

2.1. Waste management

2.1.1. General information

Belgium has a population of approximately 10.6 million inhabitants living on a surface of around 30 500 km². The municipalities are responsible for the collection and treatment of household waste. Public associations have been established in which several municipalities co-operate to fulfil their responsibilities with regard to waste management. For the collection and treatment of industrial waste, responsibility lies with the private sector.

In Flanders, 555 kg/inhabitant/year of household waste was generated. The amount of household waste collected separately for the purpose of re-use and recycling stood at 72% in 2007. The amount of residual household waste going to incineration amounted to around 25%. In 2007, landfilling of household waste stood at a mere 1.2%. (Figures for 2007)

In Flanders, around 20 million tonnes of (primary) industrial waste were produced. Nearly one third was construction and demolition waste. 15% of the industrial waste in Flanders is landfilled or incinerated. The remaining 85% is recycled, composted, reused or conditioned for the purpose of further treatment. (Figures for 2006)

In Brussels, 475 kg/inhabitant/year of household waste was generated. The amount of household waste collected separately for the purpose of re-use and recycling stood at 25% in 2007. The amount of residual household waste going to incineration amounted to around 75%. There is no landfilling of household waste in Brussels.

In Brussels, around 3 million tonnes of industrial waste were produced. 12.5 % of the industrial waste in Brussels is landfilled and 9.5 % is incinerated. The remaining 78 % is recycled, composted, reused or conditioned for the purpose of further treatment. (Figures for 2006)

In Wallonia, around 538 kg/inhabitant/year of household waste was generated. 64% of this waste is recycled. 14% is landfilled and 22% was incinerated. The industrial waste deposit, extrapolated to the entire sector (NACE 14 à 36 + 40.1), was 6260 kt in 2007.

In Belgium, we want to reduce waste production and the associated pressure on the environment to the inevitable minimum. Our aim is to achieve a far-reaching decoupling between economic growth on the one hand and impact on the environment resulting from the use of materials and energy on the other hand.

We want to manage waste according to the waste hierarchy, which means that:

- ▶ first, we try to prevent waste from being produced;
- ▶ next, we try to re-use and recycle as much material as possible from the waste produced through separate collection;

- ▶ finally, the disposal of waste that cannot be prevented or recycled is organised in such a way as to have as little impact as possible on the environment and public health. Preference goes to waste incineration with energy valorisation over landfilling.

Traditional waste management focuses mainly on the end of life phase, the phase where materials becomes waste. However, managing the material chain as a whole is essential to find sustainable answers to the waste problem. Therefore, Belgium wants to broaden its horizon towards sustainable materials management by developing actions to prevent leakage from material cycles; taking measures to save on raw materials and energy by, where possible, the use of wastes; and setting up campaigns to encourage sustainable consumption and production patterns.

A mix of instruments is used to successfully manage waste and materials: subsidies, awareness raising campaigns, levies, recycling fees, landfilling and incineration bans, permitting policy, extended producer responsibility in the form of acceptance and take back obligations, etc.

2.1.2. Questions (from the 'Guidelines for national reporting for CSD 18/19')

The answers are provided without making a strict distinction between hazardous and non-hazardous wastes, as many of the measures mentioned apply to both non-hazardous and hazardous wastes. For hazardous wastes, some additional requirements are imposed to ensure the protection of the environment and of public health. The criteria that have to be met to receive an environmental permit are more stringent in the case of hazardous wastes and transporters of hazardous wastes have to be authorised.

a) Policy measures for the prevention and minimisation of (hazardous) waste

Various measures are taken to prevent the generation of waste in Belgium. A dense network of **re-use shops and centres** helps promote re-use, which is considered the preferable form of waste treatment. At the re-use centre discarded goods are sorted, inspected, cleaned and repaired if necessary. In the re-use shops the discarded goods are resold at reasonable prices to people who want to give these goods a second life. Certain re-use shops have developed into genuine 'department stores' for furniture, clothing, books, household appliances, electrical equipment, toys, etc. In addition to promoting re-use, the re-use sector creates jobs for people who get few opportunities on the mainstream labour market. As such, re-use shops and centres form an integral part of the social economy.

Various actions are taken to promote **home composting**, such as communication campaigns, training of compost masters (volunteer who explain households how to compost at home in a qualitative manner), subsidisation of compost bins, etc.

An initiative to limit waste paper generation is the distribution of **stickers saying 'please no publicity'** which people can put on their letterboxes signalling that they do not want to receive leaflets or publicity magazines.

Awareness raising: Communication campaigns are organised regularly, targeted at schools, organisers of large events and shops drawing their attention to the importance of waste prevention. To raise awareness among companies and stimulate them to focus on waste prevention, a software package was developed by the authorities enabling companies to calculate the true costs of their waste production.

Subsidisation: Municipalities that launch waste prevention initiatives (e.g. the promotion of re-usable diapers, the installation of drinking fountains in schools and the promotion of lunch boxes) can get financial support from the government. Companies that invest in techniques that contribute to waste reduction are also entitled to subsidies.

