Waste & effluent

Waste materials from manufacturing are a financial cost to a company and a burden on the environment because of the energy used in their production and the pollution caused in their disposal.

Unilever's impact

Waste is classified according to its potential for causing harm, usually as hazardous and non-hazardous.

Typical examples of manufacturing wastes are wash waters, waste packaging (some is recycled), and spent materials used in some processes. We are indirectly responsible for the waste produced by consumers when using our products. See the Packaging & waste section of our website for our approach to sustainable packaging and how we are working on three priority issues: sustainable sourcing of paper and board, tackling litter that results from the use of sachets and removal of PVC.

In this section, we deal with manufacturing waste and effluent.

Action being taken

We maximise the efficiency of the materials we use through:

- best practice in design and manufacture
- waste minimisation studies and guidance
- imaginative ways of incorporating waste into recycling uses.

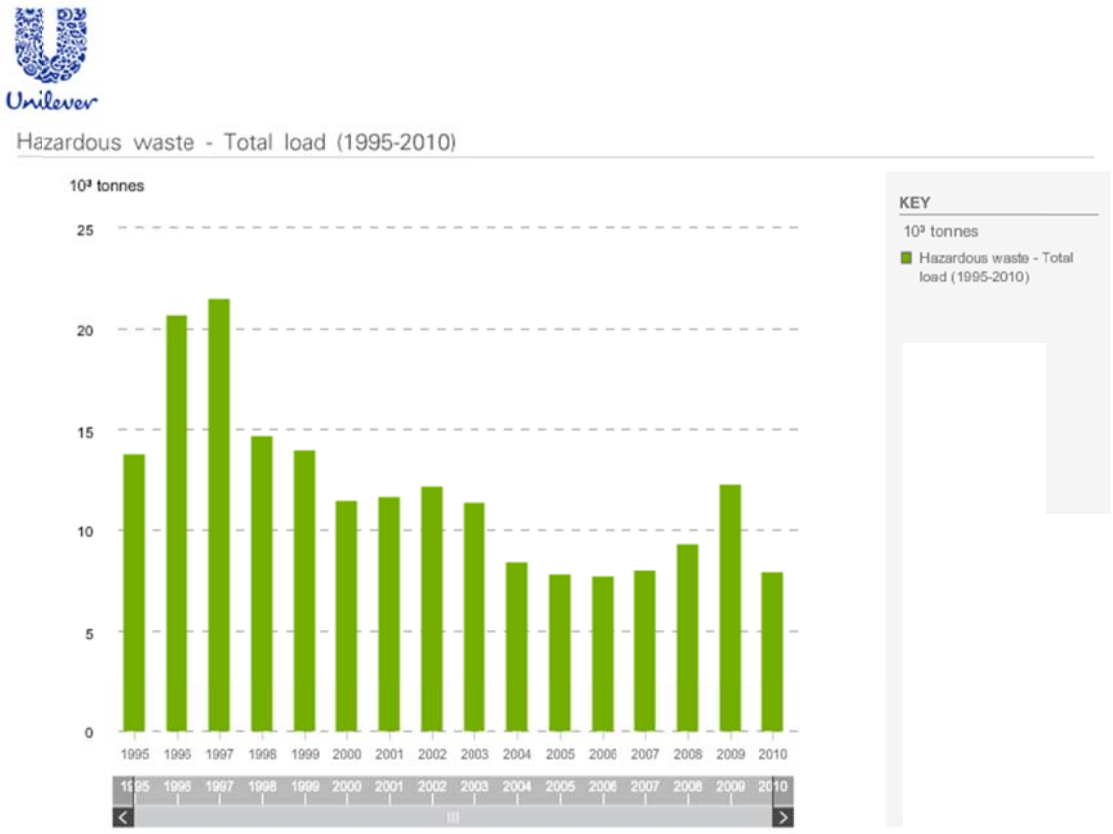
Our environmental management system provides the framework for continuous improvement in this area.

We report hazardous and non-hazardous waste separately. Since there is no common international waste classification, the Unilever data is based on the national legal definitions applicable for each site, and are simply the total mass of material disposed of from the site under each classification (not including recycling).

Hazardous waste comprises 6.3% of the total waste from our manufacturing sites that is sent for disposal, ie is not recycled, with non-hazardous making up the remainder. We intend to focus on decreasing both hazardous and non-hazardous waste.

