CHAPTER

3

> ENVIRONMENTAL SUSTAINABILITY

3.1 Reporting basis

This chapter presents the 2003 environmental data for 83 breweries, 11 maltings and 17 soft-drink plants. The data relate to the production of 85.6 million hectolitres of beer, 516,000 tonnes of malt and 6.7 million hectolitres of soft drinks. In contrast to the financial information provided in the previous chapter, our environmental reporting does not cover licensing partners and recent acquisitions, among them Brau Union, and the volume-related data refer to the volume produced by the 83 breweries, whereas the financial information is based on beer sales volume. A full list of the companies which supplied data for this chapter can be found in Annex 6.

3.2 Environmental policy and governance

Policy statement

The safety, health and environmental policy statement adopted by Heineken's Executive Board in 2001 affirms that these three policy areas are central to our operations. In addition to this policy statement, Heineken has also adopted water and energy policy statements and has some 60 procedures in place to support the systematic and measurable improvement of our performance in the areas of safety, health and the environment. The policy statements and procedures can be consulted via Heineken's electronic knowledge system, to which all employees involved in safety, health and the environment have access. The standards are identical for all production units all over the world.

Organisation

Our policy is subject to continuous refinement, in accordance with the annual President's letter, which is translated into policy instructions, procedures and programmes that can be implemented in practice. Policy is developed by the multi-disciplinary Safety, Health and Environmental Affairs Steering Group, in which the production, technical, legal and medical departments are represented and which generally meets four times a year. The chairman of the Steering Group reports to the Executive Board, providing a summary of policy developments and results.

An international meeting of local safety and environmental coordinators is held each year, attended by a representative from each of the European operating companies and regional representatives from Asia, Africa and Central and South America, to brief them on new policy and define new procedures so that they can facilitate implementation at local level.

Targets

Targets for such parameters as water saving, wastewater treatment, reduction in CO_2 emissions and raw material consumption are set annually in consultation with the production units and incorporated into a rolling three-year plan which sets out the actions needed to achieve them. Once the plan has been approved, the proposed actions are implemented. Because Heineken's group targets are arrived at by aggregating the individual targets which are specific to each production unit, they may vary from year to year, for example as production units are bought and sold.

Monitoring

Heineken started keeping records of environmental performance in 1997, initially for the production units in Europe. The coverage of the data collection system was extended in 1999 to include all partially and fully financially consolidated production units all over the world.

The operating companies enter their data in the Brewery Comparison System, which ensures consistent monitoring and reporting and enables reliable comparison of a brewery's performance with that of other Heineken breweries. The data entered by the

operating companies are verified at corporate level.

Internal audits of each production unit are carried out every 3-5 years at corporate level to check compliance with the Heineken regulations. Corrective action is taken where necessary. We seek to obtain certification for our environmental management system wherever possible. 57 per cent of our beer was brewed under ISO 14001 certification in 2003.

Improvement programmes

The main parameters affecting Heineken's environmental performance are energy consumption (fuels and electricity), water consumption and non-recycled waste output. Programmes have been developed for each of these parameters – Aware of Energy, Aware of Water and Aware of Waste – to help the production units improve their performance more quickly. The results of these improvement programmes are discussed elsewhere in this chapter.

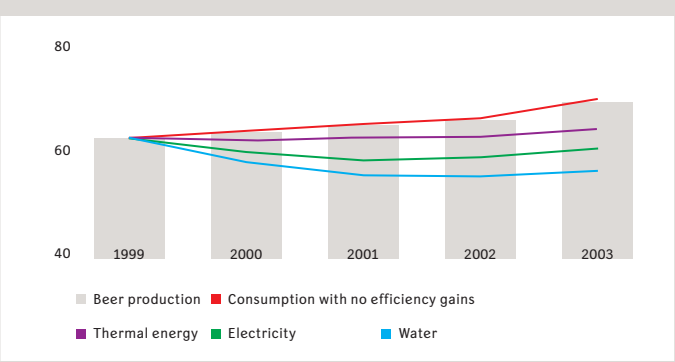
Rising production, falling energy and water consumption

Heineken's efforts to 'decouple' production and consumption, by improving its environmental performance while increasing output, have been successful in some respects in the past few years. Beer production rose from 63.2 million hectolitres in 1999 to 85.6 million hectolitres in 2003. If no efficiency improvements had been made, our consumption of heat, electricity and water would have risen over the same period by 136 per cent. The actual consumption figures for 2003 were: heat up 119 per cent, electricity up 125 per cent and water up 111 per cent. While production and consumption have not yet been decoupled in absolute terms, efficiency has improved significantly.