Some initiatives to minimise waste are not solely targeted at the end of the cycle, but relate to earlier phases in the life cycle of products (**design, production, and consumption**). A tool, based on life cycle assessment, has been developed to help designers create environmentally friendly products. Awards are handed out to students in the field of product development and to professional designers that incorporate environmental criteria into their design. A scan programme paid for by the authorities helps small and medium enterprises to identify opportunities for eco-efficiency improvements. A web application has been developed that is meant to help local authorities green their procurement (www.ovam.be/producttest). Trial projects have been launched, in close co-operation with the retail sector, to stimulate the sale of environmentally friendly detergents, energy saving lamps and energy efficient tumble dryers. PLAN C is a network in which industry, NGOs, research centres and government representatives prepare transition experiments on closing material loops, replacing goods by services and greening chemistry. The network Eco-consommation (www.ecoconso.be) recommends best practices on sustainable consumption to the general public.

b) Initiatives to treat, recycle, reuse and dispose of wastes at the source of generation and regulatory mechanisms

Selective collection schemes have been set up so as to make it as easy as possible for people to separate their wastes at the source. There are three main channels for separate collection: kerbside collection, collection via municipal recycling yards and collection via retailers.

Typical waste streams that are collected door-to-door are mixed wastes, plastic bottles, metal packaging and drink cartons, glass bottles, vegetable, fruit and garden waste and bulky waste.

These kerbside collections are sometimes complemented with bottle banks or textile containers placed in the streets.

A municipal recycling yard is a plot of land where citizens can deposit their waste separately. A barrel or container is provided for per category of waste. A wide range of waste streams is separately collected in those yards.

Some waste streams are collected via retailers. Expired pharmaceuticals can be brought back to the pharmacy. In thousands of supermarkets, toy stores, shops for electric appliances, DIY shops, schools, etc. boxes are installed in which used batteries can be deposited. Stores selling electric appliances are obliged to take back used EEE, even if the consumer does not buy a new piece of appliance. The same applies to waste car tyres.

The **polluter pays principle** is firmly embedded in Belgian waste management policy and takes the form of variable household waste charging based on volume or weight discarded, via recycling fees paid when purchasing products, and via extended producer responsibility.

The charges for waste collection are differentiated so as to stimulate people to sort out their wastes. Mixed wastes have become quite expensive to discard, while separated wastes can be discarded at a low price or even for free. Mixed wastes have to be discarded in specially labelled plastic bags that need to be bought at a shop or in containers that are charged by volume or by weight. Containers are equipped with chips so that the weight or the number of times of collection can be registered.

On top of the purchase price, the consumer pays a recycling fee when buying for instance an electric or electronic appliance or tyre. This additional money is used to treat the product in an environmentally sound manner once it has reached the end of life phase.

Extended producer responsibility schemes – in the form of acceptance or take back obligations – have considerably contributed to raising recycling rates by making producers financially responsible for the collection and the environmentally responsible treatment of their products once they have become waste. The manufacturer can meet this obligation via an individual waste prevention and waste management plan or jointly with the manufacturer organisations in an environmental policy agreement. The waste streams to which extended producer responsibility applies printed paper, batteries, waste pharmaceuticals, end-of-life vehicles, waste tyres, waste electrical and electronic appliances, lighting equipment, waste industrial and cooking oils.

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

Indicators of material flows are used to assess the use of natural resources and the associated environmental impacts. The goal is to follow the flows of materials (and energy) from 'cradle to grave', including the extraction of natural resources, their gradual transformation into end products, the use of these products by consumers and their return to the environment as wastes or emissions. These indicators are divided into production indicators and consumption indicators. These indicators provide useful information for the development of strategies to dissociate economic growth from resource consumption.

d) Recovery and recycling of (hazardous) wastes and their transformation into useful material

In order to accomplish a maximum level of recycling, there is an **incineration and landfilling ban** for selectively collected wastes that can be recycled. A **restrictive permitting policy** for landfills and incineration facilities has to avoid an overcapacity for the treatment of mixed waste. Such an overcapacity would lead to lower disposal costs and take away the drive towards more prevention, re-use and recycling.

Systems exist in the three Belgian regions to allow for **the use of industrial waste as a secondary raw material** on the condition that certain technical and environmental criteria set out in the law are met.

e) Environmentally sound waste disposal and treatment

The disposal of waste that cannot be prevented or recycled is organised in such a way as to have as little impact as possible on the environment. Preference is given to incineration over landfilling. During incineration recoverable energy is released and the environmental risks of incineration are smaller than those of landfilling. For the combustible residual wastes a **landfilling ban** applies. In addition, 'smart taxes' are used in order to make landfilling more expensive than incineration.

