Unilever

Sustainable Development Report 2007:

Environmental sustainability

Environmental sustainability

Our commitment to sustainability requires us to go beyond our own operations and to seek reductions in the total environmental footprint of our business and brands.

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This section of the online Sustainable Development Report 2007 is available online at: www.unilever.com/ourvalues/environment-society/sustainable-development-report/environmental-sustainability

Environmental sustainability

Our commitment to sustainability requires us to go beyond our own operations and to seek reductions in the total environmental footprint of our business and brands.

Managing our environmental impacts

After more than a decade of action, we continue to make progress on managing the environmental impacts of our own operations. In most areas, our impacts extend far beyond our own operations.

On the 'upstream' side, in our supply chain, we use our Business Partner Code to ensure that our suppliers meet our expectations on environmental and social impacts. We estimate that over two-thirds of our raw materials come from agriculture, so our Sustainable Agriculture Programme has a key role in managing our upstream impacts.

On the 'downstream' side – when consumers use our products – we work in partnership with various organisations and engage with consumers to achieve improvements in our wider environmental footprint, for example on water use. Our research and product development teams also aim to reduce the environmental impacts of our products during consumer use through reformulation and other innovations.

Climate change

We have set stretching goals to reduce further our greenhouse gas emissions and are committed to working with governments and partners to meet the growing challenge around climate change.

Packaging

Packaging is essential for product protection, hygiene and effective consumer communication, yet also has impacts on resource use and waste.

Water

Our products depend on water throughout their life cycle, from the production and processing of raw materials to their use by our consumers.

Sustainable agricultural sourcing

With over two-thirds of our raw materials coming from agriculture, we have a clear interest in how crops are grown and in securing future supplies.

Eco-efficiency in manufacturing

We aim to improve the eco-efficiency of our manufacturing operations, minimising both resources used and waste created.

Other environmental topics

Read about our approach to other environmental issues relevant to us and to our stakeholders.

Climate change

We have set stretching goals to reduce further our greenhouse gas emissions and are committed to working with governments and partners to meet the growing challenge around climate change.

Progress in 2007

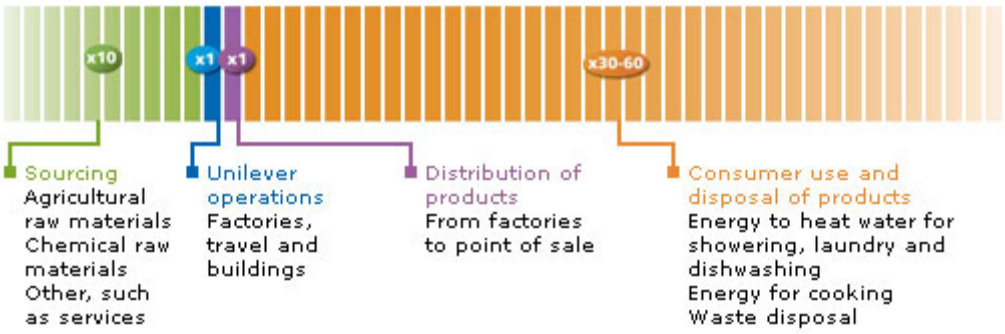
Climate change is now widely recognised as the most critical issue facing our planet. Different weather patterns are affecting agriculture, availability of clean water and sea temperatures. This will have direct effects on our business.

In 2007 the Unilever Executive agreed a new greenhouse gas strategy. This has a three-pronged approach.

- The first element is a commitment to reduce CO2 from energy in our manufacturing operations per tonne of production by 25% by 2012 (against a baseline of 2004). This builds on our performance to date, having achieved emission reductions in manufacturing of more than a third between 1995 and 2006. Reaching the 2012 target will mean a total reduction of 43% since 1995.
- Secondly, we have developed a 'greenhouse gas profiling tool' to enable our R&D teams to assess whether product innovations will improve their greenhouse gas footprint. Designed in partnership with Forum for the Future, it looks at a product's footprint across its lifecycle, from sourcing to use and disposal. The index can be used across all product categories and during 2008 the tool will become available to all our product development teams.
- Finally, we are exploring ways of working in partnership, in particular with our suppliers and customers. We are already involved in projects with Tesco in the UK, Wal-Mart in the US and the Carbon Disclosure Supply Chain Project and look to build further on this work in 2008.

Our carbon footprint

We estimate Unilever's total emissions of greenhouse gases from our own factories, offices, laboratories and business travel to be of the order of 4 million tonnes of CO2 equivalent a year. Our wider footprint can amount to between 30 and 60 times as much as our own emissions, depending on assumptions made about how consumers use our products.



Energy use in manufacturing

We aim to reduce greenhouse gas emissions in our manufacturing processes. We do this by promoting eco-efficiency and increasing our use of renewable fuels.

During 2007 we continued to improve our energy efficiency and we also increased the proportion of energy coming from renewable sources. The proportion of energy coming from renewable sources now accounts for 15.2% of our energy use, up from 14.8% in 2006. Of this over half (8.6%) we generate ourselves on site, mainly from fuel crops and solid waste biomass. 6.6% was from national electricity grids.

In 2007, we strengthened our internal reporting on CO_2 emissions and focused our reduction initiatives on the 20 sites in each region with the highest levels of emissions.

Despite this, on a like-for-like basis, the total CO_2 emissions from manufacturing rose slightly, by 1% per tonne manufactured. This is largely because of changes in the energy mix used to generate the electricity we have to purchase from national grids in countries such as China, India and the USA.

We continue to work towards meeting our 25% CO_2 reduction goal by 2012, by adopting more efficient power and steam generation technology and through the development of more efficient manufacturing processes. For example, in Europe we plan to install at least five combined heat and power plants to help us achieve our goal.

At our Lipton tea gardens in Kericho, Kenya, over 95% of the energy used by the estate is from renewable sources. This comes mainly from our own hydro-electric power stations and the eucalyptus trees we grow to fuel the boilers that dry tea.

Site-level initiatives

Our Indian business, Hindustan Unilever, developed a new process that eliminates the need for steam in soap manufacturing. This process, called 'Ploughshare technology', reduces carbon emissions by 15 000 tonnes a year – around 4% of our manufacturing emissions in India, and is now being used in eight plants across the country. In 2007, the project became the first Unilever project to be awarded carbon credits under the UN's Clean Development Mechanism. The cost of investing in clean technology can have a clear payback for the business. In October 2007 each carbon credit was worth about €10-17, representing an income of €255 000 a year for Hindustan Unilever.

Unilever Germany's Stavenhagen factory produces potato products for more than 25 countries. In 2006, the factory sold its natural gas power facility to a specialist company which has built a more efficient combined heat and power plant using high calorific waste as fuel. Unilever has entered into a long-term fixed price contract to buy steam and electricity from the new generator. The plant was completed in August 2007 and is expected to use around 95 000 tonnes of waste a year. Moving from gas to waste will reduce annual CO_2 emissions by 25 000 tonnes and contribute significantly to local and EU targets for waste disposal and greenhouse gas emissions.

Unilever Canada's Rexdale factory is the leading manufacturing facility for oils and margarines in North America. Since 1999, it has implemented 128 energy-saving initiatives, leading to a reduction of 23 000 tonnes in greenhouse gas emissions, and estimated cost savings of €3.3 million.

Our wider carbon footprint

Beyond our direct impacts through manufacturing, our wider carbon footprint shows energy consumption at every stage of the value chain – including the sourcing, distribution, consumption and disposal of our products.

In the supply chain

We estimate energy use in the supply of raw materials to be around ten times our own manufacturing emissions. Energy is one of the 11 indicators used to assess the sustainability of sourcing raw materials under our Sustainable Agriculture Programme. Here we seek to minimise this by using

more sustainable land practices and reducing the use of nitrogen fertilisers and chemicals.

In distribution

Our products get to market via a complex transport network of road, rail and sea, although in most markets we do not own or operate any distribution vehicles ourselves. Our studies show that the impact of transport and distribution is around 4 million tonnes of CO_2 a year.

Trends in manufacturing are moving towards fewer, more efficient production centres. Resulting efficiencies can lead to significant reductions in overall environmental impact. However this trend can lead to an increase in transport impacts. If the environmental benefits of centralised manufacturing are to be retained, the challenge is to make gains in the efficiency of transport systems through better use of logistics planning.

We have started working with customers to minimise emissions by reducing the number of vehicle movements.

We are continuing our global roll-out of climate-friendly ice cream cabinets and by the end of 2007 had around 200 000 hydrocarbon refrigerant cabinets in use.

Energy savings from concentrated detergents

Concentrated variants of our liquid detergents have met with great success. Sold in smaller bottles, that require around half the packaging, they enable energy savings in manufacturing and transportation. Launched in the US in 2006 as all Small & Mighty, similar products have now been introduced in Europe under the Persil, Surf and Omo brand names.

In consumer use

Our wider carbon footprint shows that across the whole value chain by far the most CO_2 emissions occur during consumer use. This is most marked with our home and personal care brands which need energy to heat water for showering and for use in washing machines and dishwashers.

When it comes to consumer use, we can help reduce these environmental impacts through product design and formulation. Our greenhouse gas profiling tool will play an important role in this, supported by our expertise in life-cycle assessment.

We can also make a difference through our communications with consumers. We have long been involved in industry initiatives such as the International Association for Soaps, Detergents and Maintenance Products (AISE) 'Washright' initiative, which encourages consumers to wash clothes at lower

temperatures. Many of our laundry detergent brands such as Omo, Surf and Persil can now be used at temperatures as low as 30 degrees centigrade.

Carbon Disclosure Project

Unilever was again ranked first in the food products sector in the Carbon Disclosure Project's Climate Disclosure Leadership Index 2007, with a score of 90%. This initiative seeks information on behalf of 315 institutional investors with a combined US$41 trillion of assets under management, on risks and opportunities presented by climate change. The index singles out companies that showed best practice in their reporting of greenhouse gas emissions and climate change strategies. We have participated in the CDP questionnaire since its launch in 2002.

If it's melted, it's ruined

Ben & Jerry's new Baked Alaska flavour is part of its European campaign to stop global warming. 15 euro cents from the sale of each tub go towards Ben & Jerry's Climate Change College. The brand plans to invest €2.4 million over 2007-2012 in reducing its impacts on climate change through initiatives covering every stage of its European production process and offsetting the remaining impact by investing in Gold Standard clean energy projects.

Available online:

Case study

Europe: New ice cream cabinets cut impact on climate change

More climate change and environment case studies

Climate change
Environment

Download

Advanced refrigeration in Europe to tackle climate change – Chilled by the sun (2004) (647 KB)

Why it matters

Climate change is arguably the most important issue facing our planet today. There is growing consensus that urgent action is necessary.

The issues

The earth has seen a rise in its average overall temperature and if it continues to warm we can expect further changes in our climate, including rising sea levels and increasingly extreme weather events.

These changes affect individuals, governments and businesses alike. The impact on our business operations around the world will be manifold.

- At a direct level, our suppliers of agricultural raw materials will be affected as changing weather patterns and water scarcity impact growing conditions and the seasonal growing cycle of food production.
- Global weather events will cause disruption to our consumers, displacing people and posing risks for security and business continuity.
- Many of these changes will be felt most severely in the developing and emerging countries that generate 44% of our sales.

We agree with the Stern Report that the risks to businesses of not acting now on climate change will prove more costly and detrimental in the long run. We are working to reduce our own carbon footprint and helping our consumers reduce theirs. Yet, on our own we cannot effect the changes required to avert the worst consequences of climate change.

In 2007 Unilever signed the Corporate Leaders Group on Climate Change communiqué to the United Nations conference on climate change in Bali, highlighting the urgency of the issue. This called for an international, legally-binding UN agreement to reduce greenhouse gas emissions. This would provide confidence for business to invest in low-carbon technology. The communiqué called fora reduction of at least 50% in greenhouse gas emissions by 2050.

Working with others

The scale of the climate change challenge means that industry, government and civil society have to work together to achieve real impact.

Working with others

In October 2007, along with other leading companies, we became founding members of the Carbon Disclosure Project's Supply Chain Leadership Collaboration. This aims to increase disclosure of carbon impacts among suppliers and thereby encourage reductions in their carbon emissions. This complements our existing approach and we have agreed to work with 50 of our global suppliers to standardise the information they provide and explore opportunities for jointly reducing carbon emissions.

We were again ranked first in the food products sector in the Carbon Disclosure Project's Climate Disclosure Leadership Index 2007.

In Europe Unilever is part of the Green Power Market Development Group to accelerate the change to renewable energy sources, where possible, in our operations.

In 2007 Wal-Mart asked Unilever to take part in a pilot project to examine and understand the carbon footprint of a number of products. We contributed our expertise in this area, using the example of our Lever 2000 soap brand. We shared our views on the complexities of measuring a product’s total carbon footprint.

We also take a leadership role in industry bodies that can influence consumer behaviour. Within AISE (the International Association for Soaps, Detergents and Maintenance Products representative body in Europe), Unilever has been actively involved in sustainability campaigns, such as 'Washright', launched in 1998 to encourage consumers to wash clothes at lower temperatures and use full washes. In 2006, we participated in the launch of AISE's new Save Energy and Water Campaign to promote sustainable machine dishwashing.

We are now taking part in a review and update of the AISE Charter for Sustainable Development, to develop new measures that will encourage continuous improvement in sustainability.

Working with customers

Our business in Thailand teamed up with retailer Carrefour and a local government body to launch a campaign to increase awareness of global warming among consumers. The campaign encourages shoppers to use cotton bags instead of plastic ones. The message 'Let's Make Bangkok Cool' was printed on 30 000 cloth bags distributed to consumers.

Climate change ambassadors

Ben & Jerry's Climate Change College, a scheme launched in partnership with the polar explorer Marc Cornelissen and WWF, continues to train 18-to-25-year-olds to campaign on climate change in their schools, workplaces and homes. In 2006, six young people were selected for the programme from the UK, the Netherlands, Germany and Ireland, and another six were chosen in 2007. In 2008 the College is active in eight European countries.

Developing climate-friendly refrigerants

In 2004, Unilever, together with Coca-Cola and McDonald's, sponsored a conference in Brussels called 'Refrigerants, Naturally!'. The conference showcased ozone and climate friendly freezer technologies. It was supported by the United Nations Environment Programme (UNEP) and Greenpeace. In 2007, PepsiCo, IKEA and Carlsberg joined the alliance. The 'Refrigerants, Naturally!' group continues to meet regularly to share knowledge and promote HFC-free technologies for commercial equipment.

In May 2005, the United States Environmental Protection Agency (EPA) awarded Unilever, Coca-Cola and McDonald's the EPA's Climate Protection Award. The award recognised the companies' joint efforts in promoting the development of environmentally friendly refrigeration technology.

More on our impacts

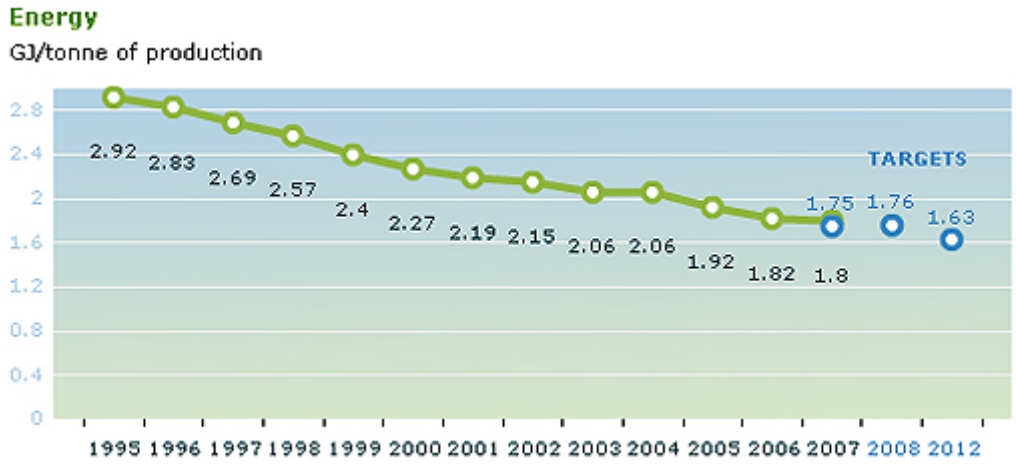
Read more about our approach to reducing our greenhouse gas emissions from manufacturing and to developing climate-friendly refrigerants.

Our approach

Life-cycle assessment shows that our manufacturing is not particularly energy-intensive. However, because of the scale of our business, energy is one of our focus areas. We are working to tackle climate change through eco-efficiency, advanced refrigeration and renewables.

To reduce our greenhouse gas emissions in manufacturing we have developed guidance on energy management and reduction which includes supporting tools, techniques and information.

Since 1999 we have focused both on energy (in GJ) and CO2 from energy use (in tonnes CO2) as it is our major greenhouse gas contributor, and set targets for each of these. Our CO2 from energy load has been calculated from source energy data using internationally accepted conversion factors derived from Greenhouse Gas Reporting Protocol.



Energy use in manufacturing

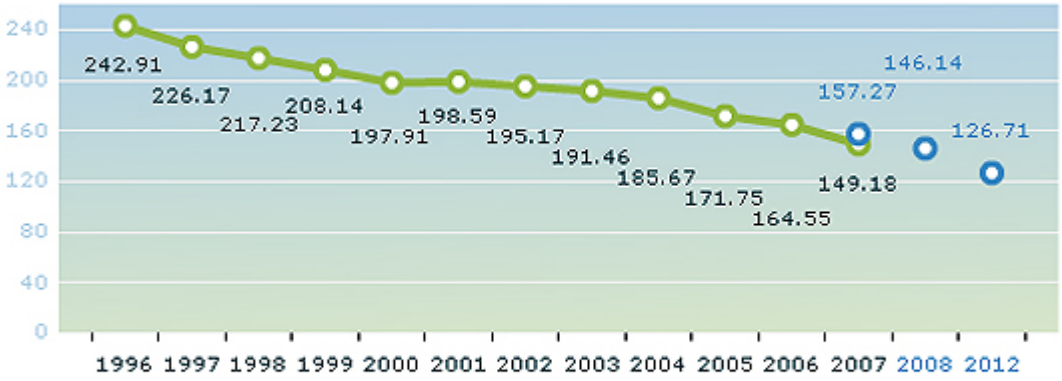
Overall there was a 1.3% reduction in unit energy load, although we did not achieve our target energy reduction of 3.7%. The reductions in energy use were achieved primarily through increased energy efficiency in large expanding sites (Turkey and India). Energy saving measures have also been implemented including an energy reduction programme in Mexico and removal of an energy intensive plant and improved monitoring of gas in Pakistan.

Seven sites reduced their energy use by more than 50 000GJ, and a further forty-three sites reduced theirs by more than 10 000GJ.

The increases in energy consumption were caused in part by reporting errors in previous years (South Africa, Nigeria and Indonesia) and better inclusion of biogenic material as an energy source (biogas in Italy and coffee husks in India).

CO_2 from energy

Kg/tonne of production



*Our 2007 data and 2012 target are shown using our improved reporting methodology (the lower figures) and previous reporting methodology (the higher values in brackets, viewed by hovering over data points). The 2007 target changed from 155.43 to 157.27 kg/tonne following an error corrected in our database target aggregation procedure.

CO_2 from energy – total emissions load

10^6 tonnes

*Our 2007 data are shown using our improved reporting methodology (the lower figure) and using our previous reporting methodology (the higher figure).

CO2 from energy

On a like-for-like basis, we did not meet our CO2 from energy target of a 4.4% reduction nor did we improve on our 2006 performance. Our CO2 from energy emissions increased by 1% per tonne of production. This was largely because of changes to the energy mix used to generate the electricity we have to purchase from national grids in some of our major manufacturing countries including the US, India, China, Brazil, Argentina and South Africa.

More accurate reporting led to a 10% increase in the reported CO_2 load for our US sites.