The picture is complicated by the breweries acquired during the period covered by this report. If these are discounted, beer production over the same period increased from 63.2 to 70.1 million hectolitres, representing growth of 111 per cent compared with 1999. However, consumption of heat and water in 2003 turned out at 97 per cent and 91 per cent, respectively, of the 1999 figure. In these cases, therefore, the correlation has been broken. This has not yet been achieved in electricity consumption, which in 2003 amounted to 103 per cent of the 1999 figure, evidence of some improvement in efficiency but not of decoupling in absolute terms.

Heat, electricity and water consumption 1999–2003

all breweries worldwide, excluding acquisitions, in millions of hl/year



3.3 Dialogue with stakeholders

Our contacts with various stakeholders provide valuable input to the ongoing process of improvement of our safety, health and environmental policy. In that context, Heineken is represented in working groups concerned with the implementation of European Directive 96/61/EC on Integrated Pollution Prevention and Control. The aim is to minimise environmental impact through prevention and adoption of the best available techniques, which are inventorised by the working groups and made accessible via reference documents.

Chur Brewery

Heineken Switzerland achieves significant water and energy savings

ANGELA RESCH

By closing one of its two breweries and combining production at one location, Heineken Switzerland has made dramatic progress in reducing the input of energy and water into the brewing process while increasing the output by 8.5 per cent to 810,000 hectolitres. Meanwhile, the company's ZEUS working group is continuing to research ways of reducing inputs, in the context of Heineken's Aware of Water and Aware of Energy programmes.

Together with around 150 other international companies, Heineken is a member of the World Business Council of Sustainable Development, which aims to pay a leading role in advocating sustainable development and promoting environmental efficiency, innovation and corporate social responsibility. Membership of this organisation gives Heineken access to a valuable pool of knowledge and experience.

Heineken is also one of the founding members of CEO Panel Business & Industry, a panel formed on a voluntary basis by the CEOs of fourteen international companies operating in the food, water supply and other sectors to seek solutions to the global water problems. The CEO Panel aims to develop programmes and activities which will contribute to sustainable water use. The Panel has participated in the World Water Forum, the third of which was held in Kyoto in March 2003.

3.4 Energy

Aware of Energy

The Aware of Energy programme was set up by Heineken in 2002 to help meet its target of reducing specific energy consumption by 15 per cent between 2002 and 2010. The programme is aimed primarily at raising energy-awareness among employees. Action has been taken under the programme in several areas, mainly based on good housekeeping but also including technical measures such as waste heat recovery and use of renewable energy.

Thermal energy

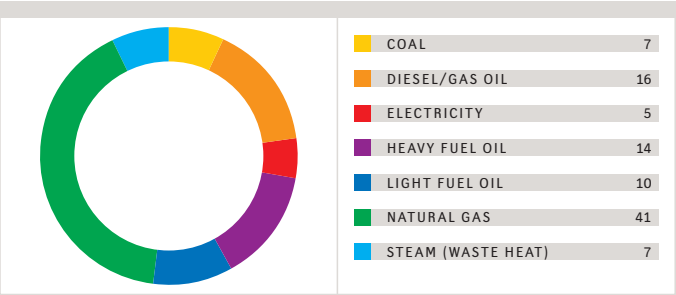
Heineken uses heat for brewing, cleaning bottles, pasteurising and, at the maltings, for malt kilning. This heat is generated from natural gas at 41 per cent of Heineken's sites and from diesel/gas oil, light fuel oil, heavy fuel oil or coal at the others. Seven per cent of our sites utilise waste heat supplied by neighbouring industrial plants.

Renewable energy is used to generate some of the heat required, the most significant of these being biogas obtained from the anaerobic treatment of waste water. Heineken has nineteen anaerobic treatment plants, the seven largest of which use the biogas as an energy source.

Biogas supplied 1.1 per cent of Heineken's total thermal energy requirement in 2003. Biogas produced by anaerobic waste-water treatment is used by nine per cent of our sites as a supplementary renewable energy source for heat generation.

Main fuel used for heat generation

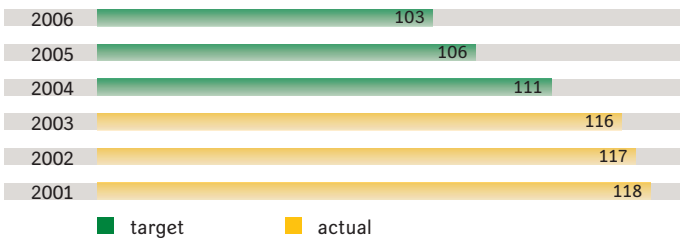
% of all sites



Compared with 2002, specific thermal energy consumption by Heineken breweries was one per cent lower in 2003, at 116 megajoules per hectolitre of beer. Major contributions to this improvement were made by the brewery in Lezajsk (Poland), where an outdated boiler and a packaging line were decommissioned, and the brewery in Seville (Spain), where technical improvements were made to the boiler installation.

