.2 Recovery, reuse and recycling of wastes

In Germany, a number of laws and regulations, in addition to the Closed Substance Cycle and Waste Management Act, contain provisions on recovery, reuse and recycling for the following

wastes: packaging, batteries, waste electrical and electronic equipment, end-of-life vehicles, waste oil, biodegradable waste, waste wood, sewage sludge, commercial municipal waste, waste going to incineration, waste recovered at surface landfills and waste going to underground stowage.

Glass, paper, old clothes, compost and biowaste, packaging, electrical and electronic waste, batteries, metal, bulky waste and hazardous waste from private households are collected separately before they are recycled by the producers of new products or private or public sector agencies. For example, in 2006 on the average over 8 kilograms per inhabitant and year, more than twice as many waste electrical and electronic appliances than prescribed in the related EU Directive have been collected from private households.

Because of the high standards imposed on recovery, waste that has been separately collected still needs to be further sorted. This sorting is mainly performed automatically using e.g. a refined detector system based on near infrared spectrography in order to separate different types of plastic with a high degree of accuracy.

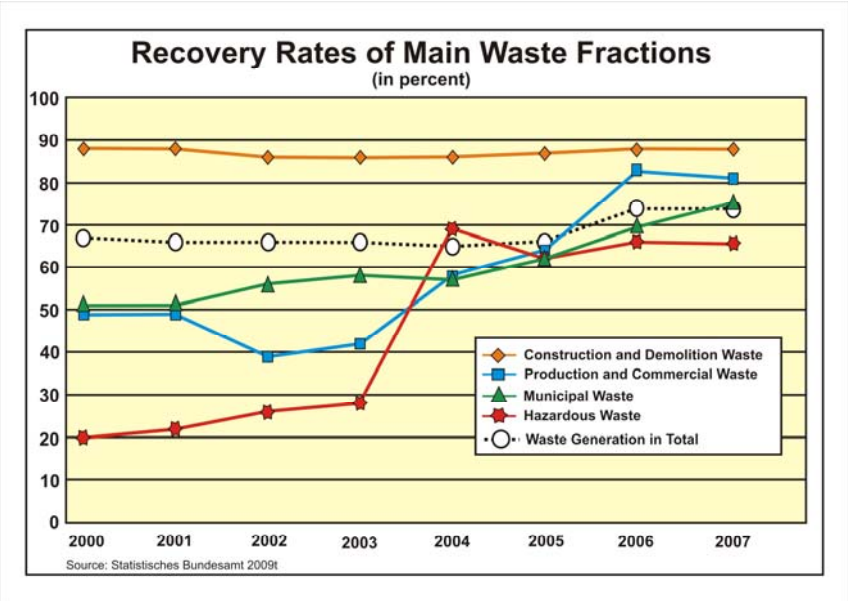
For example, the Ordinance on Biowaste ensures that only biodegradable waste with a low pollutant content is utilised as a fertiliser or soil improver after composting or fermentation. The aim is to eliminate the accumulation of pollutants in the soil. In addition, composted or fermented and subsequently composted biowaste is an important source of humus. An average of around 50% of the population in Germany collects biowaste using bio-bins. The separate collection of biowaste thus needs to be expanded.

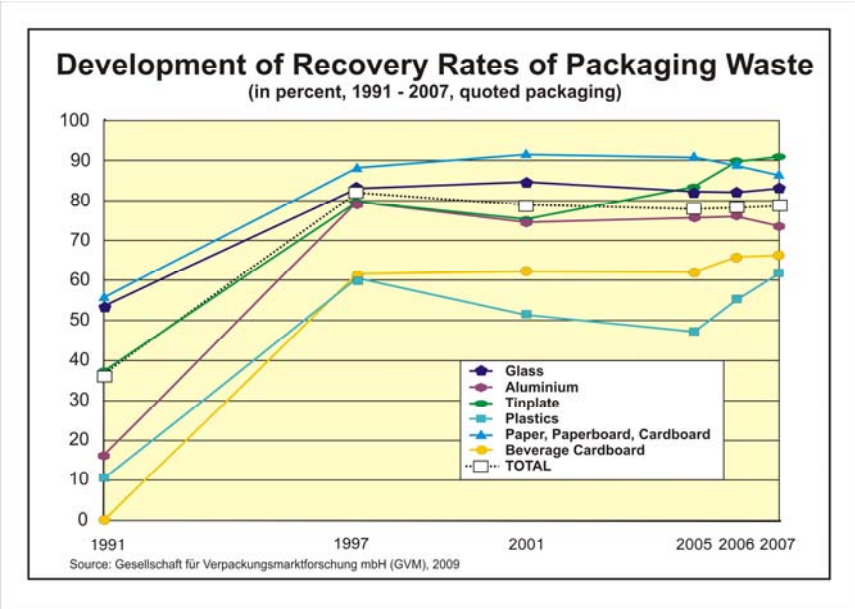
Sewage sludge from local authority sewage treatment plants contains high levels of phosphorous. That is why around 30% of the sewage sludge is currently used as a fertiliser. The German government is also promoting techniques for extracting low-pollutant phosphate from sewage sludge and domestic sewage.