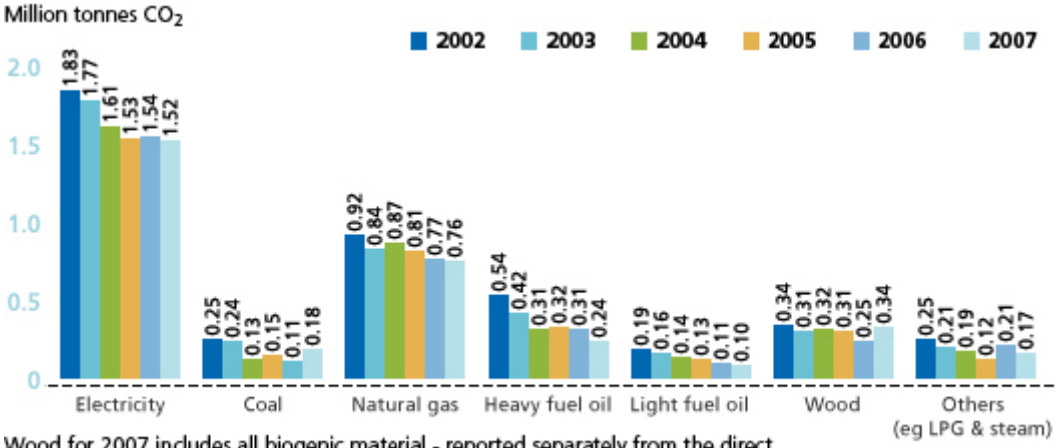
However, during 2007 we improved our methodology for reporting greenhouse gas emissions and on this basis CO_2 from energy per tonne of production is a lower figure
than that reported previously.

We will use this new methodology for performance reporting in the future and we have adjusted our future targets accordingly.

Energy sources account for 94.4% of our greenhouse gas emissions from our manufacturing sites (see pie chart below).

Sources of CO_2 emissions from different energy sources

Our manufacturing sites use different sources of energy depending on their production processes and also their geographical location. The following graph shows the CO_2 emissions from our different energy sources between 2003 and 2007.



Wood for 2007 includes all biogenic material - reported separately from the direct and indirect emissions listed above (scope 1 & 2 of the Greenhouse Gas Protocol).

Renewable energy

In 2007 we continued to collect data on the use of renewable energy. We make the distinction between our on-site initiatives to generate and utilise renewable energy and renewable energy purchased from the national electricity grids in the countries where we operate. Of the total energy used by our sites, 15.2% comes from renewable sources.

8.6% comes from our on-site initiatives, largely in developing countries, to generate and utilise renewable energy. This includes the burning of fuel crops, wood from managed plantations and waste materials (eg spent coffee beans and sugar cane bagasse), as well as hydro-electricity and biogas activities.

Three quarters of our renewable energy comes from either fuel crops or solid waste biomass.

The remaining 6.6% of our renewable energy consumption comes from the national electricity grids in the countries where we operate.

The table below shows the different types of renewable energy used.

	Internal energy generation or purchase GJ		**External energy generation GJ**	
Purchased	Certified green power	5 912	Renewable electricity from national grids	2 369 716
Generated	Solar photovoltaic	3.9		
	Hydro-electric power	28 115		
	Fuel crops	1 063 058		
	Solid biomass waste	1 353 507		
	Wood/wood waste	393 668		
	Liquid biofuels	186 711		
	Biogas	60 616		
Totals		3 091 056(8.6%)		2 369 716(6.6%)

There has been much debate around the use of biofuels as a source of renewable energy. For our position on this topic please see Renewable energy and biofuels section.

Sources of greenhouse gas emissions by type

The chart below shows in more detail our GHG emissions from the energy sources used by our manufacturing sites, together with other site GHG emissions (refrigerant losses, effluent treatment and waste to landfill). Non-energy sources account for only 5.5% of our greenhouse gas emissions from manufacturing.

Our main non-energy sources of greenhouse gases from manufacturing are methane emissions from landfilling biodegradable wastes such as paper,

cardboard, vegetable and milk waste (2.9%), carbon dioxide from aerobic wastewater treatment (1.1%) and refrigerants losses (1.6%).

We did not measure levels of three other major GHGs because Unilever's emissions are negligible. These are: nitrous oxide (produced mainly in nitric oxide manufacture), perfluorocarbons (mainly associated with aluminium and magnesium production), and sulphur hexafluoride (used in some electrical equipment).

Refrigerants

Energy consumption is the main environmental impact of refrigeration, which is essential to our foods operations, and ice cream in particular.

The global warming potential (GWP) of our refrigerants, such as hydrofluorocarbons (HFCs), hydrochlorofluorocarbons (HCFCs) and chlorofluorocarbons (CFCs), ranges from 1 200 to 8 500 (CO_2 has a global GWP of one). Almost all our production facilities and cold stores use ammonia in their refrigeration systems. Ammonia has a global warming potential of zero and has no effect on the ozone layer. Ammonia is a very energy efficient refrigeration gas for large-scale use which helps reduce our environmental impact further.

Our ice cream business owns a large number of ice cream cabinets worldwide. We aim to purchase only cabinets using hydrocarbon refrigerants where this is commercially viable and legally permitted. Hydrocarbons are natural gases that have negligible impact on climate change and do not contribute to ozone depletion.

The first trials of hydrocarbon cabinets were conducted during and after the Sydney Olympics in 2000. This was followed by a large-scale trial of 800 units in Denmark in 2003. We started our global rollout of hydrocarbon cabinets in 2004 with a total of 15 000 HFC-free cabinets in 18 European countries. By the end of 2007 we had about 200 000 hydrocarbon cabinets in use globally, with the majority in Europe. These cabinets are identified by the green label, 'eco-friendly freezer'. This hydrocarbon refrigerants initiative was rolled out further in Latin America and began its rollout in Asia during 2007.

Exploring new technologies

During 2004, Ben & Jerry's supported the development and demonstration of a thermoacoustic (sound wave technology) freezer cabinet. Unilever has been working in close co-operation with Greenpeace in the development of hydrocarbon refrigerant technology since 1996, in an alliance called 'Refrigerants, Naturally!'. See Working with others for more information.

During the Athens Olympics in 2004, we ran field trials on five solar power assisted freezer cabinets. Whilst neither of these technologies offer economically viable solutions at this point of time, we continue to monitor their developments.

Available online:

Case study

Europe: New ice cream cabinets cut impact on climate change

More climate change case studies

Climate change

News

September 2007: Unilever named as industry leader in latest Carbon Disclosure Project report

Downloads

Advanced refrigeration in Europe to tackle climate change – Chilled by the sun (2004) (647 KB)
Ozone depletion (177 KB)
Promoting Sustainable Biofuels (October 2007) (4.2 MB)

Renewable energy & biofuels

Unilever's position statement on renewable energy and biofuels.

Renewable energy

Unilever supports initiatives to improve energy efficiency and increase the use of renewable energy with the aim of combating climate change and eventually meeting the requirements of the Kyoto Protocol, thereby also reducing dependency on fossil fuels.

Globally around 15.2% of the energy we use comes from renewable sources and we are planning to increase this. Over the past decade CO_2 emissions from our factories have declined by over 30% in absolute terms.

We are convinced that the application of new technologies will allow for a substantial reduction of greenhouse gas (GHG) emissions. We encourage the use of these technologies. As part of our commitment to achieving our CO_2 reduction targets, we are increasing our use of renewable energy. Energy from sun, wind, water, wood, pulp, straw, residue and waste all offer a way of meeting the energy challenges of the future.

Unilever supports policies which accelerate the exploitation of cost-effective sustainable sources for renewable energy. The focus and emphasis of policymakers should be on the most cost-effective alternatives for efficient energy use and effective emission reductions. In addition, it will be important to be mindful of negative unintended consequences that could arise in the pursuit of GHG reduction strategies. One such risk is the potential impact of biomass energy programmes and biofuel targets in particular on food security and sustainable agriculture.

According to the World Bank and the UN Food and Agriculture Organisation (FAO), world population growth and increased economic development will require a substantial increase in food production in the coming years. As in the past, this increase in demand can largely be met by increased productivity. However, the additional use of food grade feedstock as biomass for energy on a large scale will compete heavily for land presently used for growing food. This could destabilise the world food supply and increase local food shortages and prices.

Biomass is a limited valuable resource with multiple uses including food, feed and fuel. Where biomass is used to generate energy, it should be used in applications with the highest GHG emissions savings. With current technologies this includes heat and power generation, which provide a much better performance relative to first generation biofuels.

Biofuels

Biofuels such as bio-diesel and bio-ethanol can be divided into first generation and second generation biofuels. Currently only first generation biofuels are on the market. Second generation biofuels are not yet commercially available. First generation biofuels are produced from feedstocks like vegetable oils, starch ethanol or sugar ethanol.

Unilever believes that first generation biofuels are neither environmentally efficient nor cost-effective ways to reduce GHG emissions. Many studies have shown that several first generation biofuels have a poor performance (which could even be negative) with regard to reducing GHG emissions and dependency on fossil fuels. In fact, a negative CO_2 balance occurs if forests or grasslands are replaced by crops which emit larger amounts of captured CO_2 in their production. Crops like rapeseed, the main feedstock for biodiesel, are very input intensive crops. The use of these crops for biodiesel production therefore offers only a very limited impact on GHG emission reductions.

In addition, we have concerns about the impact of the promotion of biofuels on the availability and sustainability of a number of raw materials that the demand for biomass could create. If healthy vegetable oils such as rapeseed oil are used in biofuels, these could become in short supply, driving consumers to animal fats – and the associated increased risk of heart disease and high cholesterol.

We believe that the development of high performance bio-energy technologies, including second generation biofuels with an efficient carbon and energy balance is essential. The mainstream market introduction of second generation biofuels would provide a strong incentive for the application of renewable energy technologies while minimising the negative repercussions on food markets and food security.

Unilever believes there is a strong case for government and business investment into new technologies and further research on the sustainable use of biomass. See our Promoting Sustainable Biofuels brochure for more information (download available in related links).

Sustainability for bio-energy

The availability of raw materials is essential for our business. This has led to the company undertaking several significant sustainability initiatives in partnership with other stakeholders. Unilever, for example, chairs the Roundtable on Sustainable Palm Oil (RSPO).

For all forms of bio-energy broader issues around sustainability apply: the use of valuable food crops for energy purposes will increase pressure on eco-systems and biodiversity. Deforestation, particularly in the case of palm oil

and soybeans, could lead to the devastation of the last remaining rainforests in Borneo and the Amazon region.

We believe governments worldwide have the responsibility to subject their bio-energy policies to a full impact assessment. These assessments should cover environmental, social and economic impacts, starting in the regions of production to end use. Policies which aim to reduce GHG emissions should contain full life cycle assessments for individual applications. This should include previous land use with regard to the carbon balance.

We believe sustainability criteria should be introduced for the use of biomass within energy programmes. This should include criteria at the production level as well as criteria at a macro-level like overall GHG balance and energy efficiency, food security, and the protection of biodiversity and eco-systems. We believe that the use of biomass for energy purposes should not be stimulated by government programmes without the application of transparent sustainability criteria, at the peril of generating unintended consequences that could actually undermine the original goal of a more sustainable energy policy.

Available online:

Promoting Sustainable Biofuels (October 2007) (4.2 MB)

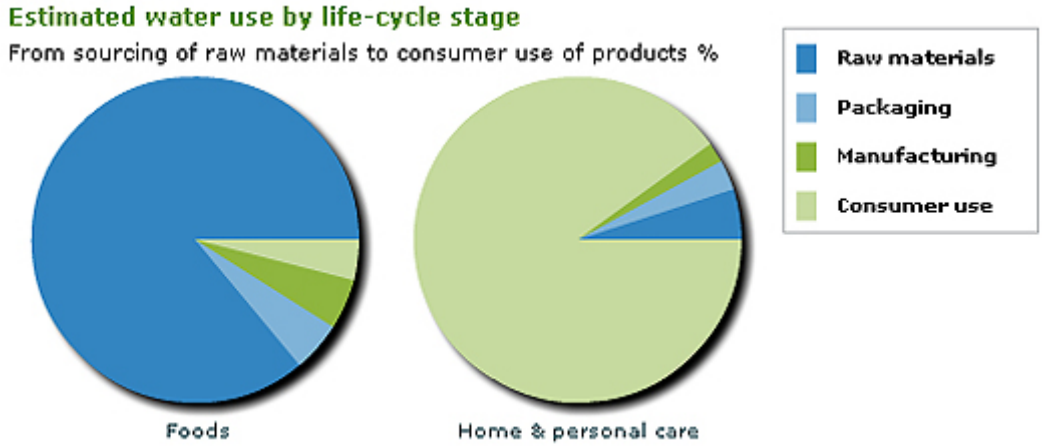
Water

Our products depend on water throughout their life cycle, from the production and processing of raw materials to their use by our consumers.

Water sustainability

As a global manufacturer of food, home and personal care products, our use of water resources is both direct and indirect. Water is used by our suppliers of agricultural raw materials for the growing of crops, in our factories as part of the manufacturing process and finally by our consumers when they use and dispose of our products through activities such as washing, laundry and cooking.

Understanding these impacts is central to our approach. Water stress is already a significant factor in many of our markets. Although we recognise action and behaviour change at a consumer and governmental level are crucial, where we can make the most impact is through the design and innovation of products which need less water to use.



Our water footprint

For our food brands, the majority of water use takes place 'upstream' in the growing of crops. For our home and personal care brands, consumer use accounts for the bulk of usage. For all these products, Unilever's manufacturing use makes up a relatively small proportion of the total.

Our approach

There are four elements to our approach to water sustainability:

- reducing water use in our manufacturing operations;
- working with agricultural suppliers to reduce their usage;
- designing products that require less water during consumer use; and
- participating in initiatives that aim to address these challenges through partnerships.

Reducing water use in manufacturing

Since 1995 we have reduced by 61.7% the amount of water we use per tonne of production by minimising water usage and maximising water recycling at our sites. In 2007, we reduced the total consumption of water in our operations worldwide by 4.9 million m^3 and the load per tonne of production by 7.5%, exceeding our target of 4.7%. These reductions have been achieved through site initiatives, such as:

- our home and personal care factories in Pondicherry, India and Rungkut, Indonesia achieved a 'zero effluent discharge' by installing new systems that treat all process waste water, enabling it to be recycled and reused within the factories. As a result, Pondicherry is able to save around 22 500 m^3 of water a year.
- our Caivano foods factory in Italy reduced its use of water by 20% and treated waste water is now used in cooling towers instead of being discharged.

Water harvesting in India

Our Indian business has also been looking further than its own operations to improve water use through water conservation and harvesting projects that impact on areas around their sites and aid adjacent villages. Through a series of technology innovations and new processing methods Hindustan Unilever has reduced groundwater consumption by over 50%, and introduced technologies that recycle effluent water after treatment.

At Hindustan Unilever's Khamgaon soap factory in Maharastra, a water catchment system channels rainwater through ditches and low earthen banks, meaning all the rainwater falling on the Khamgaon factory now accumulates in ponds on site. This helps renew groundwater reserves, which are running at critically low levels in the region.

Adjacent villages have also been helped to implement appropriate models of watershed development, helping to prevent rainwater from washing away top soil, thereby helping in soil conservation.

Water savings in agriculture

Water is one of the 11 indicators we use in our Sustainable Agriculture Programme. We are working with growers, especially in water-scarce areas, to reduce their impacts, for example through schemes such as drip-irrigation.

In the US we are leading a multi-stakeholder working group to develop a common metric for measuring water use in tomato irrigation. During 2008 we will test this metric and also work with specialists to develop water efficiency advice for farm irrigation.

In Tanzania we have been conducting research with academic partners and the Tea Research Institute of Tanzania for many years to understand how yield and crop quality are influenced by the amount of water supplied to the crop and the irrigation methods used. This has enabled an irrigation system to be built and managed so that it achieves very high fuel- and water-use efficiency. The latest trials have concentrated on understanding the advantages and disadvantages of drip irrigation, a method that can achieve very high water use-efficiency but at high capital cost. Trials completed in 2007 showed a 10% water saving compared to current irrigation techniques, with no loss of yield. This is equivalent to saving 70 litres of water for every kilo of black tea produced. When fully implemented on a 3 000 hectare farm it is anticipated that 700 million litres of water will be saved. Apart from conserving water and saving on energy, the system provides opportunity for more effective application of fertilisers.

All the water used for irrigation on our tea estates in Tanzania is harvested from within the farms during the rainy season (when there is little if any inconvenience to downstream users) and then stored on the farms in reservoirs and lakes for use during the dry season. Conserving the high proportion of rainforest within the Tanzanian estates (over 50% of the land area) is also vital to ensure that the catchment characteristics and local weather patterns are maintained.

Water use by consumers

Our approach to water sustainability increasingly focuses on consumer use, as this is where the greatest water usage occurs. We have been working on ways to help consumers reduce their water consumption through the design and innovation of products that require less water to use.

Brand innovations include Surf Excel Quick Wash, which aims to save as much as two buckets of water per wash for Indian consumers. Based on assumptions about laundry habits, we estimate potential savings in the region of 14 billion litres of water a year.

Our new Easy Rinse Comfort and Vivere fabric softeners also require less water. Based on a technologically complex innovation, these conditioners can be used directly after applying detergent, without the need to rinse in between. The way in which consumers use our products varies from country to country. We estimate that in Brazil, for example, this Easy Rinse formulation leads to an average saving of around 100 litres per wash.

Our Sunlight concentrated hand dishwashing liquid contains half the water of the standard format and its smaller, lighter bottle means fewer packaging and transport impacts. Concentrated liquids had disappointed consumers and customers in the past, so there were concerns about relaunching this formulation. However in recent years the consumer and customer landscape has changed significantly and environmental issues are rising up the agenda. In addition to the environmental benefits we were able to offer new innovations to further differentiate our product. For example, Sunlight concentrated liquid turns into a gel on contact with water, staying on the sponge longer to deliver better degreasing.

Our commitment to water sustainability extends to the quality of water once products have been used and disposed of by consumers. This is reviewed by our Safety and Environmental Assurance Centre in line with our policies on ingredients and materials in products.

Water quality

As well as seeking to reduce our water footprint, we are concerned about the impact of our detergent products especially, when they enter the waste water stream after use, as concentrations of phosphates can be damaging. Considering all the different ways in which our products are used and how ingredients break down is an important part of a responsible approach to water use. We are working for the detergents industry, academic institutes and government agencies in Europe to improve tools to predict the impact of household products on rivers.

Understanding how consumers use water

We have been working with the Royal Society of Chemistry to understand the barriers and triggers towards sustainable water use in South Africa. Called Project Splash, the study has been investigating the use of water in and around a South African township. The aim is to provide insights into consumer lives and behaviour that can help us direct our research and development resources.

External opinion

Unilever was named industry leader from a group of 15 major food and beverage companies in a recent analysis of companies' approach to water consumption. The study was carried out by the Ecumenical Council for Corporate Responsibility, a membership organisation representing Christian faith groups, ethical investors and NGOs. The analysis was based on companies’ policies on reducing water consumption, mechanisms in place to implement their policies, actual performance and public reporting. Unilever achieved the highest score based on our performance in all these areas.

Available online:

Case study

India: Surf Excel relaunched to reduce rinsing & conserve water

More water case studies

Water

Download

Project Medusa: Saving water in Latin America (365 KB)

Why it matters

Water scarcity is a growing problem in many parts of the world.

The issues

As fresh water supplies come under pressure, the need for better water management becomes ever more urgent.

This pressure is driven by changing weather patterns, increases in global population and rising per capita water consumption. The average amount of water people use varies across the world, but increases with industrialisation. The United Nations states we need a minimum of 50 litres of water a day for drinking and other basic needs. The average North American uses 350 litres daily, while in some of the poorest countries people live on as little as 10 litres.

Some 70% of total water consumption is used for agriculture. As populations across the world grow, so too will the demands from farming. Furthermore, access to fresh water is increasingly problematic as demand grows and water sources become polluted.

These issues are likely to be exacerbated by climate change, making access to water an issue for both farmers and consumers. Where this pressure on water supplies brings communities and countries into opposition, social and political conflicts will arise.

Working with others

We work with local and international partners to understand the water impacts of our products and to promote better management of water resources.

Our partnerships

The scale of the global water crisis requires a multilateral approach.

Washright

Unilever supports an industry-led pan-European communications campaign called 'Washright' that uses on-pack advice, an internet site and TV advertising to give consumers information on how to optimise laundry washing. The guidelines were developed by AISE – the European trade Association for Soaps, Detergents and Maintenance Products.

