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 section for our approach to sustainable packaging and how we are working on three priority issues: sustainable sourcing of paper, tackling litter that results from the use of sachets and minimising the use 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.

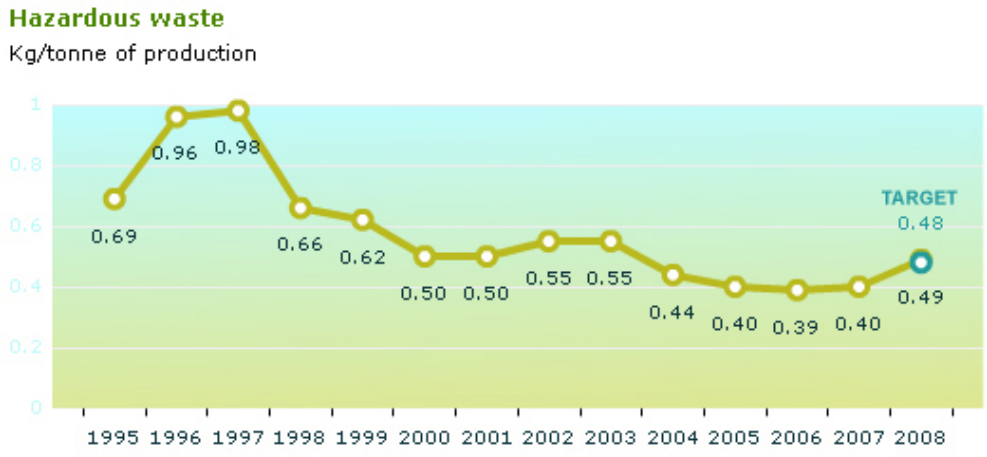
Our environmental management system provides the framework for continuous improvement in this area.

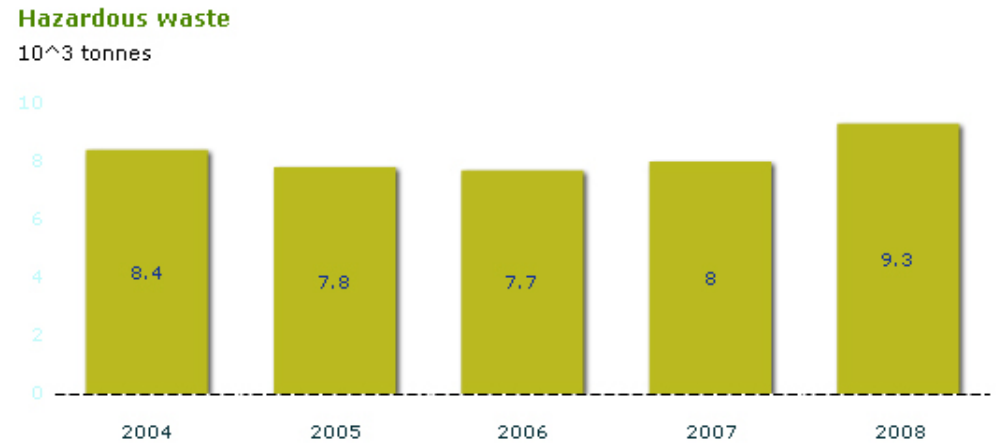
We report hazardous and non-hazardous waste separately. Since there is no common international waste classification, the Unilever data are based on the national legal definitions applicable for each site, and are simply the total mass of material disposed of from the site under each classification (not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

Hazardous waste comprises 6.1% 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 2008, 8% of our sites did not dispose of any waste to landfill or by incineration.