In 2010, 9% of our sites did not dispose of any waste to landfill or by incineration.

Hazardous waste



To interact with these charts, visit the interactive charts section of our sustainability website.

In 2010, there was a 38.9% decrease in the disposal of hazardous waste measured on a load per tonne basis and a 36% decrease in absolute load.

This decrease was primarily due to:

- The successful implementation of sludge dewatering facilities in Indonesia to reduce sludge volumes for disposal.
- Reduced product losses and avoidance of effluent treatment problems thus reducing sludge volumes (Hungary).
- Use of new recycling routes for effluent treatment sludge (Indonesia) and for waste materials (UK, Italy and Turkey).
- Improved waste segregation and generation of waste classified as hazardous (Vietnam).
- Reclassification of some hazardous waste streams as non-hazardous (India and Hungary).

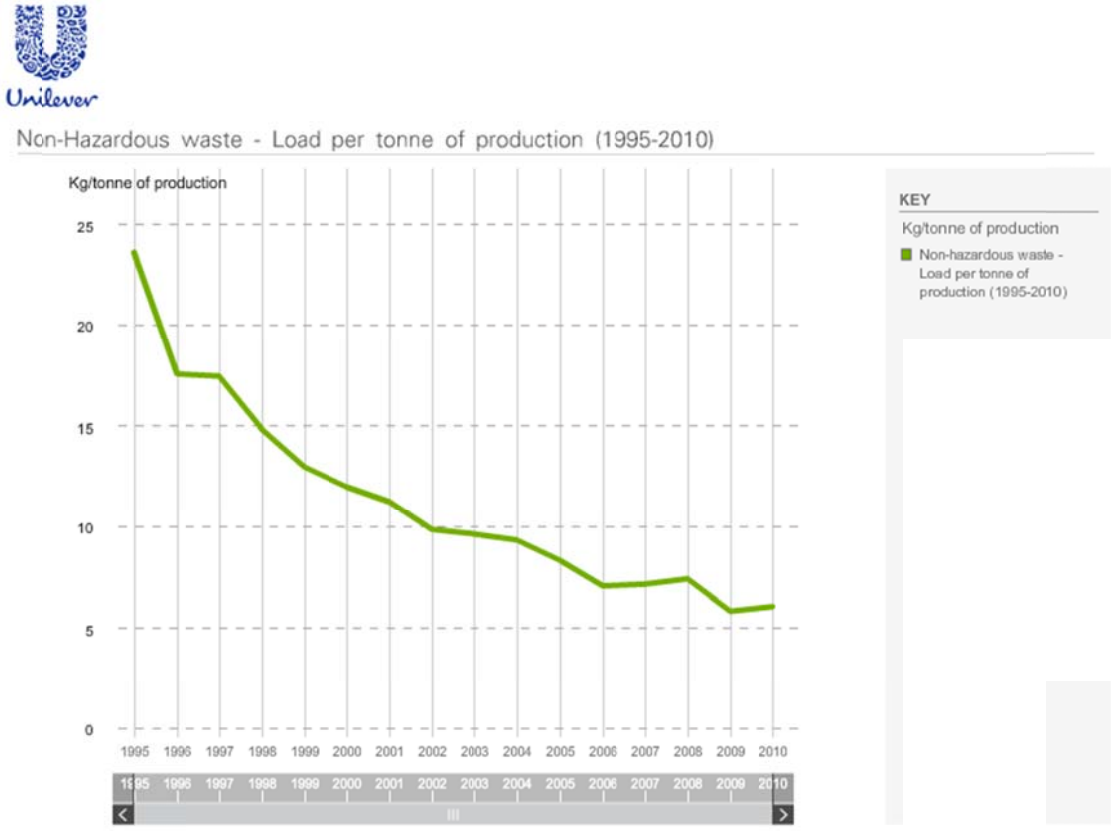
Nine sites achieved a reduction in their hazardous waste by more than 100 tonnes.