Unilever has been a long-standing champion of AISE's sustainability initiatives. In 2006 we participated in the launch of its Save Energy and Water Campaign to promote sustainable machine dishwashing. We continue to promote this initiative by including usage advice on our labels.

We are now taking part in a review and update of the AISE Charter for Sustainable Development, to develop new measures that will encourage continuous improvement in sustainability. Implementation across the industry is expected in 2009.

Assessing water quality

The Unilever Centre for Environmental Water Quality (UCEWQ) at Rhodes University was established in 2002. The following year the centre launched a project to assess the effects of laundry detergents used by locals to wash clothes in the Balfour River in South Africa.

The centre assists a number of additional projects aimed at improving the management and understanding of local water systems. It is contributing to a water quality management plan for Boksburg Lake and catchment area. This urban lake suffers from industrial and domestic pollution. Help for other projects includes water quality assessments and technical expertise.

Developing a water tool

The World Business Council for Sustainable Development (WBCSD) water scenarios project – in which we are involved – develops ideas on how water issues might evolve over the next 20–25 years. Using a scenario planning process to explore the complex issues involved, participants examine the influence of water-related issues on social, economic and environmental development and explore the role business can play in shaping appropriate

actions and outcomes. This work has now led to the development and launch of a software tool that enables companies to assess their water impacts and identify areas of water stress.

Water use & hygiene

We have been involved with Water & Sanitation for the Urban Poor (WSUP) since it was established in 2004. WSUP is a partnership between the private, public and civil society sectors. WSUP seeks to demonstrate new approaches to meeting the water, sanitation and hygiene needs of low-income consumers in urban areas, particularly in developing and emerging markets.

In 2007 we embarked on a project with WSUP to add a hygiene education element to their existing water and sanitation programmes, to see if this would boost their effectiveness. Together with WSUP and the London School of Hygiene & Tropical Medicine, we have designed an approach to hygiene behaviour change which will be tested in a pilot programme in Bangalore, India. This will assess whether improved water and sanitation conditions delivered in conjunction with a hygiene behaviour programme are better than infrastructure improvements alone.

For information on how we are promoting better hygiene through handwashing initiatives, see Hygiene.

Leadership commitment

In 2007 Unilever joined The CEO Water Mandate, bringing together business leaders committed to addressing water sustainability issues in their operations and supply chains. This initiative arose out of a partnership between the United Nations Global Compact, the Swedish government and a group of companies. It seeks to find strategic approaches to water management and engage companies in all regions of the world.

In May 2008, the chief executive officers of the 19 endorsing companies of The CEO Water Mandate, including Unilever, signed a letter to the G8, urging government leaders to take action on water.

Available online:

Case study

South Africa: Researching the effects of chemicals on water ecosystems

Downloads

SWIM: Water for the Future through Working with our Partners, (2002) (495 KB)
The CEO Water Mandate letter to the leaders of the G8 (2.7 MB)

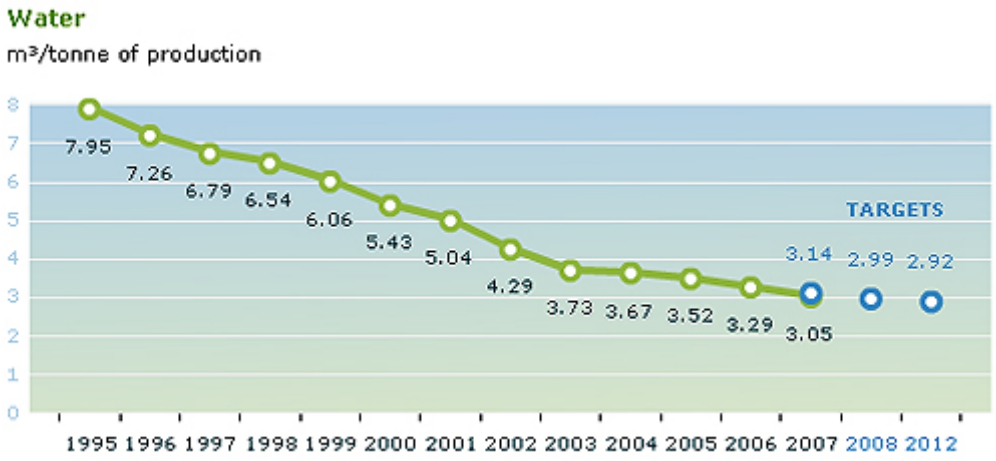
More on our impacts

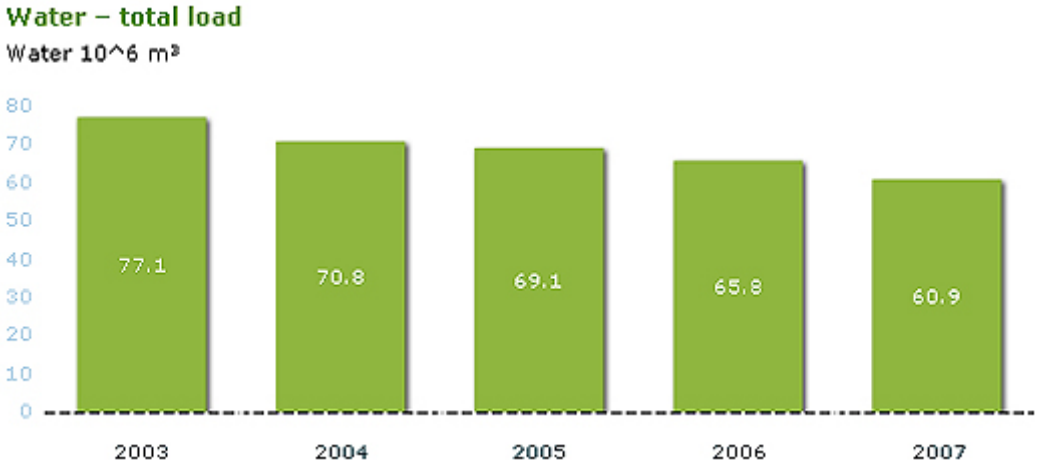
Read more here about our water use in manufacturing and in agriculture.

Water use in manufacturing

Our manufacturing operations account for less than 5% of our total water imprint. We started systematically measuring water consumption in manufacturing in 1995. Since then, we have reduced overall water consumption per tonne of production in manufacturing by 61.7%.

We measure water consumption in all our factories. The data represent all water consumed and include water used as an ingredient in products as well as uncontaminated non-contact cooling water and wastewater.





In 2007, we achieved a 7.5% reduction in total water per tonne of production - exceeding our target of 4.7%. The main reasons for this decrease in water use were improved process temperature control for cooling water in the US and Sweden and more efficient cleaning in Italy, Switzerland and Spain. There was also a conversion to concentrated products in the US, resulting in less water consumption. In Brazil, a number of water reduction programmes were implemented.

Ten of our sites reduced their water consumption by more than 100 000m^3 and a further five sites by 50 000m^3.

It should be noted that over half the water used by our factories was not of drinking quality.

At many of our sites in dry areas we attempt to achieve what we call zero liquid effluent by recycling waste water or using it to irrigate land on the site.

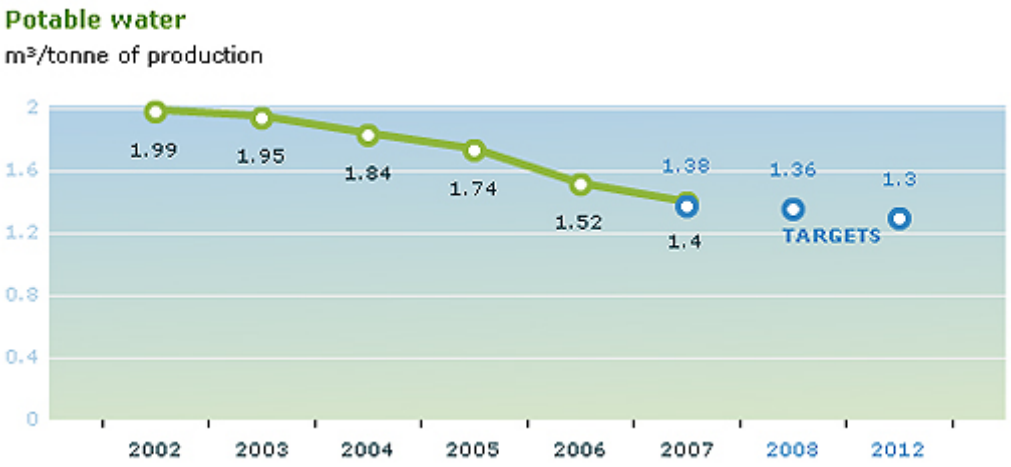
Regional initiatives to achieve reductions in water use

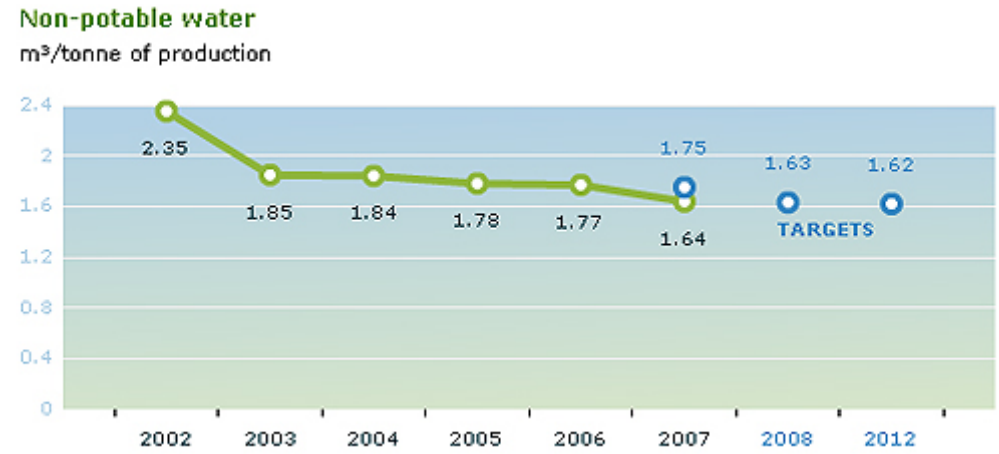
In 2003, Unilever Latin America challenged its foods manufacturing sites – 15 factories in ten countries – to cut their total water consumption as part of Project Medusa. The action programme combined the use of new equipment and systems with greater employee awareness of the need to save water. Between 2003 and 2005, the Latin America region reduced total water consumption by 7.9%, and load per tonne of production by 4.7%. The principles behind Project Medusa are being used in other parts of Unilever to reduce energy use and cut waste.

Project Conserve, for example, promotes water saving in our home and personal care factories. It aims to develop a step-by-step approach to eliminate effluent from factory operations. The project has made significant progress at our Vinhedo factory in Brazil. We have taken action to save water, improve efficiency, and encourage reuse and treatment of site effluent. We aim to use our learning from Project Conserve at other sites around the world.

Consumption of potable & non-potable water

While we use total water consumption as our key parameter of water consumption globally, we also collect data on the amount of potable (drinking quality) and non-potable (lower quality) water that we use. For some sites this information can be useful in helping them reduce the use of potable water.





See Environmental management for more information on how we manage the environmental impacts of our operations.

Water use in agriculture

Water is one of the 11 indicators we use in our Sustainable Agriculture Programme. We tackle our upstream water use by working closely with our growers to reduce their water impacts.

Growers are required to conserve water and prevent pollutants reaching surface and ground water sources. Different crops have differing water needs and our pilot projects are designed to reflect this.

Drip irrigation saves water

Tomato plants, for example, need lots of water. Drip irrigation on an experimental farm owned by Unilever in Brazil reduced water use by up to 30%. We are currently trialling 'remote' satellite controlled irrigation in Brazil to improve efficiency across all irrigation techniques.

In Greece, all our tomato growers now use drip irrigation. In the US we are leading a multi-stakeholder working group to develop a common metric for measuring water in tomato irrigation. During 2008 we will test this metric and also work with specialists to develop water efficiency advice for farm irrigation.

In Tanzania we have been conducting research with academic partners to understand how tea yield and crop quality are influenced by irrigation methods. Initial results from drip-irrigation trials showed at 10% water saving compared to current irrigation techniques, with no loss of yield. This is equivalent to saving 70 litres of water for every kilo of black tea produced. If implemented on a 3 000 acre farm, we anticipate this would save 700 million litres of water.

Since 2006 we have been running training programmes for farmers in Italy on best practice in spinach irrigation. This will continue into 2008. Initial results are promising on both water and the energy required to pump the water. A new low pressure irrigation technique developed by our Findus brand colleagues requires 45% less fuel to pump water.

Widening our scope

We have begun to expand our work at farm level to look at the wider impact of agricultural practices and the consequences of competing demands on water catchment areas. This is important because of the wider impact water quality and resources have on our business. Not only do agricultural practices have the potential to cause off site impacts, they can also be threatened by other activities, such as industry, that affect the supply and quality of water.

This work has led to some positive outcomes, such as Unilever Tea Tanzania's planting of 10 000 trees on its own estates and donating 20 000 indigenous trees to communities in its local water catchment area to help conserve water sources. We plan to plant a further 20 000 trees in local communities in 2008.

Unilever Kenya also began a tree-planting programme in 2000 which by the end of 2007 had led to more than 615 000 trees being planted in the local community and on its own estates.

Available online:

Water case study

Water

Downloads

SWIM: Water for the Future through Working with our Partners, (2002) (495 KB)

Project Medusa: Saving water in Latin America (365 KB)

Our approach to Eutrophication, including phosphates & fertilisers

Eutrophication (334 KB)

Packaging

Packaging is essential for product protection, hygiene and effective consumer communication, yet also has impacts on resource use and waste.

Our footprint

We sell around 160 million products every day around the world, which represents many millions of bits of packaging needing disposal. Our business currently uses a wide range of different materials, including: paper, board, plastic, glass, aluminium, steel and laminate packs such as sachets and pouches.

Our approach

With products on sale in over 150 countries, we need a coherent and sophisticated packaging strategy.

Our approach to responsible packaging seeks to take into account environmental, social and economic considerations. In 2007 we created a Responsible Packaging Steering Team to define a revised strategy. This team is building on the work already carried out over the past few years by the Unilever Packaging Group.

To date our approach has consisted of five key principles:

- Remove: to eliminate, where possible, unnecessary layers of packaging such as outer cartons and shrink-wrap film – an area where our retail customers are increasingly setting reduction targets.
- Reduce: to reduce packages to the optimal size and weight for their contents.
- Reuse: to reuse packaging from the materials we receive at our factories.
- Renew: to maximise the proportion of packaging from renewable resources and to investigate the technical feasibility of biodegradable and compostable materials
- Recycle: to increase the use of recycled, recyclable and single-material components in packaging for easy sorting and recycling at the end of its use.

Reducing packaging and waste can have business benefits, too, as it can lead to cost savings.

Other priority areas

- We have set a goal of eliminating PVC from our packaging where there is a viable alternative. There are technical challenges to overcome where there are no clear alternatives, but we are focusing our research on these areas.
- Litter from used packaging is an environmental nuisance. The sachets we use in developing and emerging markets help make our products more affordable to consumers, yet can end up contributing to this problem. Finding a solution remains a challenge and we are currently looking at ways of working with partners to find solutions.
- We are continually looking to improve the sustainability of the paper we source, as it is a significant part of our packaging mix. We can do this through increasing our sourcing from certified forests or through the use of recycled paper. This can be difficult, however, as sustainable forestry practices vary significantly from region to region. We are working with both suppliers and NGOs to develop sustainable paper sources.

Available online:

Case studies

Brazil: Recycling consumer packaging waste
Global: Design & lightweighting
Thailand: Thailand's first packaging management institute

Why it matters

In recent years, concern has been growing about the packaging related to consumer products, both in terms of the resources and energy used to make it, and its contribution to waste.

The issues

Packaging is the visible face of our brands. It plays an important role in consumer choice, and allows the communication of important safety and usage information. It also protects our products from damage and contamination.

Yet concern over excess packaging is growing. Individuals, governments and campaigning organisations are increasingly alert to what they see as unnecessary levels of packaging. This has led to commitments by leading retailers to reduce the packaging of the products they sell.

At the same time, if consumer products are to succeed in the competitive retail market they need attractive, well-presented packaging that communicates brand identity while still being acceptable to consumers on environmental grounds.

We need to be able to reconcile these conflicting objectives.

While consumers can drive change through their purchasing decisions, they also need to be part of the solution through the way they dispose of used packaging. This in turn depends on the domestic recovery and recycling infrastructure provided by municipal authorities and the targets set by national governments.

A complex picture

In reality, totally sustainable packaging is very difficult to achieve. Each type of packaging material has a different footprint; some with more environmental impacts in sourcing, some in disposal; some with a greater impact on resource use, others in energy or water use. Often the best solutions are not the obvious ones.

The footprint is also dependent on local approaches to waste management. This can be seen in the way the developed and the developing world approach waste differently. In countries such as Brazil, waste can be seen as an opportunity for economic activity, with many informal but highly organised networks collecting waste for recycling. In mainland Europe, a significant proportion of waste is incinerated, with systems to harness energy from the process, and EU legislation will drive further reductions in landfill. Only by understanding how waste is treated at a local level can we design products suitable for each country's system.

Working with others

Given the complexity of the issues surround packaging and the various stakeholders involved, we need to work in partnership to find viable solutions.

Our partnerships

With businesses in many parts of the world it is important to understand the way waste management systems function at a local level.

In Brazil, our brands Knorr, AdeS, Omo and Rexona are working in partnership with supermarket Pão de Açúcar to promote a packaging recycling scheme for shoppers. Since the launch of this award-winning project in 2001, around 100 recycling stations have been established in 20 cities, working in partnership with more than 20 co-operatives. More than 20 000 tonnes of waste plastic, cardboard, toothpaste tubes and glass have been collected for recycling.

In May 2007, the project was extended to enable the collection of used cooking oil, which is sent to energy generating companies for use as a raw material in the production of biofuels. More than 23 000 litres of cooking oil have already been collected.

We are also a founding member of CEMPRE, a not-for-profit organisation working to improve recycling and waste management in Brazil. Since its inception in 1994, we have seen the initiative enhance the financial well-being and social status of more than 15 000 of Brazil's poorest people through co-operatives. It has also helped double Brazil's packaging recycling rates.

Unilever is also working with TIMPSE, a similar organisation in Thailand, to try to replicate the success of CEMPRE, and is investigating ways to roll out this kind of approach to other countries, together with other partners.

In Brazil we have worked in partnership with five small companies to boost recycling of the laminated materials that are used in products such as toothpaste tubes, sachets and soup packs. Using innovative technology and a process called thermo-compression, packaging waste generated during manufacturing and post-consumer waste can be turned into household items such as sink bowls and roof tiles.

As a founding member of the Sustainable Packaging Coalition we continue play a role by being a member of its Executive Committee. The group comprises over 160 packaging producers, users and retailers.

We are also a long standing member of EUROPEN (European Organisation for Packaging and the Environment). We are represented on its Executive and Regulatory Affairs Committees, working groups (including sustainability), and the REACH Implementation Task Force.

Available online:

Case studies

Brazil: Recycling consumer packaging waste
Thailand: Thailand's first packaging management institute

Innovation

We have been reducing the amount of packaging our products need through innovative design.

Reducing packaging through design innovations

By creating more lightweight plastic containers we can cut down on the overall amount of packaging material used. We use leading-edge computer aided engineering technology to help us.

- Our concentrated detergents, such as Persil Small & Mighty, require half the packaging.
- In Europe and South East Asia our new bottle design for Svelto detergent has helped save 220 tonnes of plastic a year.
- Suave, our North American shampoo brand, has reduced its packaging weight by 17% and is now the lightest weight bottle on the US market. This has allowed an annual saving in plastic resin of almost 150 tonnes - the equivalent of 15 million fewer shampoo bottles being thrown away each year.
- A new design for our Sure, Rexona and Dove deodorant bottles cuts plastic by 15%, saving 1 960 tons of plastic a year. As the design is more efficient to mould, it reduces energy consumption by around 6 million kilowatt hours - enough power for about 1 270 UK homes for a year.