Hazardous waste

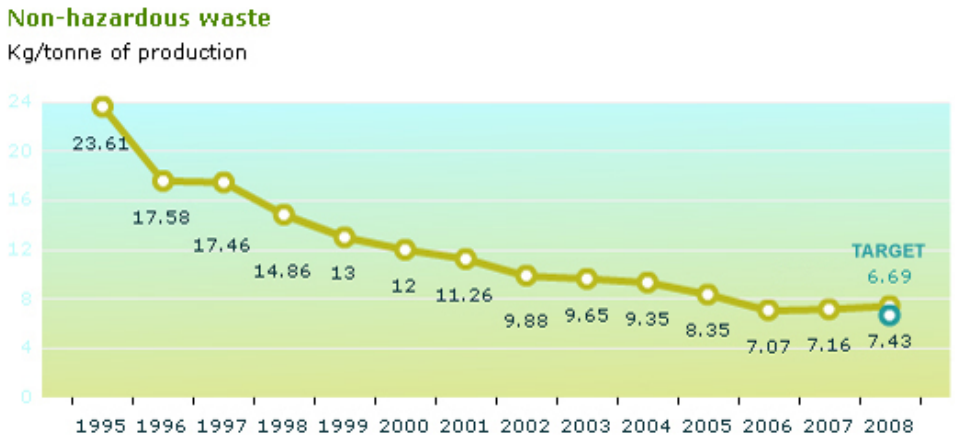




In 2008, there was an overall 22.1% increase in the disposal of hazardous waste measured as load per tonne, and a 16.7% increase in absolute load. We had anticipated an increase in 2008 because new safe disposal routes have become available. Primarily as a result of the disposal of accumulated waste that occurred (some 2 023 tonnes), we just exceeded our 2008 milestone for an increase of 20.4% per tonne of production. Apart from the disposal of accumulated waste (mainly in India and Colombia), additional reasons for this were increased site complexity (eg in South Africa and Indonesia) that reduced the recycling of non soapy detergent powders and liquid effluents, and reclassification of effluent treatment plant (ETP) sludge which is now disposed of as hazardous waste, eg in India.

In contrast, there has also been a marked reduction in hazardous waste at some sites due to reduced product waste (UK and South Africa), improved waste segregation (Argentina, Indonesia and South Africa) and identification of new recycling routes, eg in Canada and the UK. Eight sites managed to reduce their hazardous waste by more than 100 tonnes. Only 6.1% of our total disposed waste (hazardous and non-hazardous) was hazardous in 2008.

Non-hazardous waste



While there was a decrease in absolute load of 1.1%, there was an overall increase in non-hazardous waste of 3.7% on a load per tonne basis, meaning we did not achieve our 2008 milestone reduction of 6.7% per tonne of production. One reason for missing this target was that certain recycling routes for waste were no longer available in 2008. These included the composting route for liquid waste disposal in Argentina, previous use of waste in cement manufacturing in Indonesia, and the fact that effluent treatment plant (ETP) sludge could no longer be used for road building in Italy. Also, offsite recycling capacity was limited for waste from some of our sites in Turkey and South Africa. Additional waste was also generated as a result of effluent treatment plant overload (Argentina and the US) and increased sludge production (China and Ecuador). Some sites, eg in Thailand and South Africa, also experienced greater complexity which led to increased changeovers, washdowns and restricted on-site rework of waste.

Nevertheless, there were some examples of new recycling routes being employed by sites, including composting (Czech & Slovak Federal Republic, Brazil, Russia and Italy), anaerobic digestion of sludge (Czech & Slovak Federal Republic and Italy), together with strong waste reduction programmes

implemented by sites, eg in Canada, Australia and the US. Six sites reduced their non-hazardous waste by more than 1 000 tonnes, and a further five sites by more than 500 tonnes.

Recycling solid waste

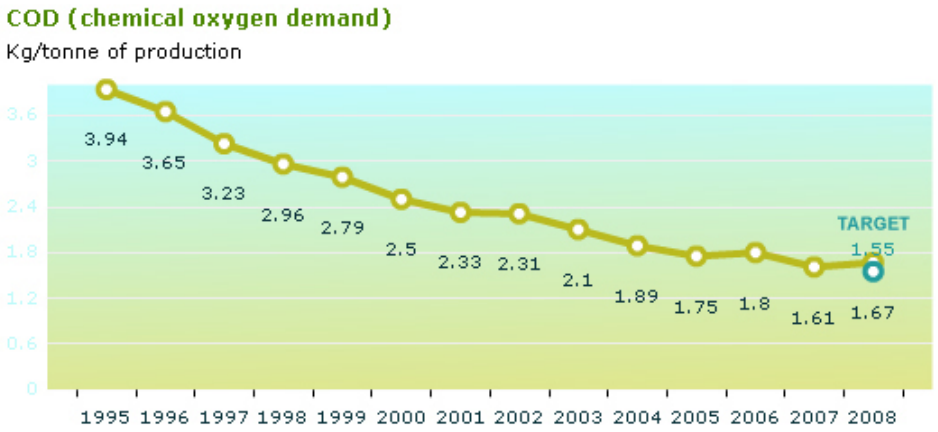
A significant amount of waste from our factories is sent for recycling instead of landfilling or incineration. Recycling data excludes materials or effluents that are reused or recycled within the factory. Most of the waste sent for recycling is food processing waste. In 2008, 8% of our sites (some 23 sites in total) did not dispose of any waste to landfill or incineration.