The Waste Wood Ordinance sets out concrete requirements governing the recycling, energy recovery and disposal of waste wood and ensures that pollutants are not recycled or do not accumulate during recovery.

In addition, there are voluntary commitments by the industry for construction and demolition waste and for graphic paper.

There has been a clear shift to more recovery and recycling (see the figure and the table below). The population's willingness to separate its waste has helped to improve this trend.





2.3 Phase-out of toxic, persistent and bio-accumulative waste

An ordinance covers the disposal of waste containing polychlorinated biphenyl (PCB) and polychlorinated terphenyl (PCT). The EU's Regulation[1] on persistent organic pollutants (POPs) contains a general provision on the destruction of these hazardous substances in wastes. Only if the level of POP in waste is below strict limits can it be recovered or disposed of in the same way as other waste. In addition, the European chemicals legislation (REACH) and provisions on the content of hazardous substances in electrical and electronic equipment have lead to reductions in hazardous waste.

2.4 Environmentally sound waste disposal and treatment

The Landfill Ordinance sets out high standards for landfill sites. It also requires that extremely hazardous waste be disposed of below ground in deep salt mines. Compared to about 2 000 in the 1980s, today only about 160 landfill sites for municipal waste exist in Germany. This number will be further decreased.

The provisions on landfills in Germany are much stricter than required by the EU Landfill Directive. Since June 2005, residual waste from households and industry is to be treated in such a way which prevents biological conversion processes from occurring in landfills. This presupposes that the residual waste is pre-treated by thermal or high-end mechanical-biological methods. Through this, the generation of landfill gas is reduced to almost zero; it led to a reduction of more than 30 million tonnes of carbon dioxide equivalents per year which is an important contribution to climate protection in Germany.

There is also a political goal to recover municipal waste as much as possible and to further reduce the number of above-ground landfills by 2020.

The waste incineration ordinance, based on the Federal Immission Control Act, contains high standards for the incineration and co-incineration of waste.

2.5 Preventing illegal international traffic in wastes

For transboundary movements of waste, the EU Waste Shipment Regulation transposes the provisions of the Basel Convention. Furthermore, an EU Regulation on the export of non hazardous waste to non OECD countries applies. In Germany, a Waste Movement Act, an ordinance on fines and penal law for waste shipments are in place in addition. Through these

[1] EU Regulations are directly applicable in the EU Member States

provisions and their effective implementation and control by the responsible authorities, as appropriate together with authorities from other countries, illegal waste shipments are reduced to a minimum.

2.6 Procedures for environmental impact assessment, taking into account the cradle-to-grave approach

Environmental Impact Assessments (EIA) is required for all projects with particular environmental relevance.

2.7 Establishment of combined treatment/disposal facilities for wastes in small- and medium-sized industries

The provision of facilities for the waste treatment and disposal is led mainly by the private sector, including for small- and medium-sized industries.

2.8 Transfer of environmentally sound technologies and know-how on clean technologies and low-waste production

Within its development cooperation, the German government supports a number of technical and financial assistance projects to further the environmentally sound management of hazardous wastes as well as non hazardous wastes and sewage systems. The German government also promotes environmentally sound waste management technologies and know-how through special funding programmes, capacity building, bilateral cooperation and participation to international conferences and fairs. In addition, the Federal Environment Ministry is conducting the initiative “Recycling and Efficiency Technologies” (RETech) in order to foster the transfer of German recycling and waste disposal technologies (www.retech-germany.net/english). Under the research programme of the Federal Ministry for Education and Research, a number of waste-related projects are carried out.

2.9 Inventories of waste production, their treatment/disposal, and contaminated sites

Information on waste production, waste treatment/disposal and contaminated sites can be found e. g. on the websites of the Federal Environment Agency (www.umweltbundesamt.de) and the Federal Environment Ministry (www.bmu.de).

2.10 Dissemination of scientific and technical information dealing with various health and environmental aspects of wastes

Scientific and technical information dealing with health and environmental aspects of wastes is available at various levels, including the website of the Federal Environment Agency (www.umweltbundesamt.de) and the Federal Environment Ministry (www.bmu.de).