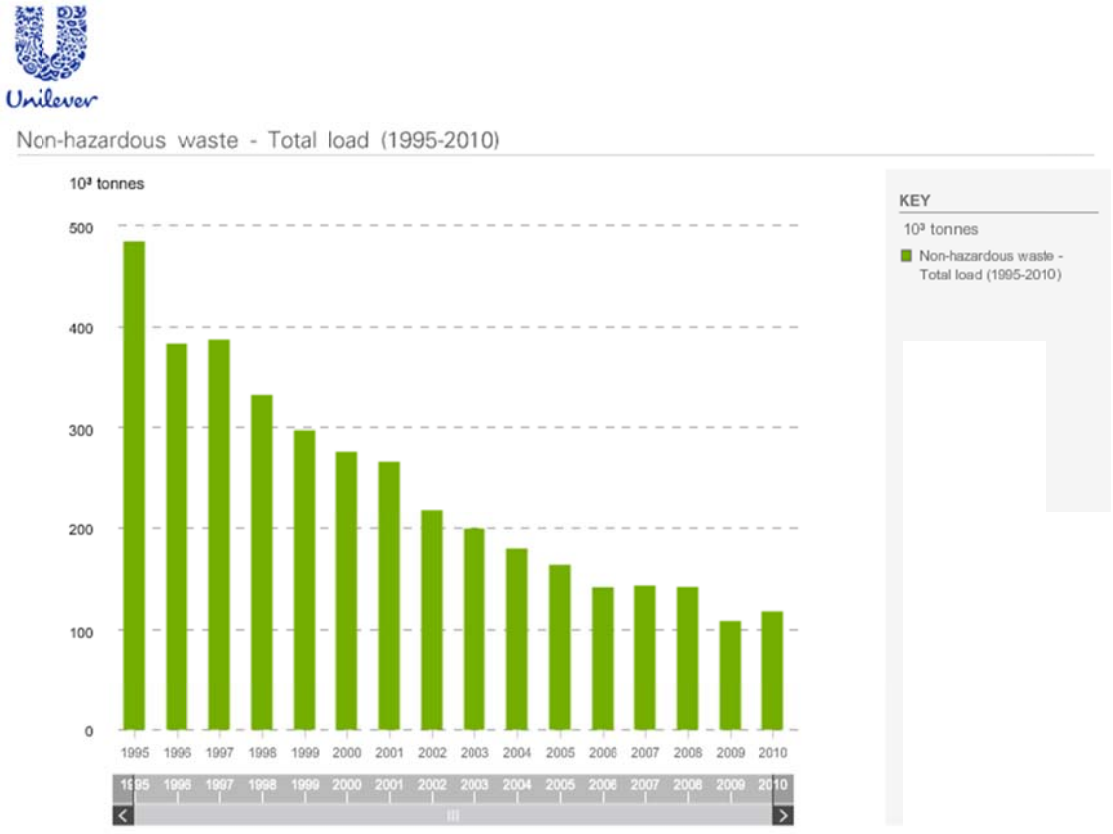
As a result of this, we met our demanding milestone for 2010 which was a reduction of 30%.

However, there have been increases in hazardous waste at some sites due to reduced opportunities for effluent rework (South Africa). Also there has been an increase in the disposal of waste product from sites in Italy, Spain and South Africa and of accumulated waste from some sites in India.

Only 6.3% of our total disposed waste (hazardous and non-hazardous) was hazardous waste in 2010.

Non-hazardous waste





To interact with these charts, visit the interactive charts section of our sustainability website.

In 2010 we increased the absolute load of non-hazardous waste by 8.7%, with an increase of 3.8% on a load per tonne basis, meaning that we missed our 2010 milestone reduction of 2.2% per tonne of production.

The main reasons for this were:

- Increased disposal of waste product/raw materials: predominantly due to a large one-off disposal of recalled waste product in the US, plus further disposals of waste product from sites in Brazil and Italy.
- Problems with effluent treatment plant operation necessitating the offsite disposal of semi-finished product and effluent.
- Processing changes eg increased frozen foods production at one US site, new lines in Canada and France, and oil bleaching in Kenya, all led to increased waste disposal.
- Increased product trials eg in the US and the loss of recycle routes eg in Ghana also led to increased waste loads.

Despite the overall increase in non-hazardous waste in 2010, there were decreases at a number of sites due to:

- The implementation of new recycling routes eg waste to energy (Canada), composting (India and Turkey), plus strong recycling programmes at sites in the US, Italy and Poland.
- Improvements to effluent treatment plant operation led to less sludge being generated from sites in Vietnam, Thailand and India.

In 2010, 86% of our total waste (hazardous, non-hazardous and recycled waste) was sent for recycling.