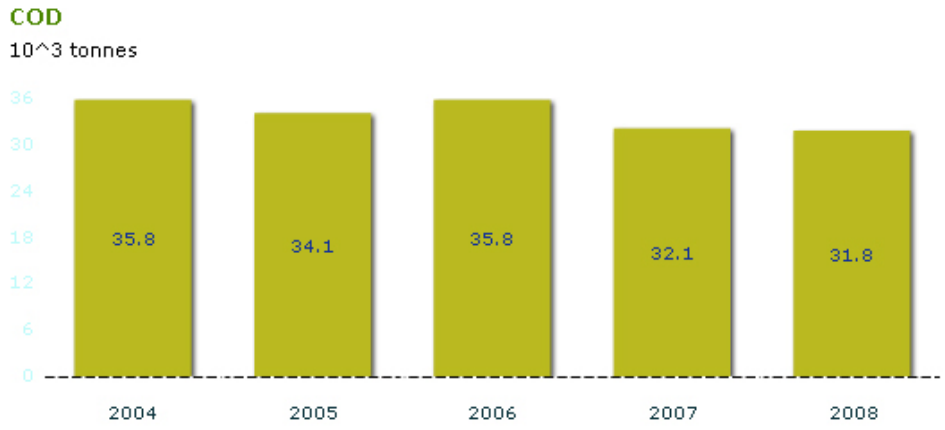
Year	Waste sent for disposal (10^3 tonnes)	Waste sent for off-site recycling (10^3 tonnes)	Total waste (10^3 tonnes)	Recycling (%)
1999	313.8	724.6	1 038.4	70.0
2000	287.0	1 122.4	1 410.1	80.0
2001	278.3	1 729.9	2 008.2	86.0
2002	231.0	1 249.8	1 480.8	84.4
2003	210.9	1 227.6	1 438.5	85.3
2004	188.5	717.0	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%

Waste material recycled

In 2008, 83.8% of our total waste (non-hazardous and hazardous) was sent for recycling. The amount recycled excludes materials or effluents that are reused or recycled within the factory.

COD (Chemical oxygen demand)





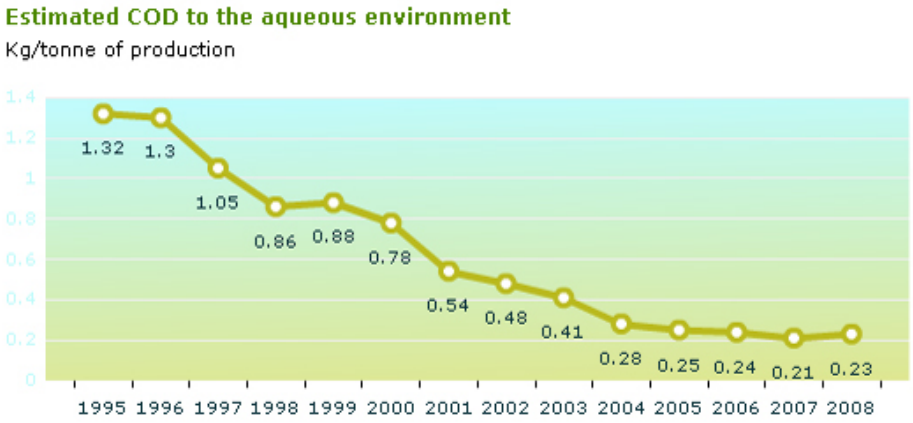
Chemical oxygen demand (COD) represents the ingredients and product lost during manufacturing, mainly in cleaning. The COD measure is widely used by regulatory bodies to control industrial wastewaters, and to calculate the correct level of charges for downstream municipal wastewater treatment.

In 2008 while our overall COD load decreased by 0.9%, the COD load per tonne of production increased by 3.7% and we did not meet our 2008 milestone of a 4.2% reduction. This was primarily due to effluent treatment plant (ETP) overload at some sites (Russia, Spain, Brazil, Israel, Indonesia) and higher COD loads due to increased production variants and associated changeovers (Netherlands, Germany and the US). However, some improvements were achieved through loss reduction programmes at sites in the US, Mexico and Côte D'Ivoire and through improved effluent treatment plant performance in the UK, South Africa and the US.