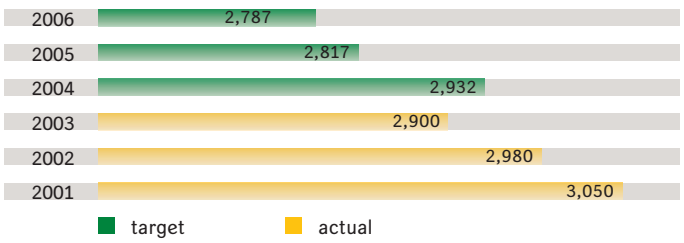
Specific thermal energy consumption by breweries

MJ/hl beer



Specific thermal energy consumption by maltings

MJ/tonne malt



Specific thermal energy consumption at the maltings was 3 per cent lower in 2003 than in 2002, at 2,900 megajoules per tonne.

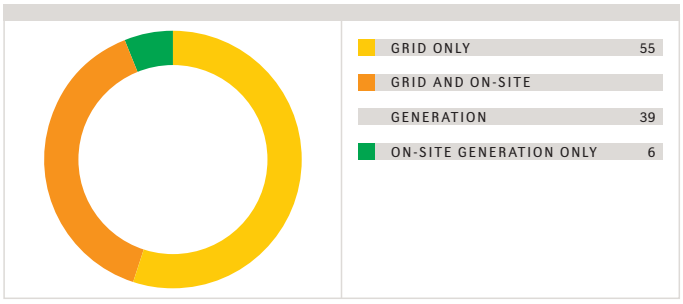
Specific thermal energy consumption at the soft-drink plants was ten per cent lower in 2003 at 36.7 megajoules per hectolitre of soft drinks, a contributory factor being the physical separation of the beer and soft-drink production units at the Pivara Skopje plant (Macedonia) which enables consumption to be allocated more accurately. Specific thermal energy consumption also benefited from a reduction in CO_2 generation from fossil fuels at the soft-drink plant in Kinshasa (Democratic Republic of Congo).

Electricity

Electricity is used mainly for refrigeration, water treatment, driving compressors and other machinery, liquefying carbon dioxide, lighting and office equipment.

Electricity sources

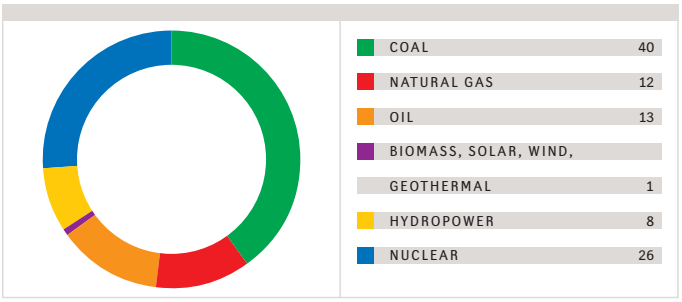
%



Most of the electricity used by Heineken is bought in. 45 per cent of our sites also generate some of the electricity they consume, using combined heat and power systems and diesel generators. Six per cent of our sites are not connected to the grid and generate all their electrical power themselves.

Primary sources used to generate grid power

% of total power generated



An analysis of the primary fuel used to generate the electricity bought in by our sites, using the GRI EN-3 protocol, reveals that 40 per cent of the electricity we purchase worldwide is generated by coal-fired stations, 26 per cent by nuclear power stations and 25 per cent a by gas-fired and oil-fired stations.

Around nine per cent of the bought-in electricity is generated from renewable sources, of which hydropower accounts for eight per cent.

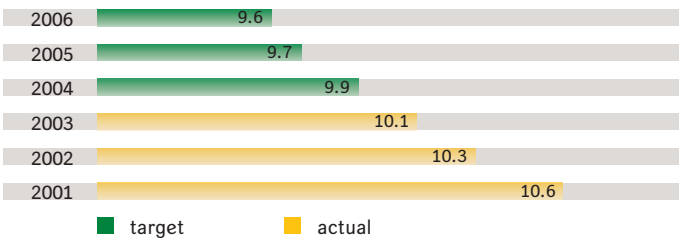
Specific electricity consumption by Heineken's breweries was two per cent lower in 2003 compared with 2002, at 10.1 kilowatt-hours per hectolitre of beer. The brewery in Lagos (Nigeria), where two new and more efficient packaging lines and a new water-treatment plant have entered service, accounted for much of this improvement.