- By eliminating an outer carton from our Knorr vegetable mix and creating a new shipping and display box, we halved the packaging, resulting in 280 fewer pallets and six fewer trucks a year to transport the same quantity.
- Reducing the width of the outer box of Lipton soup cartons saved 154 tonnes of card.
- By reducing the packaging height on Bertolli frozen meal pouches and the corresponding shipping boxes, we achieved savings of 5.3% on flexible packaging and 8.6% on corrugated material. As a result we require 397 fewer trucks a year.
- We reduced the width of our Lipton soup cartons cutting material use by 15.6%, leading to 6 437 fewer pallets and 132 fewer trucks a year.
- A new design for the Knorr Recipe Secrets soup pouch eliminates the need for an outer carton, allowing a 50% reduction in overall packaging materials.

Available online:

Case study

Global: Design & lightweighting

Sustainable agricultural sourcing

With over two-thirds of our raw materials coming from agriculture, we have a clear interest in how crops are grown and in securing future supplies.

Our aim

Unilever aims to buy all its agricultural raw materials from sustainable sources, so that

- Farmers and farm workers can obtain an income they can live on and improve their living conditions
- Soil fertility is maintained and improved
- Water availability and quality are protected and enhanced
- Nature and biodiversity are protected and enhanced.

World share of crops (volume)

Our approach

When we began our Sustainable Agriculture Programme, the theory and practice of 'sustainable agriculture' was still in its infancy. Over the years, we have built a body of knowledge on what sustainable agriculture entails for our key crops. Our approach is founded on tracking growing techniques for each crop against 11 indicators including water, energy, pesticide use, biodiversity, social capital and animal welfare.

Working in partnership with an external advisory board and expert agronomists, we have developed and published Good Agricultural Practice Guidelines for all our key crops.

Measuring change in agriculture is a slow process due to the length of growing cycles, but we have made progress. Our success has been greatest where we have most influence, notably on our own plantations and with 'contract growers' from whom we purchase directly.

The broader supply chain

However, only a small proportion of our sourcing is from our own estates or contract farming. A large part occurs either through the commodity markets or through the many thousands of third-party growers whose crops reach us through a diverse network of suppliers. Achieving sustainability in this broader supply base is a much more complex and long-term process, and one where our influence is necessarily more limited.

This is difficult not only in terms of the size and scale of the task, but also in educating and convincing farmers of the benefits of sustainable practices. Changing established methods of farming requires us to engage with growers to explain the benefits of a sustainable approach. To this end we are running workshops with suppliers to raise awareness about sustainability. To date we have run a total of nine events in six countries – the Netherlands, Italy, Germany, US, India and China. Two more events are planned for 2008.

Given the unpredictable nature of growing crops, it is rarely possible to guarantee a totally sustainable source. Nevertheless, this remains our long-term ambition.

Progress in 2007

The focus of our activities in 2007 has been to work closely with our supply-chain function to communicate our guidelines to our most significant global suppliers of fruit and vegetables – around 120 in total, representing 65% of total supply by value. Our brands, in particular, Knorr rely heavily on the ingredients these suppliers provide. We have asked our suppliers to complete a self-assessment against our guidelines and have developed a software system to enable us to store and track this information.

In 2008 we plan to fully implement the software system, building a more accurate picture of supplier networks so that we can engage more effectively with them on improvements and priority areas.

Sustainable palm oil & soy

In May 2008, we committed to purchase all our palm oil from certified sustainable sources by 2015. This commitment builds on our long-standing work on sustainable palm oil. We began by developing and sharing our own guidelines and good practices for sustainable palm oil with our growers and suppliers, leading to the setting up of the Roundtable on Sustainable Palm Oil

(RSPO) in 2004. Through the RSPO, we have continued to work hard to build an industry consensus on criteria for sustainable palm cultivation.

Currently there is no certified sustainable palm oil available on the market. However in 2007, the RSPO developed national standards, based on the generic standard, and launched its certification framework 'RSPO certified'. We expect to be able to use the first certified palm oil as it becomes available in the second half of 2008.

We are also members of the Roundtable on Responsible Soy (RTRS), which seeks to establish agreed Principles and Criteria for responsible soya production. After thorough deliberation, in 2006 participants agreed on the key sustainability issues linked to soya production. They also agreed to formalise the Roundtable as a permanent organisation. In 2007, the Roundtable set up a Criteria Development Group which has started the process of developing a sustainability standard for soy farmers.

Available online:

Agriculture case studies

Agriculture

Downloads

Sustainable Palm Oil: Unilever takes the lead (2008) (187 KB)
Sustainable Agriculture, Sustainable Life (2.4 MB)
Growing for the Future, Unilever and Sustainable Agriculture. 3rd edition (2005) (3.5 MB)
Unilever's Colworth Farm Project: Putting Sustainable Agriculture to the Test (2005) (2.1 MB)
Sustainable winter oilseed rape: Good Agricultural Practice Guidelines (2007) (2.2 MB)

Why it matters

Where agricultural products come from and how they are grown are issues of concern to consumers, governments and campaigning organisations.

The issues

In recent years heightened media attention and public debate have turned the spotlight on issues such as working conditions for growers and labourers, the environmental impacts of cultivating crops, the economic well-being of producer communities and animal welfare.

People are looking to companies to take responsibility for these issues in their supply chain. This is consistent with our own approach and the commitments we have made in our Code of Business Principles and Business Partner Code. Failure to act on these issues is not only an operational risk but can be a source of reputational damage.

Equally, changing weather patterns, water scarcity and unsustainable farming practices could have an impact on our business, by threatening the long-term sustainability of agricultural production. With agricultural raw materials being so important to our brands, we have a clear interest in ensuring the security of future supplies. In recognition of this we set up our Sustainable Agriculture Programme in 1995.

An evolving approach

Initially our focus was on working with our own growers to set standards and improve practice. Later we began engaging with other suppliers to scale up this work. Now, we are increasingly seeing the necessity of connecting this work more closely into our brand development and communicating it to our consumers.

An early example of the potential of this approach is Lipton's announcement to procure all its tea from sustainable, ethical sources, and to work with the Rainforest Alliance to certify our tea supply. This is the first time a major tea company has committed to introducing sustainably certified tea on such a scale and is built on our work in this area over the last 10 years. We are the world's largest purchasers of black tea, accounting for 12% of world volume. We expect our commitment to make a difference to the lives of over 2 million tea workers.

In May 2008 we also committed to buy all our palm oil from sustainable sources by 2015.

Linking our expertise to our brands

Our sustainable agriculture team has been an integral part of our Brand Imprint process. It has contributed its expertise on sustainability issues for our key crops, such as tomatoes, palm oil and tea, and has also assessed a number of other ingredients such as walnuts, coconuts, pineapple and strawberries, which we use in smaller quantities. This has provided our brand teams with valuable insights on supply-chain risks and opportunities.

Our approach

We are among the world's largest users of agricultural raw materials, and a major buyer on world agriculture markets.

In Germany, Unilever has worked with UFOP, an independent association that promotes the development of oilseeds and protein crops; the university at Halle; and farmers to develop and publish guidelines for the sustainable management of winter oilseed rape.

Sustainable agriculture programme

We have always aimed for a responsible approach to farming practices. In recent years it has become clear that increasing environmental and social pressures on agriculture (which threaten our supply chains) and growing consumer concerns about the food chain (which threaten our markets) demand a more radical attitude.

We have been working with farmers for many years in developing agricultural best practice guidelines. The guidelines, which are incorporated into our contracts with growers, define soil preparation, fertilisation regimes, harvesting and other activities for our key crops. Current best practice is mainly based on integrated farming principles, and involves appropriate use of fertilisers and pesticides to optimise yield while minimising environmental impacts. The Sustainable Agriculture Programme came into being in the mid-1990s as a continuation of this work.

Our aim

Our aim is to ensure continued access to our key agricultural raw materials, and ultimately to develop market mechanisms that allow consumers and retailers to influence the sourcing of raw materials through their buying habits. Ultimately, our long-term aim is to buy all our agricultural raw materials from sustainable sources so that:

- Farmers and farm workers can obtain an income they can live on and improve their living conditions
- Soil fertility is maintained and improved
- Water availability and quality are protected and enhanced
- Nature and biodiversity are protected and enhanced

This poses a huge challenge for those involved in agriculture: farmers, scientists, experts, governments and businesses.

Improving farming methods

We have chosen to focus on how to improve the sustainability of current farming methods in particular locations, and how to make the production of the crops we need sustainable. We have started to do this where we directly influence agricultural practices used, ie on our own plantations and where we deploy contract farming.

Our programmes

Unilever's work on sustainable agriculture has focused on five key crops – palm oil, peas, spinach, tea and tomatoes. We call these our Lead Agriculture Programmes.

Unilever's impact

Through our Lead Agriculture Programmes, we are investigating ways of farming that protect the environment and maximise social and economic benefits. We are working closely with local growers and planters, research institutes, industry and farmers' associations, local government, NGOs and sometimes community groups.

Progress is measured using our sustainable agriculture indicators (see related links for details). Sustainable agriculture protocols for all our key crops have been published as Good Agricultural Practice Guidelines (GAP guidelines). In 2004, we started engaging with our growers in the use of these guidelines, in co-operation with other partners.

Palm oil

We buy 4% of total world palm oil production – around one million tonnes – every year, mostly from Indonesia and Malaysia. The oil's unique properties make it suitable for use in many everyday products, such as margarine and soaps.

In Ghana, we manage oil palm plantations and smallholder schemes, and also buy palm oil from other Ghanaian producers, for use in our factory in Accra. We are therefore testing a variety of sustainable production techniques for palm oil in Ghana. These include research on integrated pest management for leaf miners – a serious local pest which eats the palm leaves, reduces yield and can even kill the trees if very severe. It also includes recycling organic waste from the palm trees to improve soil quality, planting ground cover crops or terracing land to prevent erosion, protecting forest biodiversity and planting native trees on plantations to act as wildlife reserves and corridors.

The roll-out of the guidelines for palm oil is particularly complicated because of the large number of small-holders involved. Whilst we are working through

the Roundtable on Sustainable Palm Oil (RSPO) to help us communicate the guidelines across our widespread supply chain, we have made our own commitment to source all our palm oil from sustainable sources by 2015. See Working with Others for more information.

Vegetables

The sale of most of our European frozen food business in 2006 means we have reduced our work programme in peas and spinach considerably. The vegetables we use in our Italian Findus brand are grown by contract farmers in Italy. Most effort is put into Integrated Pest Management, a pest control management system that involves using less chemicals to control weeds, diseases and insects, together with more cultural and biological controls such as pest and disease resistant crop varieties, crop rotation and natural predators. We have started working with our vegetable suppliers worldwide in programmes that encourage their farmers to adopt sustainable farming practices.

The focus of our activities in 2007 has been to work closely with our supply-chain function to communicate our guidelines to our most significant global suppliers of fruit and vegetables – around 120 in total, representing 65% of our total supply by value. Our brands, particularly Knorr, rely heavily on the ingredients these suppliers provide. We have asked our suppliers to complete a self-assessment against our guidelines and have developed a software system to enable us to store and track this information.

In 2008 we plan to fully implement the software system, building a more accurate picture of the supplier networks so that we can engage more effectively with them on improvements and priority areas.

Tea (Kenya, Tanzania)

After water, tea is the most popular non-alcoholic beverage in the world. Unilever is the world's largest purchaser of black leaf tea, with annual sales of around 300 000 tonnes, which accounts for 12% of world volume of black leaf tea. Unilever tea plantations in Kenya and Tanzania are researching ways to promote good agricultural practices with social and ecological benefits. These include reducing pesticide use and supporting natural diversity by maintaining forest strips in the plantations. Most of the estates are also using plantation fuel wood and hydro-electricity to generate electricity and reduce CO_2 emissions.

Good practice guidelines for sustainable tea have been published as leaflets for small-holders in local languages. These help us communicate our approach to the many small tea farmers who supply us.

In 2006, we started a programme to develop farmer field schools in partnership with the Kenyan Tea Development Agency (KTDA) – the umbrella organisation of Kenyan tea grower co-operatives. With technical support from Wageningen University in the Netherlands, and financial support from the UK

Department for International Development, these schools aim to help tea growers introduce more sustainable practices. Evidence was mounting in the farmer field schools throughout 2007 that adopting these practices will help farmers improve their gross margins by 5 – 50 %, depending on their starting position. Eventually, KTDA will run the schools itself.

Most recently, in 2007 we announced that all the tea used in our Lipton Yellow Label and PG Tips brands in Western Europe will be sourced from farms certified by the Rainforest Alliance.

We decided that the Rainforest Alliance's certification was the most appropriate because of its comprehensive approach towards sustainable farm management, covering social, economic and environmental aspects. This is very much in line with the way we have been managing our own Sustainable Agriculture Programme over the years.

Tomatoes (Brazil, Greece, US)

Unilever uses about 7% of the world volume of industrially processed tomatoes. Most of our tomatoes are grown under contract by farmers in Brazil, Greece and the United States. We are working with our tomato growers in these three countries to investigate a range of sustainable agriculture practices. So far the programmes have focused on improving soil fertility, water management and pest control. An initial success has been to halve water consumption by using drip irrigation.

In the US we are leading a multi-stakeholder working group to develop a common metric for measuring water use in tomato irrigation. During 2008 we will test this metric and also work with specialists to develop water efficiency advice for farm irrigation.

Extending our agricultural initiatives

We have taken steps to extend our agriculture initiative to all major vegetable oils (including rape, sunflower, soya and olive oil), gherkins in India and dairy.

In India we supply growers with agricultural advice, seeds, fertilisers and pesticides, to enable them to grow gherkins (also known as 'cornichons') for a range of approved suppliers. Unilever offers the farmer a guaranteed price fixed at the start of the season. Both parties benefit. For the farmer, it means a secure income. For Unilever, it means a secure supply for its Amora brand.

We published Good Agricultural Practice Guidelines for winter oilseed rape in spring 2007.

Ben & Jerry's Caring Dairy initiative

Ben & Jerry's promotes sustainable practices in dairy farming through its Caring Dairy programme in Europe and the Dairy Stewardship Alliance in Vermont, US.

The Dairy Stewardship Alliance has developed a self-assessment toolkit which was used by 24 Vermont farmers in 2006. The Caring Dairy programme developed individual improvement plans for all participating farmers. To make this programme visible to consumers, Ben & Jerry's launched a website on sustainable dairy farming which also allows farmers to tell their story (see related links). In 2007, Ben & Jerry's teamed up with Netherlands based cheese producer CONO. Over 500 dairy farmers in the Netherlands now participate in the programme.

The aim is for all the dairy products in Ben & Jerry's ice cream to be produced sustainably by 2008.

Eggs

We are taking animal welfare seriously as a social, ethical concern. We believe that battery cages are animal unfriendly, and in Western Europe we aim to switch entirely our dressings business to barn eggs or free-range eggs well before 2012. Our Hellmann's, Amora and Calvé brands are developing their supply chains to source cage-free the 475 million eggs they use each year. Starting in 2008, Hellmann's mayonnaise in the UK and Ireland will be made with free-range eggs. In April 2008, we received the Good Egg Award from Compassion in World Farming (CIWF) for our intention to move to cage-free eggs.

Colworth Farm Research Centre (UK)

Since 1999, Unilever has been carrying out research into sustainable agriculture on the arable farmland around its research centre at Colworth, Bedfordshire. Researchers have been investigating a range of techniques to reduce the environmental impact of farming, while maintaining yield and profits for farmers. Recently, this research has focused on Controlled Traffic Farming, a system designed to reduce machinery costs while raising crop yields and improving soil health.

Available online:

Downloads

Sustainable Agriculture, Sustainable Life (2.4 MB)
Growing for the Future, Unilever and Sustainable Agriculture. 3rd edition (2005) (3.5 MB)

Sustainable agriculture indicators

Indicators (674 KB)

Oilseed rape

Sustainable winter oilseed rape: Good Agricultural Practice Guidelines (2007) (2.2 MB)

Palm oil

Palm Oil: A Sustainable Future (2002) (302 KB)
Sustainable palm oil – Good Agricultural Practice Guidelines (2003) (769 KB)

Peas

In pursuit of the sustainable pea (2002) (1.7 MB)
Sustainable Vining Peas – Good Agricultural Practice Guidelines (2003) (974 KB)

Spinach

Sustainable Spinach – Good Agricultural Practice Guidelines (2003) (810 KB)
Spinach – For a Sustainable Future (2003) (520 KB)

Tea

Tea - A Popular Beverage (2003) (425 KB)
Sustainable Tea – Good Agricultural Practice Guidelines (for small farmers) (2003) (234 KB)
Sustainable Tea – Good Agricultural Practice Guidelines (for large tea estates) (2003) (669 KB)

Tomatoes

Case study

Brazil: Drip irrigation cuts water & pesticides on tomato farms

Downloads

Sustainable Tomatoes – Good Agricultural Practice Guidelines (2004) (1.5 MB)
Tomatoes for a Sustainable Future (2003) (1.1 MB)

Colworth Research Farm Centre

Unilever's Colworth Farm Project: Putting Sustainable Agriculture to the Test (2005) (2.1 MB)

Working with others

Strong partnerships with a wide range of stakeholders are essential if we are to contribute to sustainable agriculture practices.

Sustainable Agriculture Initiative Platform

What can be achieved at farm level by Unilever alone is limited. We need the cooperation of others in the food industry to make progress in sustainable agriculture. That is why we worked with Nestlé and Groupe Danone to establish the Sustainable Agriculture Initiative Platform (SAI Platform) in 2002. This aims to develop knowledge about sustainable agriculture and communicate widely with a range of stakeholders.

The SAI Platform has working groups on five crops: dairy, cereals, coffee, fruit and vegetables (including potatoes). A working group on water was also started in 2007. For a list of SAI members, please see the link below.

Unilever workshop on sustainable agriculture

Each year, Unilever holds a sustainable agriculture workshop for our internal agricultural experts and external advisors to review progress and plan future work. In June 2007, the workshop was held in Parma, Italy with field trips to the nearby Consorzio Interregionale Ortofrutticoli (CIO), one of our major suppliers of tomato products in Italy (and fellow SAI Platform member).

Sustainable Agriculture Advisory Board

We involve stakeholders (non-government organisations, research institutes, agricultural experts and community organisations) in all aspects of our sustainable agriculture programme. This, for example, helps us to develop indicators and assess our Lead Agriculture Programmes.

We have formed a Sustainable Agriculture Advisory Board (SAAB) which comprises individuals from research institutes in the voluntary sector, academia and NGOs. Members advise on our overall approach as well as the standards for Unilever's selected key crops. Members are selected for their individual expertise, rather than to represent their organisations. Member biographies can be found in related links below.

Sustainable Agriculture Advisory Board members

Name	Institution	Country
Janet Barber		United Kingdom
Amadou Diop	Rodale Institute	United States

Keith Goulding	Rothamstead Research	United Kingdom
Louise Luttikholt	International Federation of Organic Agriculture Movements (IFOAM)	Germany
Richard Perkins	WWF-UK	United Kingdom
Rudy Rabbinge	University of Wageningen	Netherlands
Suhas P.Wani	International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)	India
Tensie Whelan	Rainforest Alliance	US
Stephanie Williamson	Pesticides Action Network UK	United Kingdom
Mark Lundy	International Center for Tropical Agriculture (CIAT)	Colombia

Roundtable on Sustainable Palm Oil

Palm oil is used in prepared foods, such as shortening in biscuits, and in personal care products, such as bath soaps. Palm plantations provide much-needed jobs but the expansion of production threatens forests and wildlife. Since the 1990s land under palm oil cultivation has increased by about 43%, primarily in Malaysia and Indonesia where most of world's palm oil is produced.

There are concerns about the expansion of palm oil plantations which leads to the clearing of forests. This often destroys plant life and habitats for wild animals. Fire is still used to clear land, despite a ban on burning in Malaysia and Indonesia. The smoke contributes to regional smog. Expansion has led to conflicts between local communities and landowners.

Unilever was one of the founders of the global Roundtable on Sustainable Palm Oil (RSPO) – an industry-led initiative set up in co-operation with the conservation organisation WWF in 2003. The Roundtable works with plantation owners and commercial users to devise standards for sustainable production. Other NGO partners include Oxfam and Sawit Watch.

A working group produced criteria for sustainable palm oil production. These were tested by a group of Roundtable members during 2007. Unilever's Sustainable Agriculture Director, Jan Kees Vis, is president of the executive board.