Five sites reduced their non-hazardous waste by more than 1 000 tonnes, and a further four sites by more than 500 tonnes.

Recycling solid waste

A significant amount of waste from our factories is sent for recycling instead of landfill or incineration. Recycling data excludes materials or effluents that are reused or recycled within the factory. Most of the waste sent for recycling is food processing waste. In 2010, 9% of our sites (some 24 sites in total) did not dispose of any waste to landfill or incineration.

Year	Waste sent for disposal (10^3 tonnes)	Waste sent for off-site recycling (10^3 tonnes)	Total waste (10^3 tonnes)	Recycling (%)
1999	313.8	724.6	1 038.4	70.0
2000	287.0	1 122.4	1 410.1	80.0
2001	278.3	1 729.9	2 008.2	86.0

2002	231.0	1 249.8	1 480.8	84.4
2003	210.9	1 227.6	1 438.5	85.3
2004	188.5	717.0	905.5	79.2
2005	171.3	764.9	936.2	81.7
2006	149.2	744.9	894.2	83.3
2007	151.2	782.2	933.4	83.8
2008	151.1	778.5	929.6	83.8
2009	121.1	835.3	956.4	87.3
2010	126.1	784.5	910.6	86.1

Waste material recycled

Waste material recycled (2002-2010)

To interact with this chart, visit the interactive charts section of our sustainability website.

In 2010, 86.1% of our total waste (hazardous, non-hazardous and recycled waste) was sent for recycling. The amount recycled excludes materials or effluents that are reused or recycled within the factory. In addition, the figures in the table above do not include building waste which is viewed as a one-off disposal not related to our manufacturing performance and thus is not included in our non-hazardous waste key performance indicator. In 2010 we disposed of 4 391 tonnes of building waste.

COD (Chemical Oxygen Demand)

To interact with this chart, visit the interactive charts section of our sustainability website.

To interact with this chart, visit the interactive charts section of our sustainability website.

Chemical oxygen demand (COD) represents the ingredients and product lost during manufacturing, mainly in cleaning. The COD measure is widely used by regulatory bodies to control industrial wastewaters, and to calculate the correct level of charges for downstream municipal wastewater treatment.

In 2010 our Chemical Oxygen Demand (COD) load per tonne of production increased by 5.1% and our total COD load by 9.8%. As a result, we missed our 2010 milestone of a 0.2% reduction.

This was primarily due to:

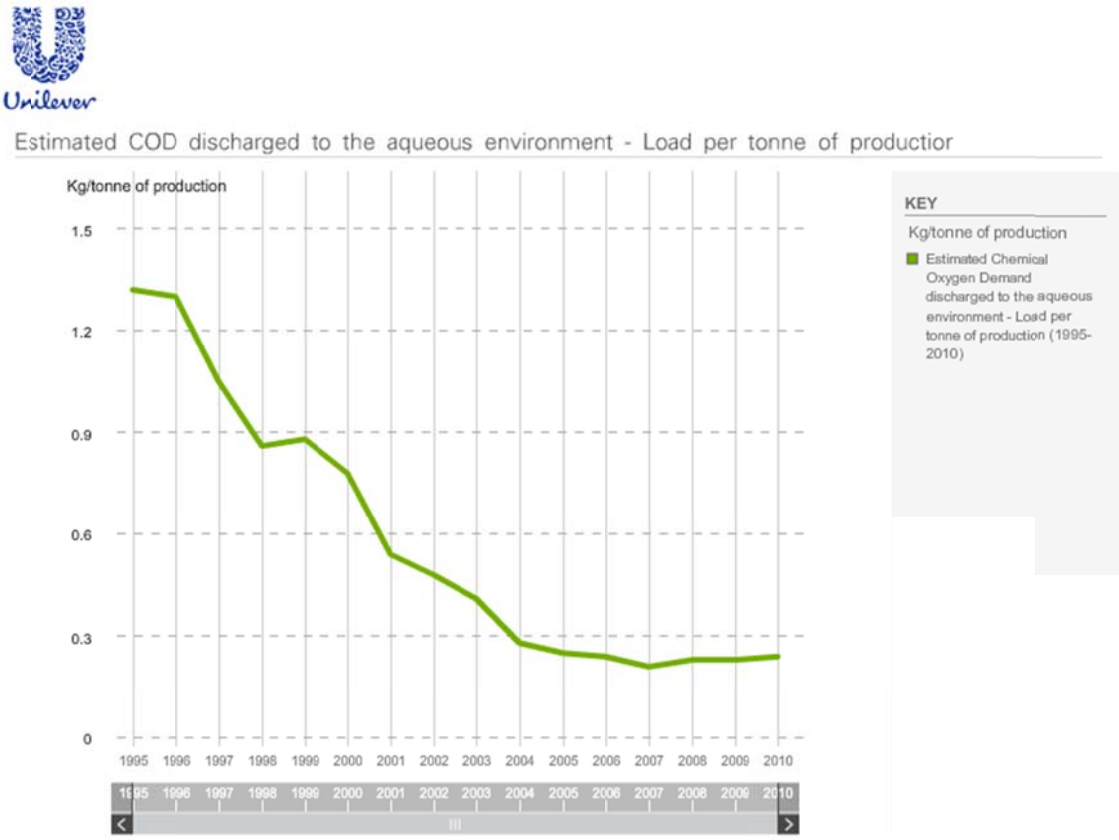
- Processing problems – a major example of this was poor raw material quality (potatoes) causing more waste and higher effluent load from one of our German sites.
- Effluent treatment plant overload predominantly due to increased production (US, Brazil, Thailand, Chile, Hungary and Poland).
- New products/processes and increased site complexity leading to more product changeovers/washdowns (eg in France and Hungary).