Specific electricity consumption by our maltings was almost one per cent higher in 2003 compared with 2002, at 123 kilowatt-hours per tonne. This was mainly due to the higher demand for refrigeration at the Ruisbroek (Belgium) plant because of the hot summer.

Specific electricity consumption by our soft-drink plants in 2003 was one per cent lower at 5.0 kilowatt-hours per hectolitre.

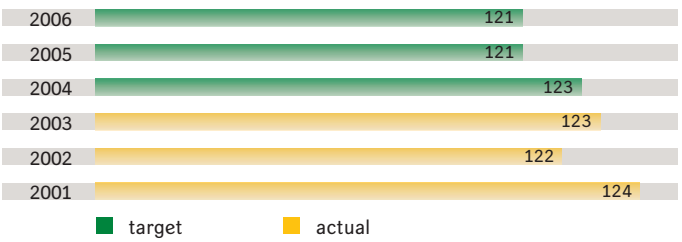
Specific electricity consumption by breweries

kWh/hl beer



Specific electricity consumption by maltings

kWh/tonne malt



3.5 Climate

The use of non-renewable fuels is a major factor in the rising concentration of carbon dioxide (CO_2) in the atmosphere, which in turn is one of the causes of the greenhouse effect and hence climate change. A study commissioned by Heineken and carried out by Prof. Dr. E.K. Duursma, Emeritus Professor of Oceanology at Groningen University, who collated and analysed a large body of climatic data, yielded a wealth of information which has been made available to interested parties in the form of a publication entitled 'Rainfall, River Flow and Temperature Profile Trends: Consequences for Water Resources'.

Carbon dioxide

Heineken's operations emit CO_2, a product of the combustion of fossil fuels, either directly in our own systems or indirectly via bought-in electricity generated elsewhere. From 2003, Heineken will report both direct and indirect CO_2 emissions produced by burning fossil fuels.

Direct CO_2 emissions in 2003 amounted to 7.66 kg per hectolitre of beer and indirect emissions to 4.40 kg/hl, making a total of 12.1 kg/hl.

Over the period 2004–2006, the Aware of Energy programme is expected to yield a further reduction to 11.2 kg/hl. We plan to bring our reporting on CO_2 emissions more closely into line with the GRI guidelines in the coming year.

Short-cycle CO_2, the carbon dioxide produced by the fermentation process, is not reported because it is in balance with CO_2 uptake by the growing barley and hence does not contribute to the greenhouse effect.

Direct and indirect CO_2 emissions kg/hl

	2003	2004*	2005*	2006*
Direct CO_2 emissions	7.7	7.4	7.1	7.0
Indirect CO_2 emissions	4.4	4.3	4.2	4.2

* target

NOx and SOx

Other atmospheric emissions produced by the direct and indirect use of fossil fuels consist primarily of NOx and SOx. SOx are also produced when malt is sulphurised to remove unwanted components. The reduction in energy consumption has also meant a reduction in specific SOx emissions, and this effect has been enhanced by the switch to lower-sulphur fuels at the production plants in Patras (Greece) and St. Denis (Réunion).

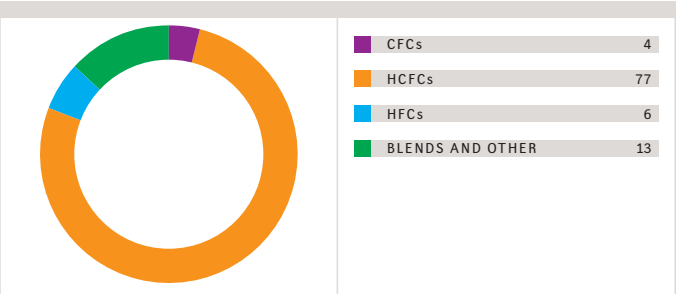
The reported NOx volume is a higher because higher values have been used in calculating emissions from electricity-generating plant, which had been underestimated in the past. This effect is most pronounced at sites which generate their own electricity.