RSPO developed national interpretations of the generic standard in 2007, to allow for differences in national legislation in producing countries. During the

Fifth Roundtable Conference on Sustainable Palm Oil in November 2007, RSPO also launched its certification framework. Certified sustainable palm oil is expected to reach the market in the course of 2008.

See related links below to find out more about the RSPO.

Roundtable on Responsible Soy

Soya beans are a versatile source of raw materials for us. We use the bean to produce our soya milk AdeS, in Brazil, the oil in margarines and mayonnaise (outside Europe) and the lecithin as an emulsifier in many other products.

We are members of the Roundtable on Responsible Soy which seeks to establish agreed Principles and Criteria for responsible soya production. After thorough deliberation, in 2006 participants agreed on the key sustainability issues linked to soya production. They also agreed to formalise the Roundtable as a permanent organisation. In 2007, the roundtable created a Criteria Development Group, who have started work on the development of a standard for sustainable soy farming.

Our achievements in fish sustainability

In 1996 we co-founded the Marine Stewardship Council (MSC) with the conservation organisation WWF to establish a global standard for sustainable fisheries management. In 2006 we sold a large part of our frozen foods business, including our European fish business - with the exception of the Findus brand in Italy. Despite the sale, we remain committed to the goal of sustainability for our remaining fish products and will continue to support the MSC.

We are proud of what has been achieved since 1996. Although we were not able to reach our 100% sustainable sourcing target, there are encouraging signs that consumers are making the connection between their choices and the goal of sustainable development. Retailers including Tesco, Wal-Mart and Sainsbury's, as well as many foodservice companies, now source from MSC certified fisheries.

Available online:

Downloads

Fishing for the Future (765 KB)
South African Cape Hake Fishery (642 KB)
SAAB member biographies (82 KB)

Eco-efficiency in manufacturing

We aim to improve the eco-efficiency of our manufacturing operations, minimising both resources used and waste created.

Our approach

Reducing the impacts of our own manufacturing operations – eco-efficiency – is a core part of our strategy. Our long-standing work in this area has helped us improve the understanding of our impacts and underpinned our commitment to reducing our environmental footprint in areas such as water, waste and greenhouse gas emissions.

Our approach is underpinned by our environmental management system which is based on ISO 14001. An essential element is the setting and reviewing of targets for our key performance indicators (KPIs). This approach has helped us set our new target of reducing our CO_2 from energy per tonne production by 25% by 2012 (against a baseline of 2004).

Every year we collect data from each of our manufacturing sites using our web-based reporting system for key measures of environmental performance. Over the past 13 years we have continually improved the way we collect and report data. In 2007 we focused on improving reporting of our energy and CO_2 emissions to allow better reporting of data on renewable energy, biomass and resulting CO_2 emissions. This brings our reporting in line with the requirements of Greenhouse Gas Reporting Protocol.

Performance in 2007

287 manufacturing sites (including some sites that closed in 2007) in 69 countries reported environmental performance data. We do not collect data from third-party companies that manufacture or pack our products.

We improved our eco-efficiency performance in all areas apart from waste and CO_2 from energy. Whilst we met our water target and narrowly missed our Boiler/Utilities SO_x target, we did not meet our other eco-efficiency targets.

During 2007, we developed an improved, more accurate, methodology for reporting CO_2 emissions. On this basis our actual CO_2 emissions in 2007 were 149.175 kg/tonne. In future we will use this basis to set targets and report performance. On a like for like basis, our CO_2 emissions in 2007 were 166.291 kg/tonne, measured using the previous methodology, and we did not meet our CO_2 from energy target nor improve on our 2006 performance.

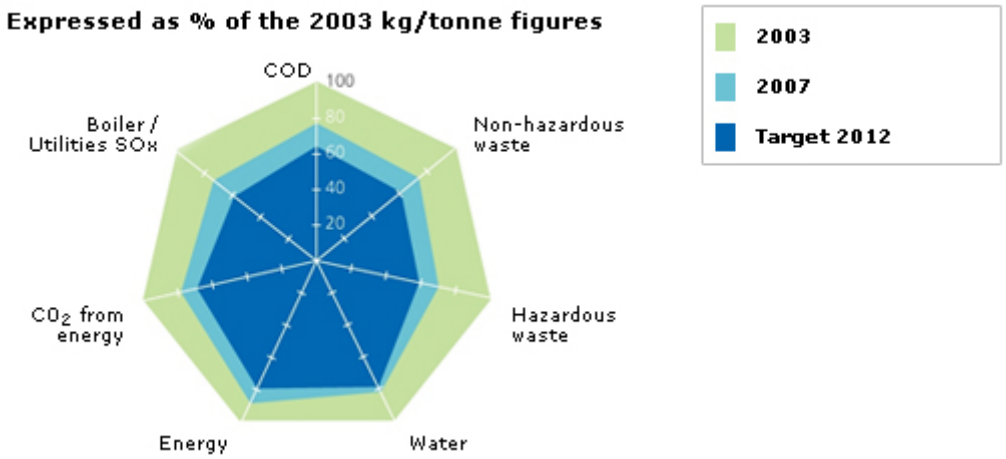
Target scorecard

Parameter	Target Reduction	Actual Reduction	Target Met

Chemical Oxygen Demand	16.3%	10.3%	No
Water	4.7%	7.5%	Yes
Energy	3.7%	1.3%	No
CO2 from energy	4.4%	-1.0%* (9.4%**)	No
Boiler/Utilities SOx	3.9%	3.3%	No
Non-Hazardous Waste	7.4%	-1.3%	No
Hazardous Waste	-1.0%	-2.8%	No

* CO2 reduction according to our historical reporting methodology.
** CO2 reduction using our improved reporting methodology for GHG accounting.

Reduction in load per tonne of production 2003-2007 & our targets for 2012



Parameters	2003 %	2007 %	Target 2012 %
COD kg	100	76.9%	64.0%
Hazardous waste* kg	100	72.2%	59.2%
Non-hazardous waste* kg	100	74.2%	61.8%
Water m^3	100	81.7%	78.2%
Energy GJ	100	87.2%	79.2%
CO2 from energy kg	100	77.9%	68.4%
Boiler/Utilities SOx kg	100	73.0%	59.6%

* Table shows hazardous and non-hazardous waste disposed of to landfill/incineration (not recycling).

Training

Unilever's Safety and Environmental Assurance Centre conducts eco-efficiency training courses throughout our business. These aim to deliver tools, techniques and awareness, and share best practice directly to the people responsible for reducing the environmental impact of our manufacturing operations. In 2007 we conducted training in Turkey and Ghana to drive progress on four areas of performance: chemical oxygen demand, energy, water and waste. We also held sessions in Argentina and the US focusing on energy and CO_2 emission reductions.

Environmental prosecutions & fines

While we try to maintain the highest standards of environmental management, problems sometimes occur. We monitor and report on all environmental prosecutions and resulting fines for infringement of environmental regulations. The figures shown in the table cover the 287 manufacturing sites that reported data for 2007 and include our corporate head offices and research laboratories (8). In 2007 there was one prosecution for non-compliance with liquid effluent discharge limits, resulting in a fine of €9 718.

Environmental prosecutions & fines 2003–2007

	Number of sites in Unilever	Number of sites reporting	Number of fines	Total cost of fines(€)
2003	384	383	6	3 749
2004	374	374	8	24 430
2005	345	345	5	4 226
2006	325	325	1	643
2007	295	295	1	9 718

Available online:

Our approach to eco-efficiency

Eco-efficiency (79 KB)

An explanation of our data parameters

Basis of Reporting (78 KB)

More on our performance

These charts show the eco-efficiency performance of our manufacturing sites over the past 13 years, and set out our targets towards 2012. We also explain in brief our progress in 2007.

Scope of data

In 2007, 287 manufacturing sites in 69 countries reported environmental performance data. This number included 10 sites that closed during the year; 3 sites were new reporters. We also collect data on environmental prosecutions and resulting fines, including from our corporate head offices and major research laboratories, which together represent an additional eight sites. We do not collect data from third-party companies that manufacture or pack our products (these account for approximately 15% of production).

Quality of data

We have continued to improve our global system for the management and reporting of environmental performance data through the development and global rollout of a web-based system. This has helped improve the management and validation of site-level data and allowed us to collate worldwide data faster and more transparently. In 2007 we focused on improving reporting of our energy and CO_2 from energy emissions for specific components such as renewable energy, biomass etc in line with the Greenhouse Gas Reporting Protocol.

100% of sites reported environmental data with 98.7% of sites reporting on all key environmental parameters.

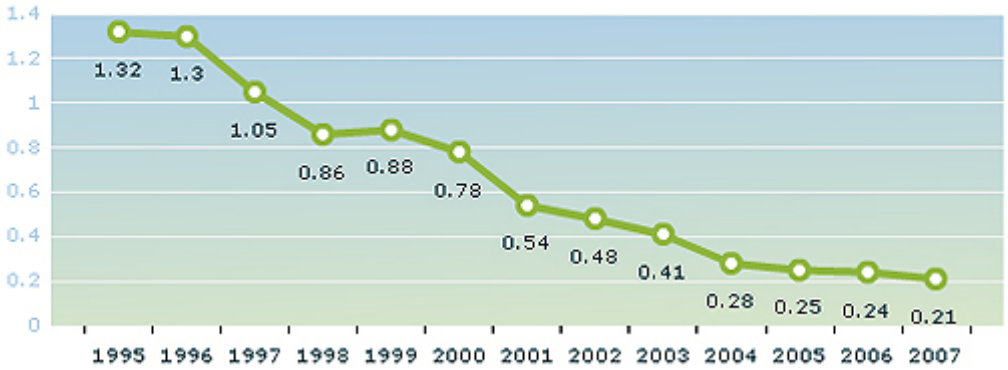
The definitions and basis of reporting of the indicators shown on these pages are described on our website under Basis of Reporting. Since the reported tonnages for 2007 and 2006 are virtually identical, the percentage change in absolute load for each KPI is very similar to the percentage change in load per tonne and therefore these values have not been covered in the following commentary.

COD (chemical oxygen demand)

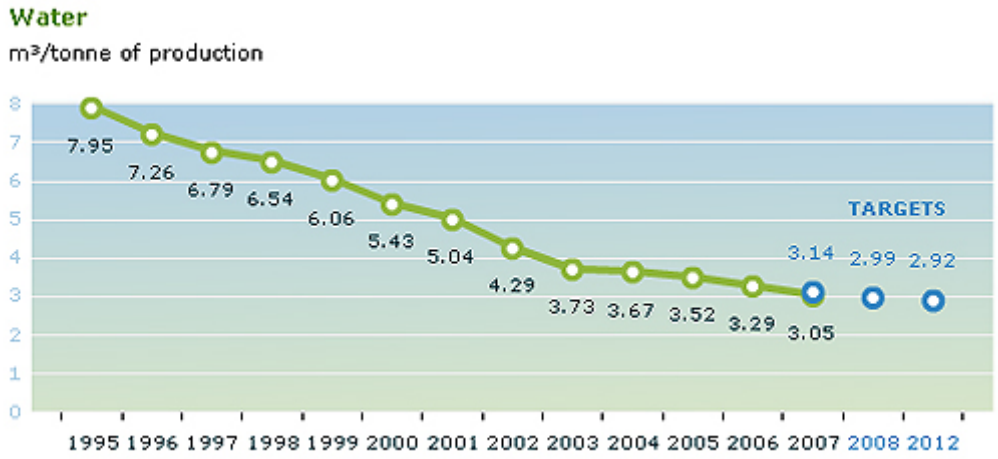
Kg/tonne of production

Estimated COD to the aqueous environment

Kg/tonne of production



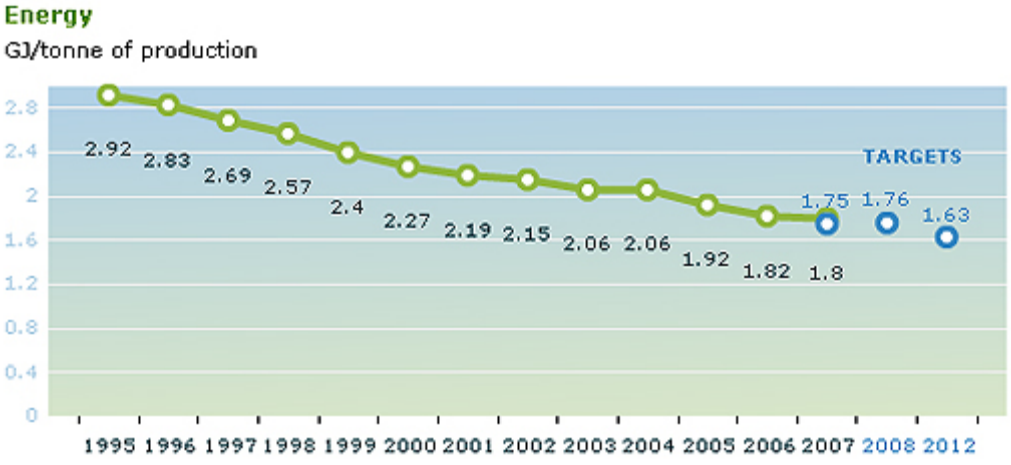
We achieved a 10.3% reduction of COD load per tonne in 2007, although we did not meet our stringent target for improvement compared to 2006 of 16.3%. Despite effluent treatment plant (ETP) overload in some sites (Russia, South Africa, Australia) and higher COD loads due to increased production variants and associated changeovers (Egypt, Germany), there was a good overall reduction in COD. This reduction was achieved primarily by process improvements (Netherlands, UK, US), improved cleaning processes (US), effluent reuse (Bolivia, Cote D'Ivoire), and new and improved ETPs (Germany, US, Indonesia and France). The amount of COD sent to the aqueous environment continues to decrease. Almost all (97%) of the total COD leaving our sites is subsequently treated in municipal works. We estimate that 89.8% of this COD is removed, so the COD reaching the aqueous environment is significantly less than the total COD leaving our sites.



In 2007, we achieved a 7.5% reduction in total water per tonne of production, and therefore significantly exceeded our target reduction of 4.7%. The main reasons for this decrease in water use were improved process temperature control for cooling water in the US and Sweden and more efficient cleaning in Italy, Switzerland and Spain. There was also a conversion to concentrated products in the US, resulting in less water consumption. In Brazil, a number of water reduction programmes were implemented.

Ten of our sites reduced their water consumption by more than 100 000m3 and a further five sites by 50 000m3.

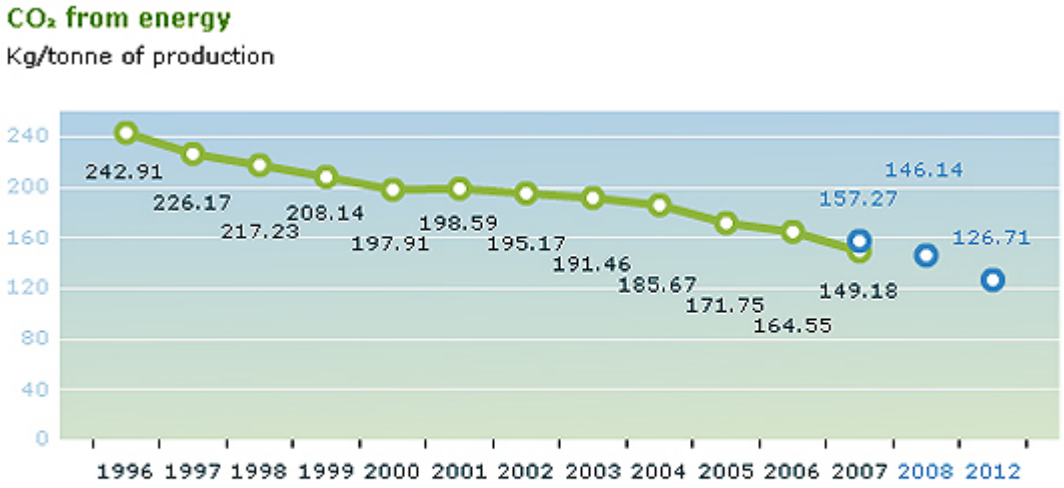
It should be noted that over half the water used by our factories was not of drinking quality.



Overall there was a 1.3% reduction in unit energy load, although we did not achieve our target energy reduction of 3.7%. The reductions in energy use were achieved primarily through increased energy efficiency in large expanding sites (Turkey and India). Energy saving measures have also been

implemented including an energy reduction programme in Mexico and removal of an energy intensive plant and improved monitoring of gas in Pakistan. Seven sites reduced their energy use by more than 50 000GJ, and a further 43 sites reduced theirs by more than 10 000GJ.

The increases in energy consumption were caused in part by reporting errors in previous years (South Africa, Nigeria and Indonesia) and better inclusion of biogenic material as an energy source (biogas in Italy and coffee husks in India).

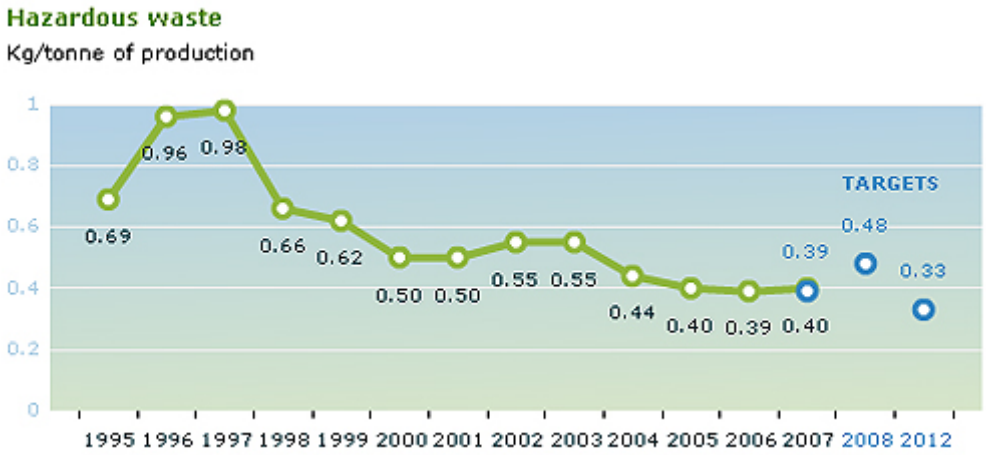


*Our 2007 data and 2012 target are shown using our improved reporting methodology (the lower figures) and previous reporting methodology (the higher values in brackets, viewed by hovering over data points). The 2007 target changed from 155.43 to 157.27 kg/tonne following an error corrected in our database target aggregation procedure.

On a like for like basis, we did not meet our CO2 from energy target of a 4.4% reduction nor did we improve on our 2006 performance where our CO2 from energy emissions increased by 1% per tonne of production. This was primarily due to increases in the CO2 emission factors for electricity in some of our major manufacturing countries (US, India, China, Brazil, Argentina and South Africa). In the US, North American Electric Reliability Council (NERC) factors were introduced for more accurate reporting. NERC factors are used for calculating indirect CO2 emissions from electricity in US and since electricity is responsible for two thirds of the CO2 emissions in the US, this has led to a 10% increase in the reported CO2 load for our US sites and raised the global total CO2 level by + 1.3%.

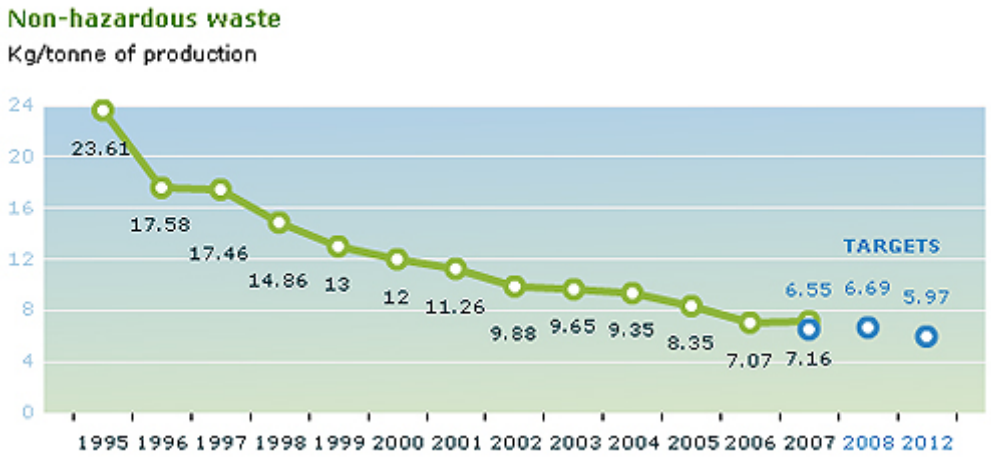
During 2007 we improved our overall methodology for reporting Greenhouse Gas emissions and on this basis the actual load of CO2 from energy per tonne of production is a lower figure than that reported previously. Going forward we will use this new methodology for performance reporting and we have adjusted our future targets accordingly.