However, there were also decreases in the COD load at some sites due to improved anaerobic and other treatment processes (US, UK and Australia) and loss reduction programmes eg in UK and Australia.

Almost all (96.4%) of the total COD leaving our sites is subsequently treated in municipal works. We estimate that 86.6% of this COD is removed (slightly higher than in 2009), so the COD reaching the aqueous environment is significantly less than the total COD leaving our sites. Due to the overall increase in COD load per tonne production, the amount of COD sent to the aqueous environment was slightly higher at 0.24 kg/tonne of production in 2010.

COD to the aqueous environment

Estimated Chemical Oxygen Demand discharged to the aqueous environment – Load per tonne of production (1995-2010)



To interact with this chart, visit the interactive charts section of our sustainability website.

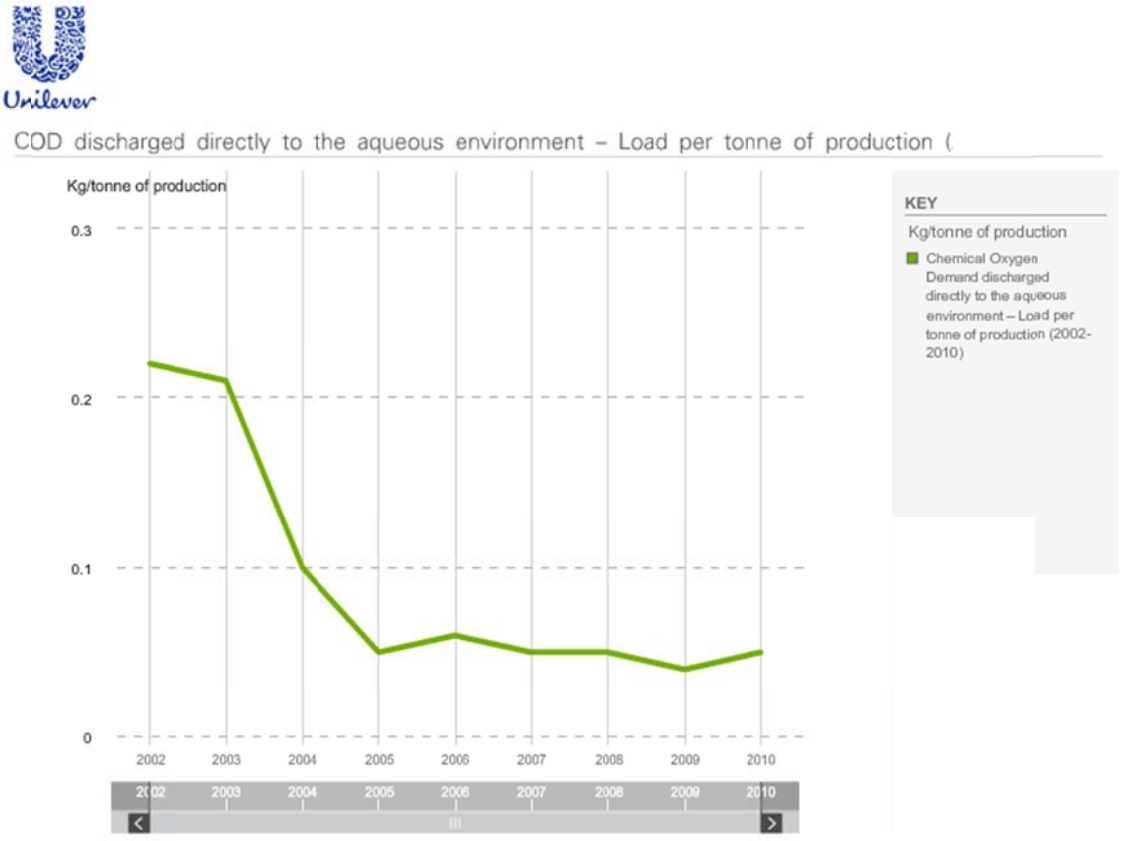
In 2010, 51 of our manufacturing sites (around 20% of the total) did not discharge any industrial effluent. This was because they did not produce any effluent (as in the case of some plantations and factories producing products such as tea) or they recycle it (as in the case of some sites reusing treated effluent for on-site irrigation or in cooling).