Belgian waste treatment facilities have to comply with stringent norms relating to hygiene, risk management, environmental protection and public health. The legislation on **environmental licences** in the three Belgian regions transposes the EU Directive on Integrated Pollution Prevention and Control. The Directive introduces an integrated environmental permitting system for large industrial facilities, among which certain waste treatment facilities such as incinerators and landfills. This permit is issued only if certain environmental conditions – concerning the protection of air, water and soil, the application of Best Available Techniques, waste minimisation, efficient energy use, site clear-up etc. – are met.

f) Development of environmentally sound disposal facilities, including technology to convert waste into energy, such as, for example, through utilisation of landfill methane

Waste-to-energy or energy-from-waste is the process of creating energy in the form of electricity or heat from, for example, the incineration of waste. It is a form of energy recovery. There are also other technologies that are able to produce energy from waste without direct combustion.

In the Flemish region a combination of technologies is used to create energy out of waste.

Specifically for biological waste it is the aim to find a balance between recycling and producing energy: with a priority to recycle biological waste where-ever possibly, according to the waste hierarchy. A combination of recycling and energy recovery is used to serve on the one hand the goal for Europe to become a recycling society and on the other hand to reach the goals of the EU Renewable Energy Directive. Energy recovery is in some specific cases encouraged by giving 'green stream certificates', for that part of the biological waste that is converted into energy.

Hereby a short overview is given of different waste-to-energy technologies that are used in Belgium.

- ▶ Use of landfill gas (methane);
- ▶ Incineration with energy recovery of household waste and waste of enterprises (non hazardous waste);
- ▶ Anaerobic digestion: production of biogas rich on methane and digestate (which can be composted afterwards and used as a fertiliser or soil improver if of a good quality);
- ▶ Capture of biogas in the waste water treatment.

g) Inventories of (hazardous) waste production, treatment, disposal, contaminated sites

In Belgium, all waste-related activities are known and documented. The legislation obliges each producer of wastes to maintain a 'waste register', in which information can be found on the source of the waste, the composition, the quantity, the treatment process, and so on.

An inventory of contaminated sites is kept by the authorities.

h) Preventing illegal international traffic in (hazardous) wastes

Companies that want to export waste from the Belgian territory to another country or that want to import waste from another country into Belgium, have to comply with the requirements of Council Regulation (EC) 1013/2006 on shipments of waste.

With this Regulation, EU member states aim to limit the transboundary movement of waste and want to supervise waste transports in order to minimise the danger to the environment and to public health.

Prior written notification and consent is needed for all shipments of waste intended for disposal and hazardous waste intended for recovery. In addition, the regulation imposes a ban on the export of waste intended for disposal and hazardous waste intended for recovery from the EU to non-OECD countries.

Environmental inspection services, the police and customs cooperate to enforce the rules of the Waste Shipment Regulation in Belgium. Random checks are carried out on waste transports and at the producers of waste and the treatment facilities.

i) Actions to promote the phase-out of toxic, persistent and bio-accumulative waste

Belgian plan for the elimination of devices containing PCBs: Owners of devices containing PCBs are obliged to declare their devices. Most of the declared devices containing PCBs already have been eliminated. It is mainly in the energy distribution sector that PCB containing devices are still used. These must be taken out of service by the end of 2010.

Persistent organic pollutants: The Stockholm Convention on persistent organic pollutants (POPs) and the Protocol to the Regional UNECE Convention on Long-Range Transboundary Air Pollution on POPs (the so-called Aarhus Protocol) aim at the prohibition or severe restriction of the production and the use of intentionally produced POPs; introduce restrictions on the export and import of intentionally produced POPs; formulate measures for the safe handling of stockpiles and the environmentally sound disposal of waste containing POPs; and present proposals for the reduction of emissions of unintentionally produced POPs. Belgium is one of the signatory parties to the Stockholm Convention and ratified the Aarhus Protocol on POPs. The stipulations of the Stockholm Convention and the Aarhus Protocol have also been incorporated in EU legislation on POPs, which in turn engages Belgium.

j) Radioactive wastes and their environmentally sound management (safe storage, transportation and disposal of radioactive waste)

The management of radioactive waste is entrusted to one single institution (ONDRAF/NIRAS) under public control. This was done in order to ensure that the public interest would play a crucial part in all decisions on the subject.

In general terms, ONDRAF/NIRAS is responsible for the management of all radioactive waste on the Belgian territory. The task laid down for it by law is to outline a policy for the coherent and safemanagement of radioactive waste covering the following aspects:

1. Compiling an inventory of radioactive materials (and enriched fissile materials) and of all sites containing radioactive materials, and assessing the decommissioning and remediation costs of all sites containing radioactive materials (inventory of nuclear liabilities);
2. Compiling an inventory of all radioactive waste streams;
3. Collection and transport of the waste;
4. Processing of the waste;
5. Interim storage of all conditioned waste;
6. Long-term management with disposal as the option in preparation (category A waste) or under investigation (category B&C waste);
7. Tasks relating to the management of enriched fissile materials and to the decommissioning of nuclear facilities.

ONDRAF/NIRAS has a centralised waste management policy, by making use of processing facilities and interim storage facilities centralised on two sites of Belgoprocess. Some waste producers have their own processing facilities and they transfer conditioned waste to Belgoprocess site for interim storage.