Energy sources account for approximately 95% of our greenhouse gas emissions from our manufacturing sites. Of the total energy used by our sites, 15.2% comes from renewable sources, of which 8.6% comes from our own site initiatives and the remaining 6.6% is from national electricity grids. The majority of our site initiatives are in developing and emerging countries and include the burning of waste materials and fuel crops in our boilers.



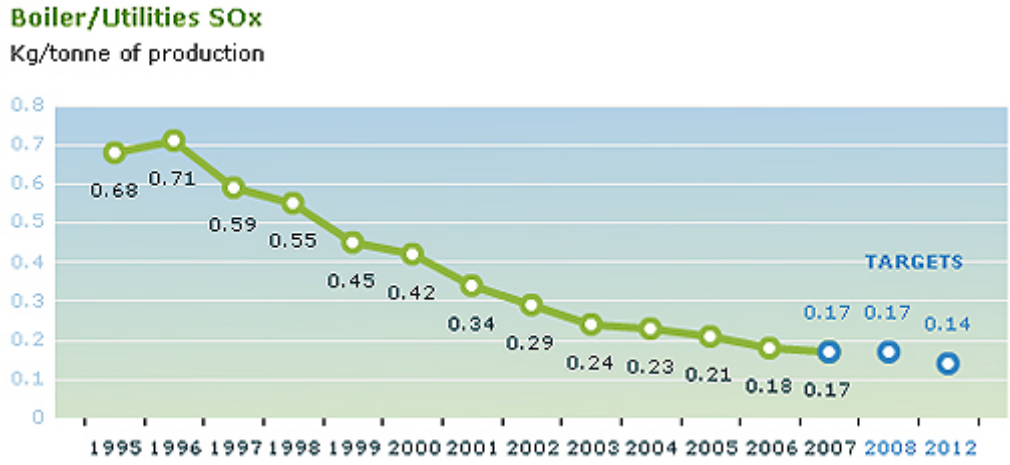
In 2007, there was an overall 2.8% increase in the disposal of hazardous waste measured as load per tonne. We had anticipated an increase during the year, because new safe disposal routes were expected to become available, but in the event exceeded our target increase of 1.0%. The main reasons for this increase were accumulated waste in India, increased site complexity (South Africa and Indonesia) that reduced the recycling of Non Soapy Detergent powders and liquid effluents, and an increase in effluent treatment plant (ETP) sludge being disposed of as hazardous waste (Indonesia, South Africa, Italy and Saudi Arabia).

In contrast, there has also been a marked reduction in hazardous waste at some sites due to reduction in ETP sludge (Hungary, India), reduced product waste (UK) and good waste reduction and recycling programmes (Mexico). Four sites managed to reduce their hazardous waste by more than 100 tonnes. Only 5.3% of our total disposed waste (hazardous & non-hazardous) comprised hazardous waste in 2007.



There was an overall increase in non-hazardous waste of 1.3% load per tonne and therefore we did not achieve our target reduction of 7.4%. The main reason for missing this target was that certain recycling routes for waste were no longer available in 2007. These included the composting route for liquid waste disposal in Argentina, the animal feed route for ice cream waste in Brazil, and the fact that effluent treatment plant (ETP) sludge could no longer be used for road building in Italy.

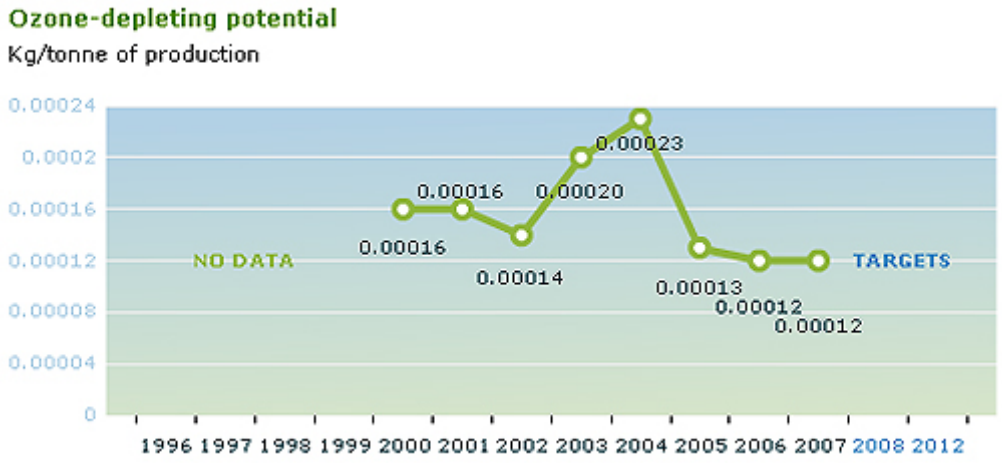
In addition, there was more product waste due to trials (US, China), changes in quality procedures led to less recycling (Costa Rica), more ETP sludge was generated due to better treatment (Argentina) and accumulated raw materials were disposed of in the US. However in 2007, 83.8% of our total waste (hazardous, non-hazardous and recycled waste) was sent for recycling. Two sites reduced their non-hazardous waste by more than 1 000 tonnes, and a further nine sites by more than 500 tonnes.



In 2007, we reduced the SOx emissions from our boiler and utility operations by 3.3% load per tonne of production and therefore we narrowly missed our target reduction of 3.9%. The main reason for the decrease in SOx emissions

was the use of lower sulphur content fuels including gas for fuel oil and using biomass (eg. bagasse, wood) as an alternative fuel in Malawi, Brazil, Cote D'Ivoire, Indonesia, Sri Lanka and India. An energy saving plan was also implemented in China, which included a new boiler, resulting in increased energy efficiency.

However further improvements in SOx emissions were hindered by an increase in the use of high sulphur fuels (Pakistan, US, Honduras and El Salvador) and the lack of available low sulphur fuel oil and coal for some sites in India and South Africa).



We measure the amount of ozone-depleting gases (CFCs, HCFCs and mixtures) in refrigeration, air conditioning and other applications at our sites, and assess the losses each year. The emissions are expressed as kg CFCR-11 equivalent. In 2007, the amount of ozone-depleting potential decreased slightly compared with 2006 and 68 sites reduced their ozone-depleting potential by more than 50%.

Available online:

Our approach to eco-efficiency

Eco-efficiency (79 KB)

Foods Category data

This section shows a breakdown of environmental data for our Foods Category for the last five years, 2003–2007.

Foods Category performance

The tables below show load per tonne of production, total emission loads and environmental fines. Production tonnage is also included in the total emission load tables.

Foods Category – Load per tonne of production

Parameter	Unit	2003	2004	2005	2006	2007
Chemical oxygen demand (COD)	kg/ tonne	3.32	2.86	2.79	2.93	2.58
Hazardous waste	kg/ tonne	0.40	0.20	0.19	0.14	0.13
Non-hazardous waste	kg/ tonne	12.96	12.39	10.86	9.33	9.41
Water	m3/ tonne	5.27	5.02	4.98	4.59	4.23
Energy	GJ/ tonne	2.43	2.39	2.23	2.10	2.06
Carbon dioxide (CO2) from energy	kg/ tonne	223.00	214.12	202.19	193.92	162.43
Boiler/Utilities oxides of sulphur (SOx)	kg/ tonne	0.18	0.14	0.13	0.10	0.10
Ozone-depleting potential	kg/ tonne	0.00027	0.00021	0.00017	0.00019	0.00019

Foods Category – Total emission load

Parameter	Unit	2003	2004	2005	2006	2007
Production	103 tonnes	10 443.3	9 946.0	9 952.6	9966.1	9932.3
Chemical oxygen demand (COD)	103 tonnes	33.7	27.7	27.4	28.9	25.4
Hazardous waste	103 tonnes	4.2	2.0	1.9	1.3	1.3

Non-hazardous waste	103 tonnes	135.3	123.2	108.1	93.0	93.4
Water	106 m3	55.0	49.9	49.5	45.7	42.0
Energy	106 GJ	25.4	23.7	22.2	20.9	20.5
Carbon dioxide (CO2) from energy	106 tonnes	2.3	2.1	2.0	1.9	1.6
Boiler/Utilities oxides of sulphur (SOx)	103 tonnes	1.8	1.4	1.3	1.0	1.0
Ozone–depleting potential	tonnes	2.8	2.1	1.7	1.8	1.9

Foods Category – Environmental fines

Year	**Number of sites reporting**	**Number of fines**	**Total cost of fines (€)**
2003	253	6	3 749
2004	244	3	7 449
2005	222	3	3 786
2006	206	1	643
2007	183	0	0

Home & personal care category data

This section shows a breakdown of environmental data for our Home & Personal Care (HPC) category for the last five years, 2002–2007.

HPC category performance

The tables below show load per tonne of production, total emission loads and environmental fines. Production tonnage is also included in the total emission load tables.

Home & Personal Care category – Load per tonne of production

Parameter	Unit	2003	2004	2005	2006	2007
Chemical oxygen demand (COD)	kg/ tonne	0.89	0.87	0.70	0.68	0.67
Hazardous waste	kg/ tonne	0.71	0.69	0.61	0.64	0.67
Non-hazardous waste	kg/ tonne	6.28	6.11	5.75	4.83	4.95
Water	m^3/ tonne	2.15	2.24	2.03	2.01	1.88
Energy	GJ/ tonne	1.68	1.70	1.60	1.55	1.54
Carbon dioxide (CO_2) from energy	kg/ tonne	159.28	155.27	140.48	135.47	136.10
Boiler/Utilities oxides of sulphur (SOx)	kg/ tonne	0.30	0.32	0.29	0.26	0.25
Ozone depleting potential	kg/ tonne	0.00012	0.00024	0.00008	0.00006	0.00006

Home & Personal Care category – Total emission load

Parameter	Unit	2003	2004	2005	2006	2007
Production	10^3 tonnes	10 236.9	9 316.3	9 686.7	10 041	10 071
Chemical oxygen demand (COD)	10^3 tonnes	9.1	8.0	6.76	6.85	6.71

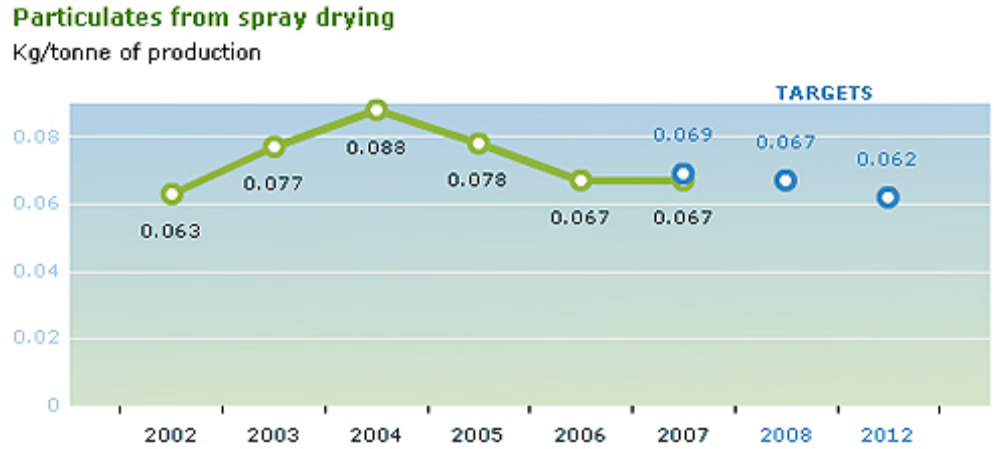
Hazardous waste	10^3 tonnes	7.2	6.5	5.9	6.4	6.7
Non-hazardous waste	10^3 tonnes	64.3	56.9	55.5	48.5	49.9
Water	10^6 m^3	22.1	20.9	19.6	20.1	18.9
Energy	10^6 GJ	17.2	15.9	15.5	15.5	15.5
Carbon dioxide (CO_2) from energy	10^6 tonnes	1.6	1.4	1.4	1.4	1.4
Boiler/Utilities oxides of sulphur (SOx)	10^3 tonnes	3.1	3.0	2.8	2.6	2.5
Ozone depleting potential	tonnes	1.2	2.3	0.7	0.6	0.6

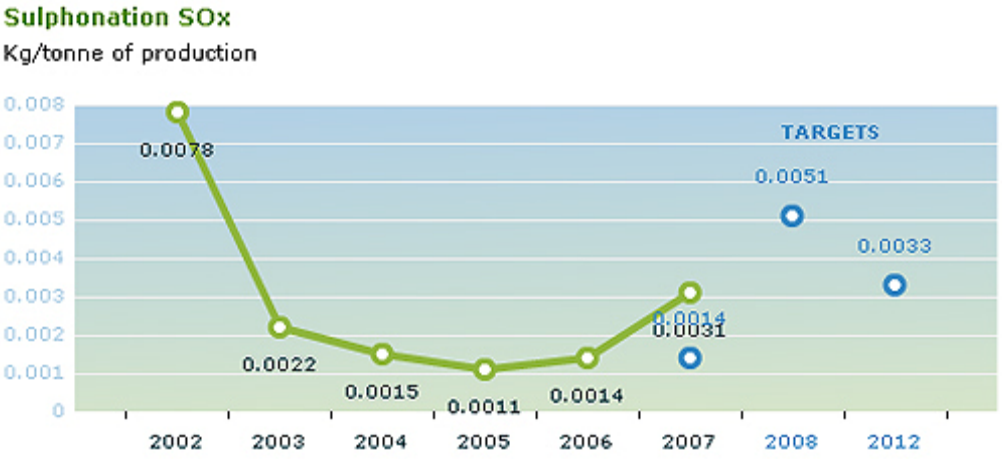
HPC fines & prosecutions

Year	Number of sites	Number of sites reporting	Number of fines	Total cost of fines (€)
2003	122	122	0	0
2004	121	121	5	16 981
2005	115	115	2	440
2006	111	111	0	0
2007	104	104	1	9 718

Specific air emission parameters for Home & Personal Care category manufacturing sites

We collect data from two processes used by our Home & Personal Care (HPC) category which produce emissions to air. These are: spray drying towers used to produce washing powder, and the production of sulphonic acid used in detergents.





Environmental management

Our environmental management system underpins our environment policy and strategy.

Our policy

Unilever is committed to meeting the needs of customers and consumers in an environmentally sound and sustainable manner, through continuous improvement in environmental performance in all our activities. See related links for full details.

Our strategy

Our corporate responsibility strategy has at its heart environmental themes such as climate change, water, packaging and sustainable agricultural sourcing. This strategy also sets out our commitment to making continuous progress in the area of eco-efficiency in manufacturing and integrating environmental considerations into product innovation and marketing plans. For more information see Strategy and governance.

Our management system

All Unilever companies must comply with the Unilever standards for occupational safety and health, environmental care (SHE) and our Consumer Safety Policy, in a manner that recognises, and is consistent with, local legislation. Our environmental management systems are designed to achieve continuous improvement and are based on, and compatible with, ISO 14001. A diagram showing the various elements of the Environmental Management System is shown below.

Unilever's environmental management system

Framework standards

All manufacturing sites have implemented our Environmental Care Framework Standards, which require all Unilever operations to establish a formal environmental management system. The framework is based on the

ISO 14001 management systems standard, and is ultimately applicable to all parts of the business.

The Framework Standards (which also cover occupational health) are supported by specific standards and guidance documents. These include specific standards covering third-party manufacturing, SHE management systems auditing / positive assurance, environmental performance reporting and for the notification and investigation of SHE incidents. Detailed guidance documents have also been generated to cover areas such as environmental aspects evaluation, incident investigation and audit protocols to assess compliance with the SHE framework standards.

ISO 14001

The number of ISO 14001 certified sites decreased slightly in 2007 from 143 to 136 based on the number of physically separate Unilever sites. This represents 47% of our manufacturing sites worldwide. During the year, a further five sites were certified, but six ISO certified sites were closed or sold, and a further six sites decided not to renew their certification. The decision whether or not to seek external certification to ISO 14001 lies with the specific region, operating company and/or manufacturing site, and is based purely on local business relevance.

Training & awareness

While all sites have a person responsible for environmental (or SHE) performance, by the end of 2007, 88% of our manufacturing sites had a trained environmental manager. A further 5% of the sites had managers who had been in the job for less than six months, and had not yet received specific training. The remaining sites – some of which are new to Unilever – will be providing appropriate training for their environmental managers as part of the requirements of the framework standards, except where there are plans to sell or close a site.

Various environmental training courses have been developed and implemented using a 'train the trainers' approach. Examples include: a course on how to implement the Unilever Environmental Care Framework standards; awareness training for senior managers (half day) and operational staff (two hours); specific eco-efficiency workshops on waste and water minimisation and energy efficiency plus a course for SHE auditors within each of our regions/business groups. Compact disks (CDs) with training material have been widely disseminated throughout the business.

An eco-efficiency training course, internally developed by our Safety and Environmental Assurance Centre (SEAC), has been run throughout Unilever since June 2003. The course aims to give employees the tools, techniques and awareness needed to reduce the environmental impact of our manufacturing operations, and provides a forum where good environmental practices (GEP) can be shared and discussed for implementation. Special emphasis is put on reducing water use, waste and energy consumption. The course is particularly effective when used as a starting point for the launch of collaborative projects such as Project

Electra (energy in Latin America), Project Triple R (waste in Asia Africa), and the award winning Project Medusa (see related links). During 2007 eco-efficiency training courses were held in Turkey, Ghana, Argentina and the US.

A Total Productive Maintenance (TPM) programme has been implemented throughout our business. This has improved our eco-efficiency performance. See the Eco-efficiency in related links for more information.

Sharing best practice

We have established intranet sites for SHE at corporate and business group level to help share best practice around the world. One example of this is a searchable web portal that has been developed with over 350 examples of good practice covering water, waste, chemical oxygen demand (COD) and general environmental issues. Our global network of senior SHE professionals also meets regularly to agree SHE programmes and identify future needs. Environmental awareness workshops are co-ordinated at a regional level.

In 2006 we rolled out our Triple R waste reduction programme at sites in Africa, the Middle East and Turkey. By sharing best practice and setting targets, these sites achieved a significant 27.5% reduction in total waste per tonne of production, narrowly missing their target of 30% reduction by the end of 2006. Through this project, our sites are finding ways of reusing waste, which can also have economic benefits. For example, spent bleaching earth is being used by local brick companies as fuel for kilns and as a filler for bricks.

Assurance

At least once a year, all operating units conduct a review of their business risks and their compliance with corporate policies. They also conduct a continuous self-assessment of their operating controls. These exercises are summarised in a Positive Assurance letter that is sent to the Corporate Risk Committee each year. This assurance covers all aspects of corporate responsibility, including compliance with the Unilever SHE framework standards (that cover environmental care and occupational health and safety) and the Consumer Safety Policy.

Supporting this assurance process is the principle that managers stand accountable for all aspects of corporate behaviour and performance in their units.

Audits & targets

Environmental auditing programmes have been implemented within each region to help sites achieve continuous improvement in environmental performance. Auditing is carried out by trained Unilever employees external to the site being audited. All Unilever manufacturing sites which are not certified to ISO 14001 are subject to an environmental audit at least once every three years. ISO 14001 certified sites are audited every year by the certifying body.

By the end of 2007, 93% of manufacturing sites owned by Unilever for more than a year had been audited. The non-audited sites are either new or less strategic and have yet to be included in the regional programmes, which are on a three-year cycle.

We are committed to improve the environmental efficiency of our manufacturing operations and all sites are required to set improvement targets. See Eco-efficiency below for more details.

Available online:

Downloads

Our approach to eco-efficiency

Eco-efficiency (79 KB)

Project Medusa

Project Medusa: Saving water in Latin America (365 KB)
Environmental policy (332 KB)
ISO 14001 certified sites (278 KB)

Life-cycle assessment

Our aim is reduce the impact of our products and processes on the environment. By understanding our environmental impact we can reduce waste, conserve energy and explore opportunities for reuse and recycling.