See below for charts on COD discharged to watercourses (aqueous environment), COD discharged to municipal treatment and proportion of COD removed by municipal treatment.

Liquid effluent – COD discharged directly to the environment and COD to municipal treatment

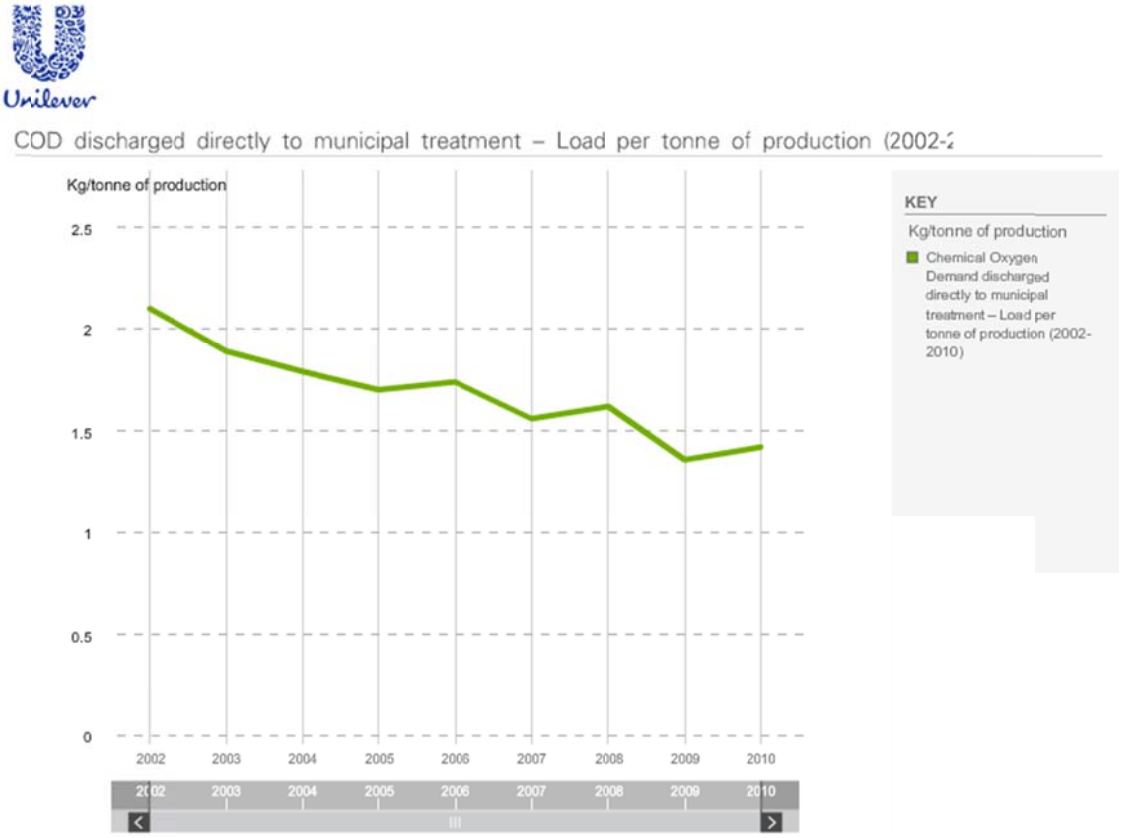
We collect separate data on COD: one set is for effluent discharged directly to the environment, the second for COD from effluent sent to municipal sewage works. Based on individual site data, we estimate that municipal treatment typically removes 86.6% of the COD before final discharge to the environment.