Almost all (97%) of the total COD leaving our sites is subsequently treated in municipal works. We estimate that 88.5% of this COD is removed, 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 of production, however, the amount of COD sent to the aqueous environment also increased slightly.

COD to the aqueous environment



97.1% of the total COD leaving our sites is subsequently treated in municipal works. We estimate that 88.5% of this COD is removed, so the COD reaching the aqueous environment is significantly less than the total COD leaving our sites.

In 2008, 45 of our manufacturing sites (around 15% of the total) did not discharge any industrial effluent. This was because they did not produce any effluent (in the case of some plantations and factories producing products such as tea) or they recycle it (in the case of some sites reusing treated effluent for on-site irrigation or in cooling).

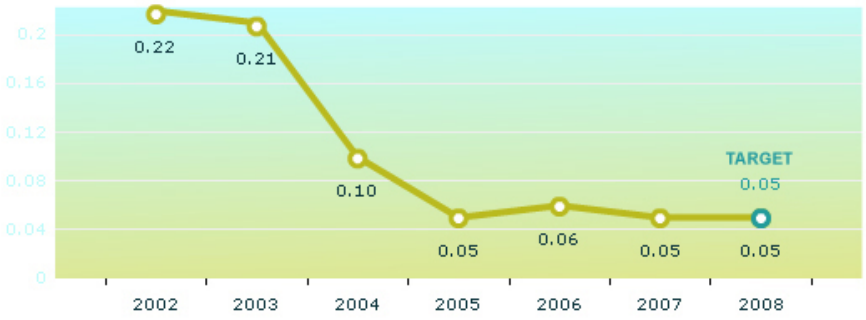
See below for charts on COD to watercourses, COD to municipal treatment and proportion of COD removed by municipal treatment.

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 88.5% of the COD before final discharge to the environment.

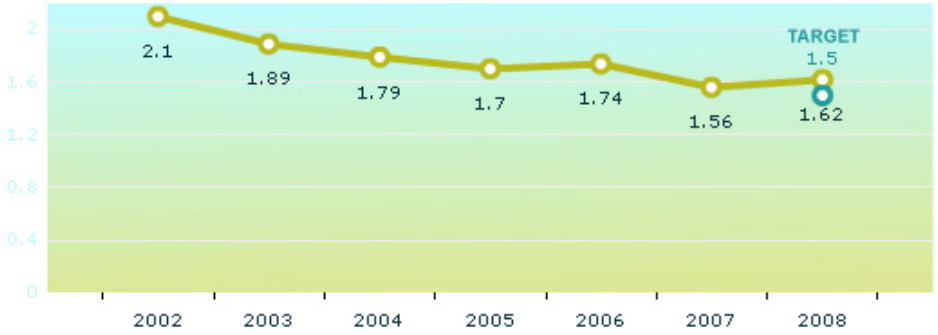
COD discharged directly to the aqueous environment

Kg/tonne of production



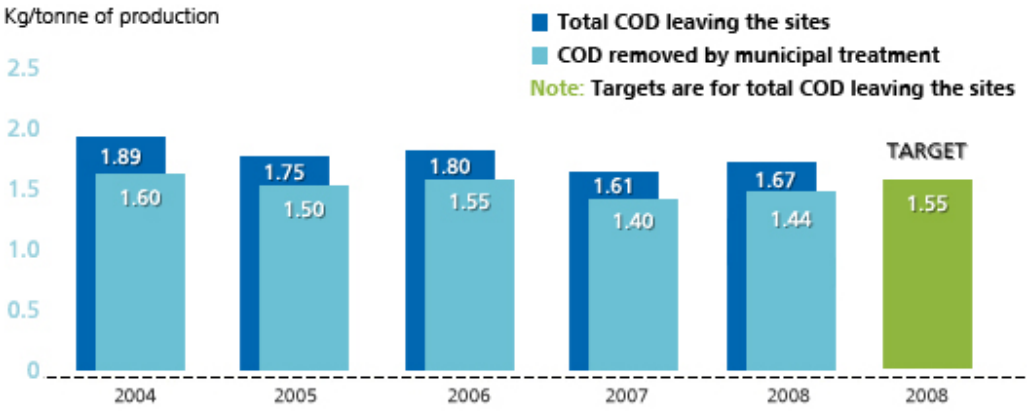
COD discharged to municipal treatment

Kg/tonne of production



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

Breakdown of total COD removed by municipal treatment



In 2002, total COD leaving the sites was 2.31 kg/tonne of production, COD removed by municipal treatment was 1.82 kg/tonne of production.