Our approach to life-cycle assessment

Life-cycle assessment (LCA) is one of a number of techniques we use to help us understand our environmental impacts. We use LCA in three ways:

1. Product innovation

When designing new products we routinely use LCAs to compare new and existing products and to measure the differences in their respective environmental profiles. This information is used to help guide product developers to support the launch of new products, and to inform consumers of the environmental performance of our products.

2. Product category analysis

We conduct LCAs on product categories or portfolios to help raise environmental awareness and to identify improvement opportunities. We support our sustainable agriculture initiative activities by completing studies on key crops and product categories, such as margarines and oils, tomato sauces, and dressings. In the Home and Personal Care business we have continued to build on over two decades of LCA experience with studies on the laundry, deodorant and skin care product categories.

3. Strategic studies

We have carried out a number of strategic studies using LCAs to help us to understand our environmental impacts. These include a study based on a methodology that assesses the potential impact of our annual business activities scaled against our contribution to the world economy. We have also carried out studies on our global water imprint, greenhouse gas emissions and aspects relating to transport.

Promoting eco-innovation

We recognise that many new opportunities will arise from increased consumer concern for the environment and changing environmental circumstances around the world.

We continue to promote the concept of eco-innovation, to improve the environmental performance of our brands and develop eco-efficient products and services. Activities include awareness-raising among our innovators and marketers; integration of eco-efficiency assessments into innovation programmes; research into consumer attitudes and behaviour on the environment; and developing partnerships with industry and retailers to foster the uptake of products with lower environmental impacts.

Strengthening our approach

This long-standing approach to life-cycle assessment has been crucial to the recent work we are doing on assessing the impacts of our brands through our Brand Imprint methodology, as well as the greenhouse gas profiling tool we have developed. With the growing interest in sustainability issues among our retail customers, we have also been able to share our expertise with companies like Wal-Mart and Tesco.

Available online:

Downloads

Eco-efficiency (79 KB)
Environmental policy (332 KB)

Examples of our life-cycle assessments

We have carried out detailed life-cycle assessments of our fabric detergents (tablets and capsules) and machine dishwash detergents. See these three reports (in pdf format) for further details:

Tablet Detergents: Towards a More Sustainable Future (2000) (403 KB)
Unit Dose: A Sustainability Step for Fabrics Liquids (2001) (2.3 MB)
Machine Dishwash Developments Steps Towards a Sustainable Future (2001) (3 MB)

Other environmental topics

Read about our approach to other environmental issues relevant to us and to our stakeholders.

Managing our impacts

We are conscious of our dependence on a healthy environment and the need to keep it that way with sound environmental practices of our own.

Many of the issues we face are outside our direct control – either at the beginning of the supply chain or at the end. Our Environmental policy requires us to remain alert and responsive to developing issues, latest knowledge and insight, and public concerns.

In addition to the key environmental issues we cover in this Sustainable Development Report, such as climate change, water, packaging and sustainable agricultural sourcing, we have identified other issues that are also relevant to us and our stakeholders.

These issues range from GMOs to ozone depletion. Here we describe how we manage these issues, present data and trends, and show how we act to reduce our impact.

Acidification

Emissions from burning fossil fuel react with other gases in the atmosphere to form acids.

Unilever's impact

Sulphur and nitrogen oxides – often referred to as SOx and NOx – from vehicle exhaust fumes, industrial boilers and power stations) These fall in the form of acid rain and contribute to increased acidity in rivers and lakes. Other industrial acidic effluents also contribute. Acid emissions are a shared problem because of the universal use of fossil fuels.

We use fossil fuels in our factories to provide heat and some electricity. The fuels vary in the amount of acid gas they produce. Natural gas contains only a small amount of sulphur, whereas fuel oils can contain up to 3% sulphur. Some fuels, such as coal, vary in their makeup from one region to another.

We also release some sulphur gases from the sulphonation process that converts hydrocarbons to surfactants. Indirectly, we are responsible for emissions from the operations of our contractors and suppliers, mainly in the generation of electricity, transport activities and farmers' use of fertilisers.

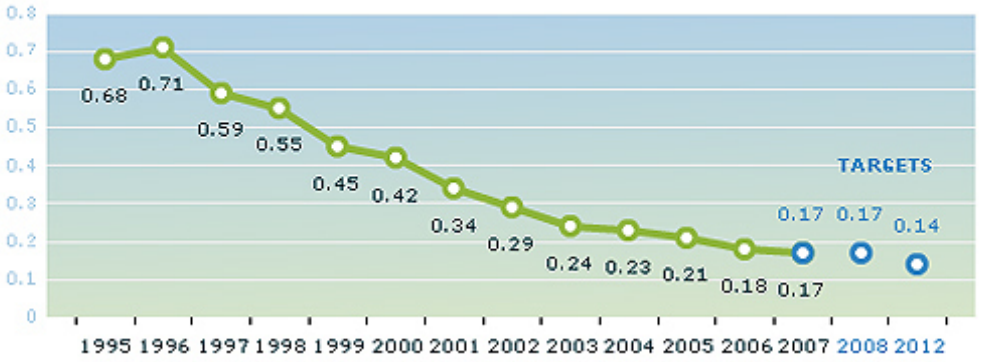
Action being taken

Acidification potential is a key theme in the life-cycle assessment studies used to evaluate our products. As well as environmental factors, the choice of fuel will depend on availability, cost and ease of use. Our global supply chain network has a programme to reduce emissions from sulphonation by sharing best practice.

Most of our manufacturing sites have a boiler for generating steam. Around half of the boilers use fuel oil or coal and therefore emit SOx and NOx. In some cases diesel generators are also used for electricity generation. The SOx and NOx data are calculated from the total mass of fuel consumed, and its sulphur content and typical NOx emission factors. The data are expressed in terms of a mass of sulphur dioxide (SO_2).

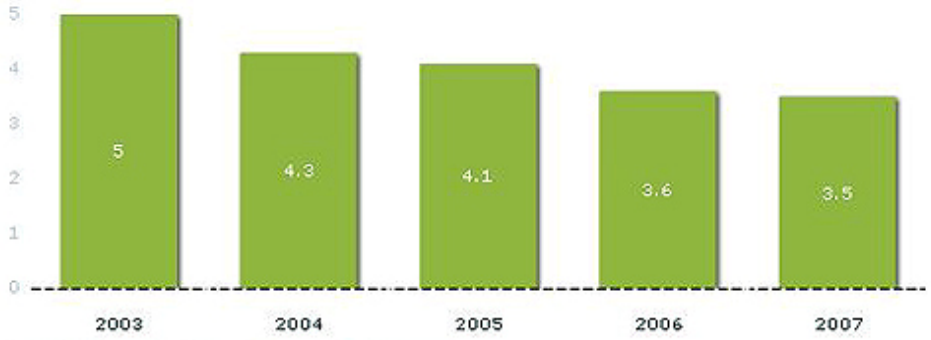
Boiler/Utilities SOx

Kç/tonne of production



Boiler/Utilities SOx

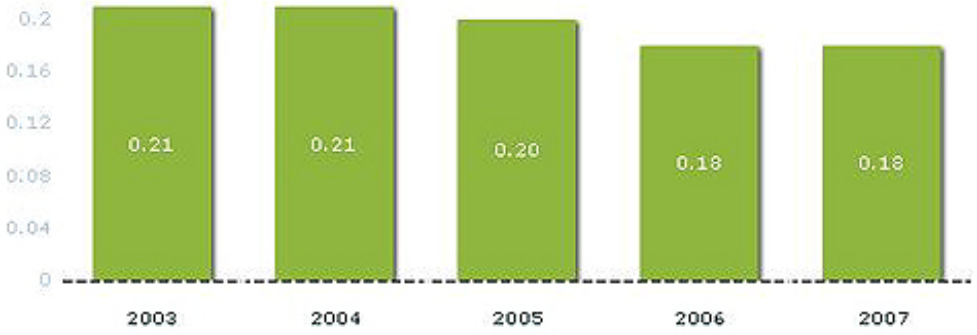
10^3 tonnes



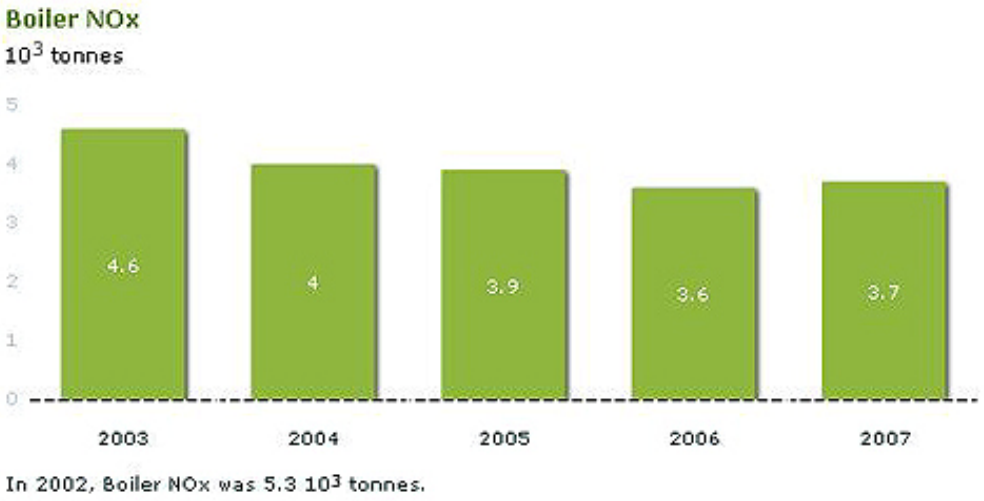
In 2002, Boiler/Utilities SOx was 6.4 10^3 tonnes.

Boiler NOx

Kg/tonne of production



In 2002, Boiler NOx was 0.24 kg/tonne of production.



In 2007, we reduced the SOx emissions from our boiler and utility operations by 3.3% load per tonne, therefore just narrowly missing our target reduction of 3.9%. The main reasons for the decrease in SOx emissions were due to selecting lower sulphur content fuels including gas for fuel oil and using biomass (eg bagasse, wood) as an alternative fuel in Malawi, Brazil, Cote D'Ivoire, Indonesia, Sri Lanka and India. An energy saving plan was also implemented in China, which included a new boiler, resulting in increased energy efficiency. However further improvements in SOx emissions were hindered by an increase in the use of high sulphur fuels (Pakistan, US, Honduras and El Salvador) and the lack of available low sulphur fuel oil and coal (India and South Africa).

SOx emissions from sulphonation are about 0.32% of the SOx load emitted from our boilers. See sulphonation SOx in the HPC Category data we collect.

Biodiversity

Biodiversity – the richness and variety of nature – is essential to the preservation of a healthy environment. Its decline reduces the pool of biological resources available to future generations.

Unilever's impact

The UN Convention on Biological Diversity – which aims to preserve biodiversity – has been signed by over 160 countries.

Human activity can reduce biodiversity through, for example, intensive agriculture, destructive fishing practices or over-exploitation of natural resources such as forests and water. This is an issue for Unilever. Agriculture provides more than two-thirds of the raw materials for our branded goods. We are among the world's largest users of agricultural raw materials such as tea, vegetables and vegetable oils. Growing our business – while conserving biodiversity – is a substantial challenge.

Agriculture

Protecting biodiversity is central to our sustainable agriculture initiative. Sustainable agriculture is ultimately about sustainable use of biological resources. One of four principles in Unilever's sustainable agriculture programme is: "Ensuring any adverse effects on… biodiversity from agricultural activities are minimised and positive contributions are made where possible". Biodiversity is one of the 11 indicators used to manage our programmes covering our key crops.

We have developed biodiversity action plans (BAPs) for Unilever tea estates in Tanzania and Kenya, our farm research site at Colworth in the UK, Unilever palm oil plantations in Ghana, and our suppliers' tomato farms. See Biodiversity case studies for more information.

Biodiversity impact studies have also been carried out in Ghana and Tanzania where we are working with local smallholder farmers on the cultivation of allanblackia, a crop which provides a new type of oil that can be used to make margarines and spreads with lower saturated fat content. On the basis of this and in collaboration with the IUCN World Conservation Organisation we have developed and are implementing landscape restoration programs.

Fish

The preservation of biodiversity has been integral to our fish sustainability initiative. Despite the sale of parts of our European fish business, we will continue to work towards the goal of ensuring all the fish we buy comes from sustainable sources.

Available online:

Biodiversity case studies

GMOs

Unilever's position statement on genetically modified crops (GMOs)

Our approach

We support the responsible use of modern biotechnology within the framework of effective regulatory control and provision of information about its use. The use of this technology to improve food crops can bring important benefits to mankind and individual applications should be judged on their own merits.

We acknowledge that the public's view of biotechnology (such as the use of GM ingredients) in foods is still evolving and that the debate and public acceptance is at different stages in countries both in Europe and the world where we sell products.

We believe consumers should have the necessary information they need to choose the food they wish to buy. Therefore, we support initiatives such as the toll-free carelines, in-store leaflets, product information via the web sites or the appropriate labelling of products.

Our companies are free to use ingredients derived from modified crops which have been approved by the regulatory authorities and our own clearance procedures for quality and acceptability.

Ozone depletion

A layer of ozone in the upper atmosphere filters out ultraviolet radiation from the sun before it reaches the earth's surface, preventing serious harm to humans, animals and plants.

The issue

Certain man-made chemicals, once used in aerosol dispensers and now mainly used in air conditioning, refrigeration and fire protection systems, have caused thinning of the ozone layer. The main gases responsible are chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs) and Halons.

The Montreal Protocol agreements have led to the phasing out of the most damaging chemicals, including Halons and CFCs. Although manufacture has ceased in developed nations, the use of existing stocks is permitted. HCFCs, a less ozone depleting alternative to CFCs, remain in widespread use in refrigeration equipment.

Alternative refrigerants to CFCs and HCFCs include hydrofluorocarbons (HFCs) and hydrocarbons (HCs) – both are ozone-benign. However, HFCs have a high greenhouse gas potential and contribute to climate change. Although hydrocarbon gases, such as butane and pentane, are volatile organic compounds and flammable, they have been safely introduced in domestic refrigerators and freezers, and are starting to be used in commercial refrigeration. They are now permitted for new equipment under certain conditions in all countries except the United States.

Unilever's impact

We use refrigeration in three areas: manufacturing, transport and retail (e.g. the freezer cabinets in which our ice cream is displayed for sale).

We have not used ozone-depleting gases in aerosols for many years.

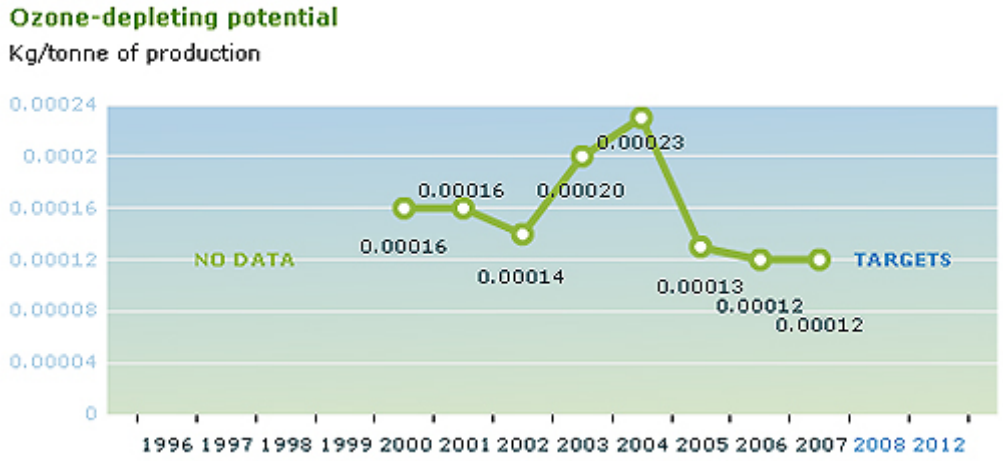
Action being taken

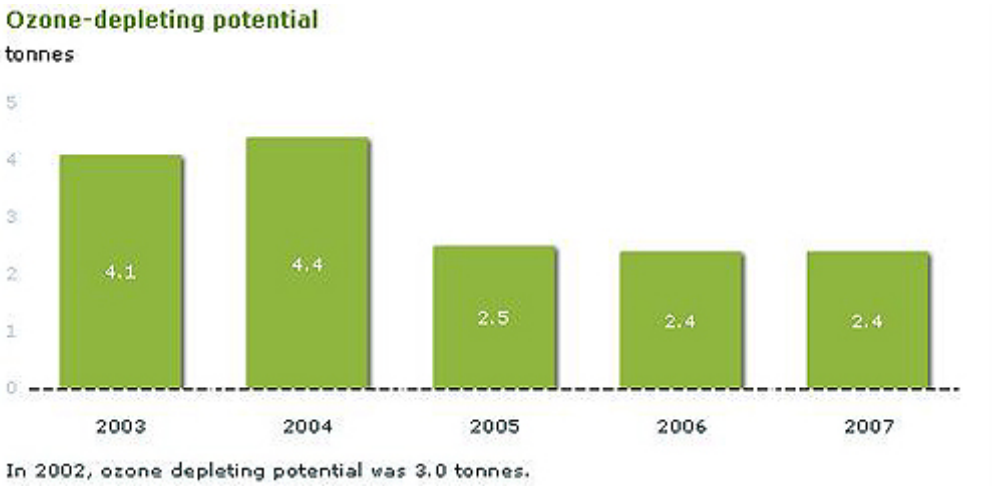
Life-cycle assessments show that we can reduce our contribution to ozone depletion most by improving the environmental performance of our refrigeration in manufacturing and our ice cream cabinets.

Manufacturing

The data shows our ozone-depleting potential (ODP), expressed as kg of CFC R-11 equivalent, of releases from refrigeration and air conditioning systems at our manufacturing sites only (not our ice cream freezer cabinets or uses in transportation).

Ozone-depleting potential





We measure the amount of ozone-depleting gases (CFCs, HCFCs and mixtures) in refrigeration, air conditioning and other applications at our manufacturing sites, and assess the losses each year. The emissions are expressed as kg CFC-11 equivalent. In 2007, the amount of ozone-depleting potential decreased slightly compared with 2006. This was largely due to improved maintenance (resulting in reduced losses). The improved management of ODP was reflected in the fact that 68 sites reduced their ODP by more than 50%

Breakdown of Ozone-depleting substance emissions (2007)

Refrigerant	Type	ODP of refrigerant (as kg R-11)	Annual Consumption (Kg)	Total Unilever ODP (as Kg R-11)
R-11	CFC	1	196.2	196.2
R-113	CFC	0.9	15	13.5
R-12	CFC	0.82	321	283.22
R-123	HCFC	0.014	36	0.5
R-134a	HFC	0	1750.11	0
R-141	HCFC	0.1	3	0.3

R-143a	HCFC	0	1.5	0
R-22	HCFC	0.04	22687	907.5
R-401a	CFC / HCFC Containing Mixture	0.03	40.82	1.23
R-402a	CFC / HCFC Containing Mixture	0.02	343.22	6.86
R-402b	CFC / HCFC Containing Mixture	0.03	50	1.5
R-404a	CFC / HCFC Free Mixture	0	1138.02	0
R-407a	CFC / HCFC Free Mixture	0	207.4	0
R-407c	CFC / HCFC Free Mixture	0	417.81	0
R-409a	CFC / HCFC Containing Mixture	0.04	8	0.32
R-410a	CFC / HCFC Free Mixture	0	24.82	0
R-500	CFC / HCFC containing mixture	0.605	10.82	6.55
R-502	CFC / HCFC containing Mixture	0.25	67.65	16.91
R-507	CFC / HCFC Free Mixture	0	193.7	0
R-509	CFC / HCFC containing Mixture	0.018	76	1.37
Others	Methyl Bromide	0.4	2 540	1.016
Total			**30127.49**	**2430.98**

In 1996, we banned the use of CFCs in new refrigeration systems in factories and committed to minimise their use in existing systems, when and where technology permits. The main ozone-depleting refrigerant used is now HCFC R-22. Although R-22 has less impact on the ozone layer than CFCs, our long-term aim is to use substitutes that have no ozone-depleting potential. See Climate Change section for information about refrigerants and global warming.