Chemical Oxygen Demand discharged directly to the aqueous environment – Load per tonne of production (2002-2010)



To interact with this chart, visit the interactive charts section of our sustainability website.

Chemical Oxygen Demand discharged directly to municipal treatment – Load per tonne of production (2002-2010)

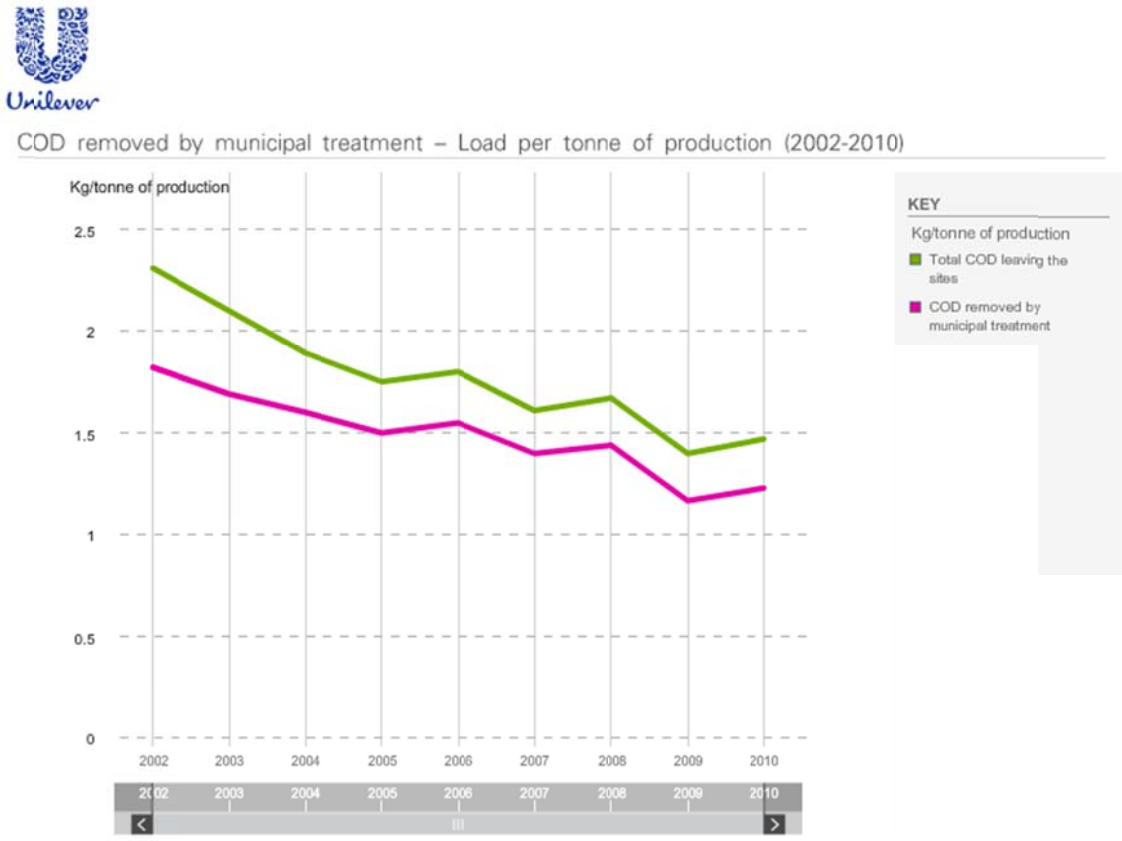


To interact with this chart, visit the interactive charts section of our sustainability website.

Breakdown of total COD removed by municipal treatment

The following chart shows the total COD leaving Unilever's factories and the proportion that we estimate is removed by municipal treatment works.

Chemical Oxygen Demand removed by municipal treatment – Load per tonne of production (2002-2010)



To interact with this chart, visit the interactive charts section of our sustainability website.