In our ice cream factories and frozen foods factories in Italy we use ammonia for industrial refrigeration. This refrigerant does not contribute to either ozone depletion or global warming.

Ice cream freezer cabinets

Our ice cream business has had a policy since 1995 to buy ice cream freezer cabinets that use ozone-friendly refrigerants and blowing gas for the insulation foam. At the time we decided to use HFC refrigerants and hydrocarbon (HC) blowing gas. HFCs do not contribute to ozone depletion but have a high global warming potential (GWP). HCs do not contribute to ozone depletion and have a very low GWP.

The number of cabinets using (H)CFCs continues to decline year on year as they are replaced with new models. We have a clear policy covering their disposal which specifies how (H)CFC gases should be recovered and disposed of.

HFC refrigerated cabinets now represent the highest proportion of cabinets in our fleet. They are now being replaced by HC refrigerated cabinets in line with our aim to implement a non-HFC purchasing policy for ice cream cabinets worldwide.

Please see Climate Change section for information on our work to eliminate the use of HFCs in ice cream freezer cabinets.

Photochemical smog

Certain volatile chemicals react with oxides of nitrogen in the presence of sunlight to form 'episodes' of ozone in the lower atmosphere. This episodic low-level ozone is a component of photochemical smog.

The issue

High levels of ground level ozone can damage some leafy plants, irritate people's breathing systems and create a haze over the landscape.

Chemicals implemented in the formation of photochemical smog are generally called volatile organic compounds (VOCs) – these include among other components, solvents and propellants used in aerosol and non-aerosol based consumer products, such as hair sprays and deodorants. As they are released, they combine with nitrous oxides already present in the atmosphere from car emissions, factories and power plants for form low level ozone.

Unilever's impact

Consumer products emit very small amounts of VOCs compared with natural and other man-made emissions, such as car exhaust fumes. The means the contribution from Unilever products is relatively insignificant. Nethertheless, we recognise the seriousness of the smog problem and want to do what we can to contribute to a solution.

Action being taken

We reduce VOC emissions from our products where possible, while continuing to satisfy our consumers and keeping quality high. For example, in the USA the VOC levels of many consumer products, including our hairsprays have been reduced to meet strict regulations in California.

We continue to work with others in the industry to find ways to reduce VOC emissions.

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. Please see the Packaging issues section for our approach to responsible packaging and issues related to packaging waste after consumer use of our products. 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.

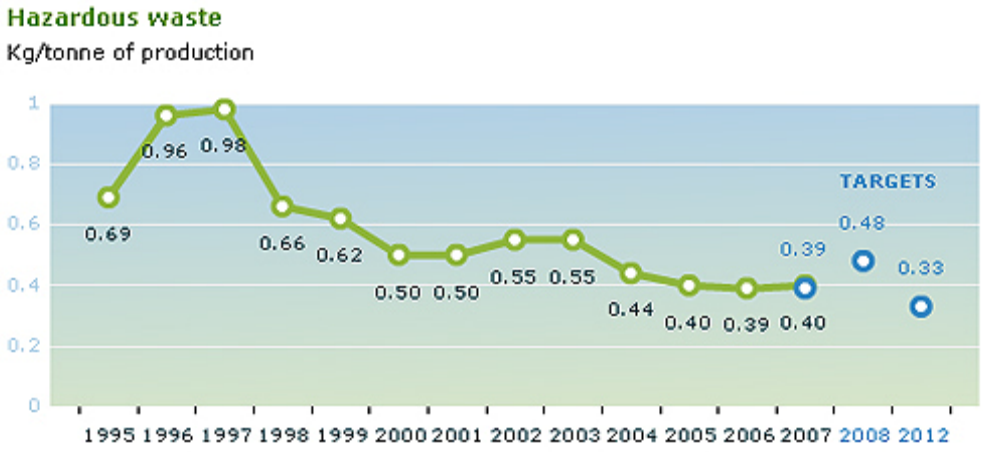
Our environmental management system provides the framework for continuous improvement in this area.

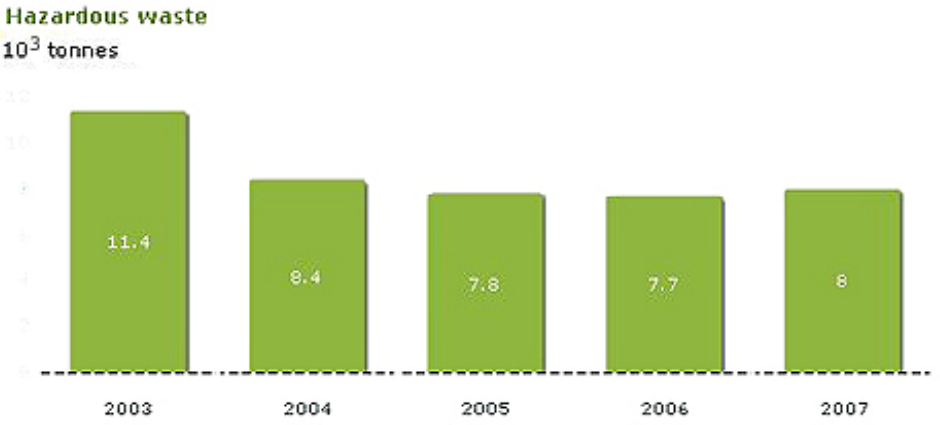
We report hazardous and non-hazardous waste separately. Since there is no common international waste classification, the Unilever data are based on the national legal definitions applicable for each site, and are simply the total mass of material disposed of from the site under each classification (not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

Hazardous waste comprises 5.3% of the total waste from our manufacturing sites that is sent for disposal (i.e. is not recycled), with non-hazardous making up the remainder. We intend to focus on decreasing both hazardous and non-hazardous waste.

In 2007, 11% of our sites did not dispose of any waste to landfill or incineration.

Hazardous waste

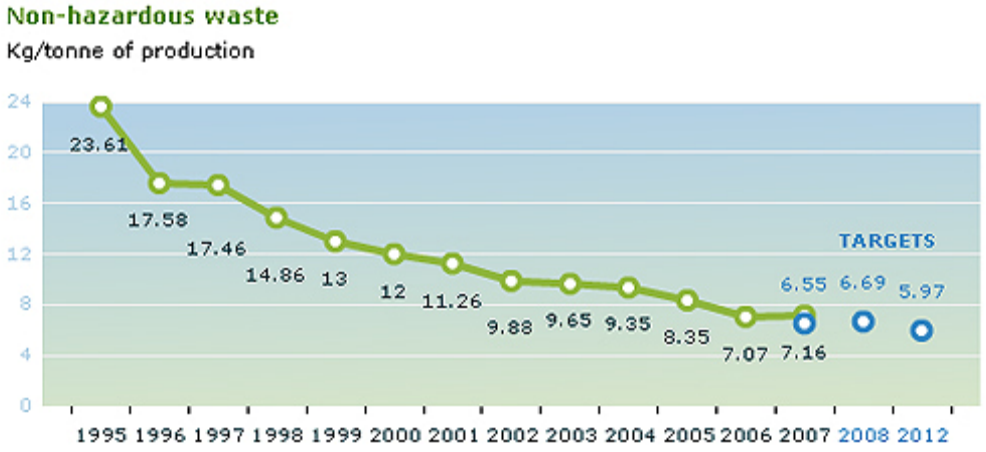


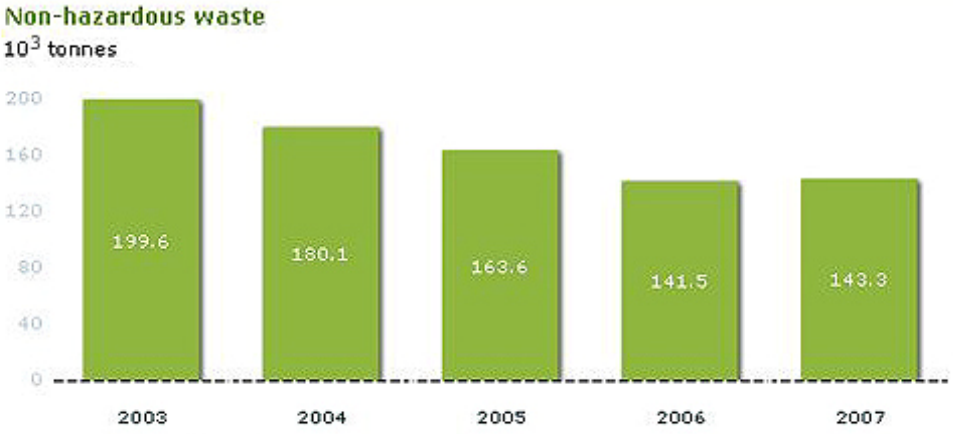


In 2002, total hazardous waste was 12.2 10^3 tonnes, of which 2.8 10^3 tonnes was contaminated soil from one site.

In 2007, there was an overall 2.8% increase in hazardous waste load per tonne and therefore we did not achieve our target increase of 1.0%. The main reasons for this increase were accumulated waste in India, increased site complexity in South Africa and Indonesia, which has reduced the recycling of NSD powders and liquid effluents, and an increase in Effluent Treatment Plant Sludge being disposed of as hazardous waste (Indonesia, South Africa, Italy and Saudi Arabia). In contrast, there has been a marked reduction in hazardous waste at some sites due to reduction in ETP sludge (Hungary and India), reduced product waste (UK) and good waste reduction and recycling programmes in Mexico. Four sites managed to reduce their hazardous waste by more than 100 tonnes. Only 5.3% of our total disposed waste (hazardous and non-hazardous) was hazardous.

Non-hazardous waste





In 2002, total non-hazardous waste was 218.8 10^3 tonnes.

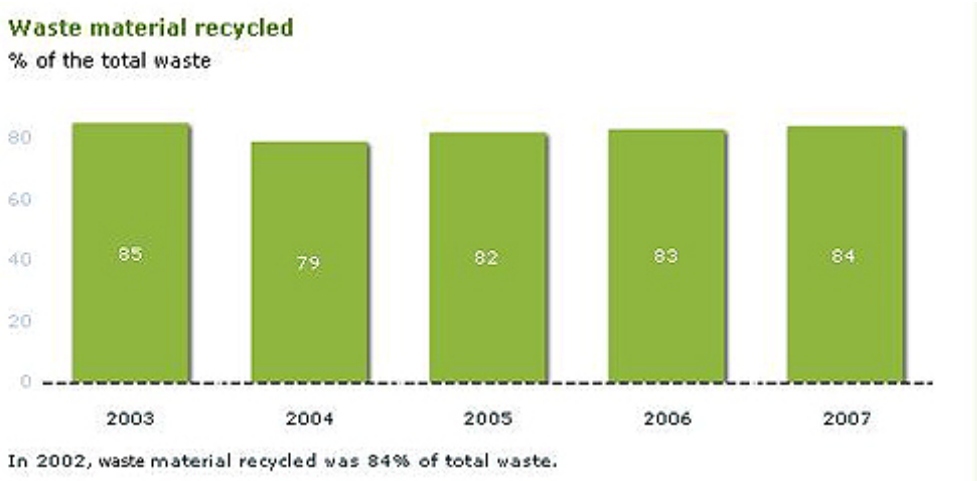
There was an overall increase in non-hazardous waste of 1.3% load per tonne and therefore we did not achieve our target reduction of 7.4%. The main reason for missing this target was that certain recycling routes for waste were no longer available in 2007, including the composting route for liquid waste disposal in Argentina, the animal feed route for ice cream waste in Brazil, and Effluent Treatment Plant (ETP) sludge could no longer be used for road building in Italy. In addition, there was more product waste due to trials (US and China), changes in quality procedures in Costa Rica meant less recycling, more ETP sludge was generated due to better treatment (Argentina) and accumulated raw materials were disposed of in the US. However, two sites reduced their non-hazardous waste by more than 1,000 tonnes, and a further nine 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 effluent that are reused or recycled within the factory. Most of the waste sent for recycling is food processing waste. In 2007, 11% of our sites (some 34 sites in total) did not dispose of any waste to landfill or incineration.

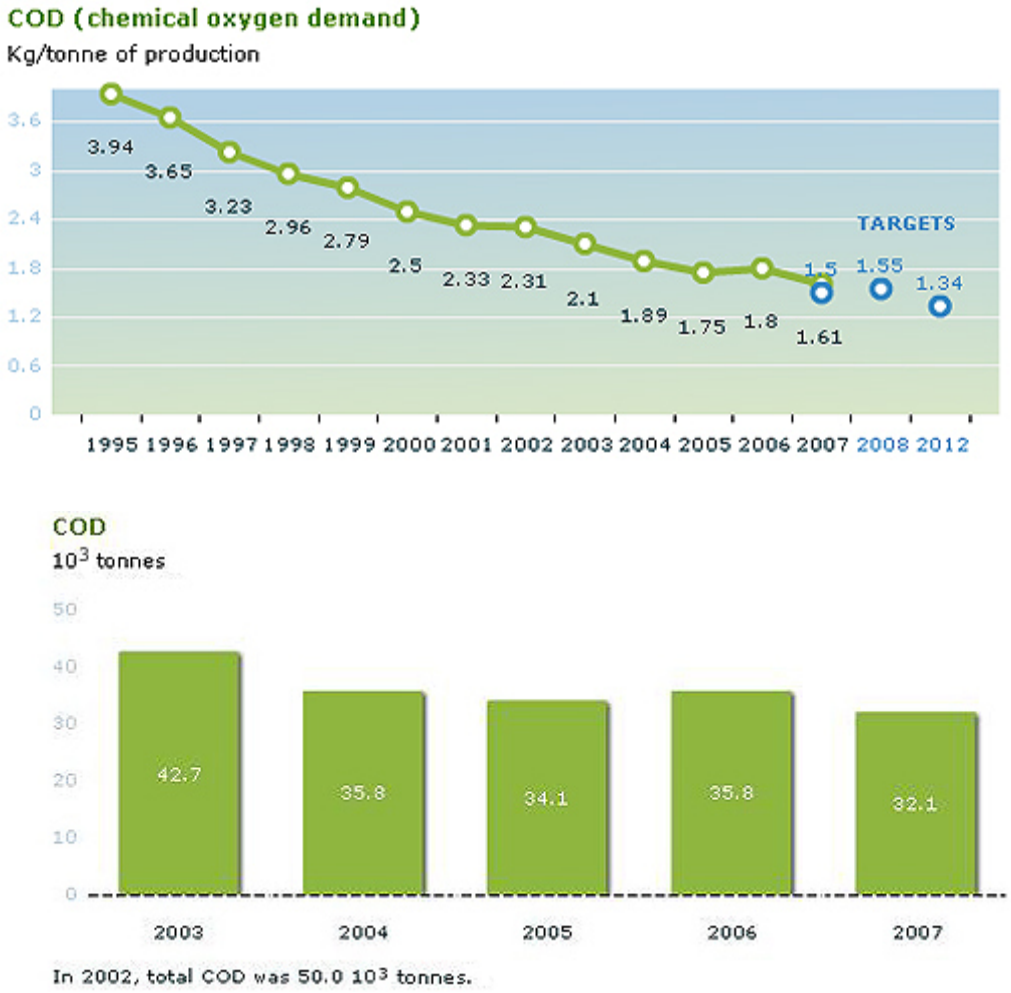
Year	Waste sent for disposal (10^3 Tonnes)	Waste sent for off-site recycling (10^3 Tonnes)	Total waste (10^3 Tonnes)	Recycling (%)
1999	313.8	724.6	1 038.4	70.0
2000	287.0	1 122.4	1 410.1	80.0
2001	278.3	1 729.9	2 008.2	86.0
2002	231.0	1 249.8	1 480.8	84.4
2003	210.9	1 227.6	1 438.5	85.3
2004	188.5	717.0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

Waste material recycled



In 2007, 83.8% of our total waste (non-hazardous and hazardous) was sent for recycling. The amount recycled excludes materials or effluent that are reused or recycled within the factory.

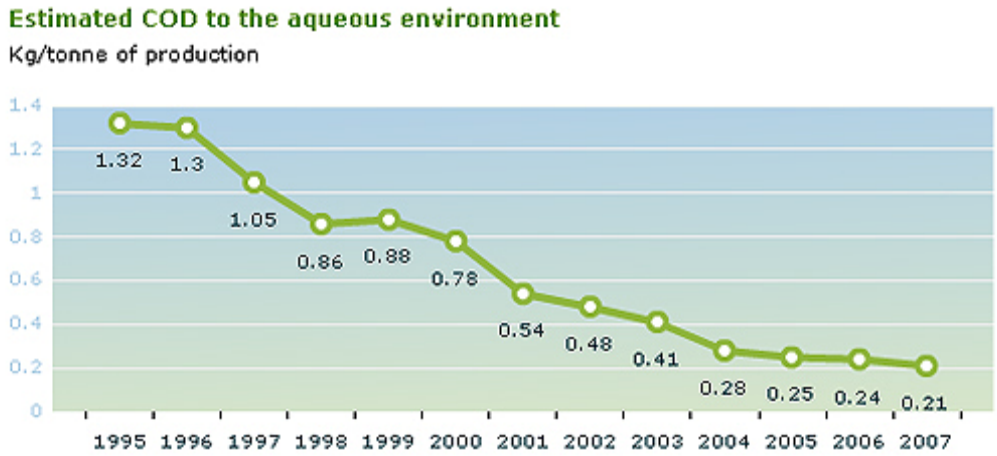
COD (Chemical oxygen demand)



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.

Whilst there was a 10.3% reduction of COD load per tonne in 2007, we did not meet our stringent target of 16.3%. Despite effluent treatment plant (ETP) overload in some sites (Russia, South Africa and Australia) and higher COD loads due to increased production variants and associated changeovers (Egypt and Germany), there was a good overall reduction in COD. This reduction was achieved primarily by process improvements (Netherlands, UK and US), improved cleaning processes (US), effluent reuse (Bolivia and Cote D'Ivoire), and new and improved ETPs (Germany, US, Indonesia and France).

COD to the aqueous environment



The amount of COD sent to the aqueous environment continues to decrease. 97% of the total COD leaving our sites is subsequently treated in municipal works. We estimate that 89.8% of this COD is removed, so the COD reaching the aqueous environment is significantly less than the total COD leaving our sites.

In 2007, 85 of our manufacturing sites (approx 30% of the total) did not discharge any industrial effluent. This was because they did not produce any effluent, eg some plantations and factories producing products such as tea, or they recycle it, eg some sites reuse treated effluent for onsite 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 & COD to municipal treatment

We collect separate data on COD: one set is for effluent discharged directly to the environment, the second is COD from effluent sent to municipal sewage works. Based on individual site data, we estimate that municipal treatment typically removes 89.8% of the COD before final discharge to the environment.

COD discharged directly to the aqueous environment

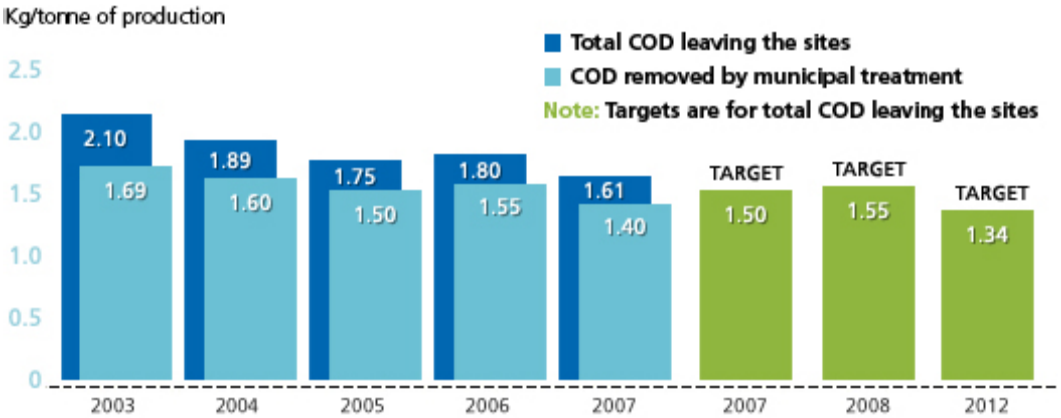
Kg/tonne of production

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.

Available online:

Our approach to eco-efficiency

Eco-efficiency (79 KB)