Ozone depletion

A number of substances are used at Heineken's production units which, if released into the atmosphere, could harm the ozone layer. One of these is halon, which is used in some automatic firefighting systems. By switching to alternative agents, the total

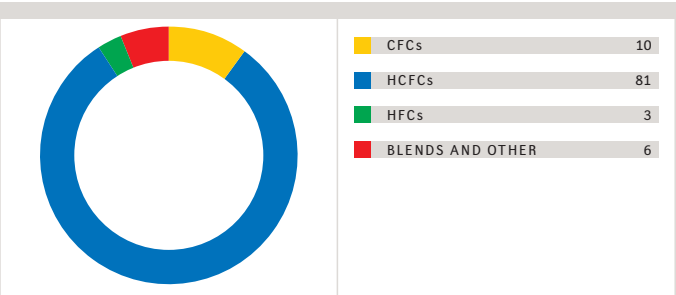
Halogenated hydrocarbon-based refrigerants in use

% by weight



Losses of halogenated hydrocarbon-based refrigerants

% by weight



quantity of halon in use has been reduced dramatically in the past year, down from 7.8 tonnes in 2002 to 4.3 tonnes in 2003. Halons have been completely eliminated at 's-Hertogenbosch and Zoeterwoude (Netherlands) and Mons en Baroeul (France).

Several halogenated hydrocarbons (CFCs, HCFCs and HFCs) are used in refrigeration and air-conditioning systems, which may be released to the atmosphere in the event of a fault. Heineken is progressively replacing these media with environment-friendly refrigerants. The reported quantity of halogenated hydrocarbons in use in 2003 was slightly higher than in 2002 at 35.1 tonnes, largely as a consequence of more detailed inventorisation. Sites included in the reporting system for the first time in 2003 were also a contributory factor, notably the production units in Ama (Nigeria) and Almaty (Kazakhstan).

Refrigerant losses due to faults and maintenance increased to 12.3 tonnes, partly reflecting the detailed inventorisation referred to above, but also due to significant losses from an old refrigeration system at the Vieux Fort (St. Lucia) brewery.

The effect of these refrigerant emissions on the ozone layer, expressed in terms of R11 equivalent, was 1,303 kg in 2003.

The contribution by refrigerant emissions to the greenhouse effect, expressed in terms of CO_2 equivalent, was 26,000 tonnes in 2003.

Odour

The main sources of odour are wort-boiling and waste-water treatment. Odour emanating from the wort-boiling process can be reduced by making the boilers airtight and fitting condensers, while that produced by waste-water treatment plants can be minimised by covering the installation and removing aromatic components in compost filters for example. Measures of this kind are adopted wherever odour causes nuisance.

3.6 Water

In terms of volume, water is the main raw material used in brewing and soft-drink production. It is also used as a consumable for cleaning process tanks, packaging, production equipment and pipework, and at our maltings for steeping and germinating barley.

Aware of Water

It is Heineken's responsibility to take the initiative in moving towards sustainable water use in the countries in which we operate. This was the motivation behind the Aware of Water programme, which we launched in 1999. One of the targets set for this programme was to reduce water consumption at all of our breweries to a maximum of seven hectolitres per hectolitre of beer. By adopting a range of measures, most of the breweries have exceeded that target by a significant margin, but there are still 23 which use more than seven hectolitres, and we are continuing to reduce this figure.

Water consumption

Specific water consumption at our breweries in 2003 was 5.4 hectolitres per hectolitre of beer, a decrease of 3 per cent compared with 2002. Part of this improvement was due to investment in new systems. Losses have been reduced significantly at Stara Zagora (Bulgaria) by installing a complete new distribution system. New water treatment plants have entered service in Warka (Poland) and Ibadan (Nigeria), which will reduce water consumption by recycling rinsing water.

Specific water consumption at our maltings was reduced by 5 per cent over the same period to 4.2 cubic metres per tonne of malt, mainly due to rising output from our modern malting at Hurbanovo (Slovakia).

'Let's be Water Citizens'

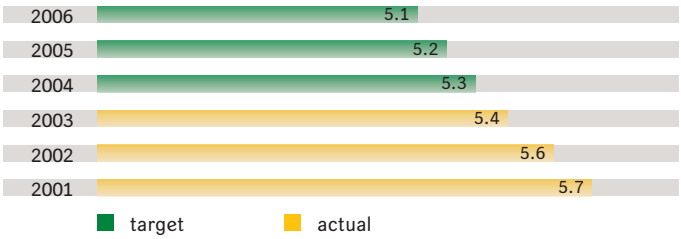
French youngsters help to promote responsible water use

CORINNE GOFF-LAVIELLE

Having made great progress in reducing the water used in brewing beer, Heineken France launched its 'Let's be Water Citizens' campaign in 2001, with the aim of involving children – the citizens of tomorrow – in raising awareness of water as an essential resource. Among the ideas they came up with was a series of animated cartoons, which have been broadcast on local TV, to convey the message that water is a scarce resource.

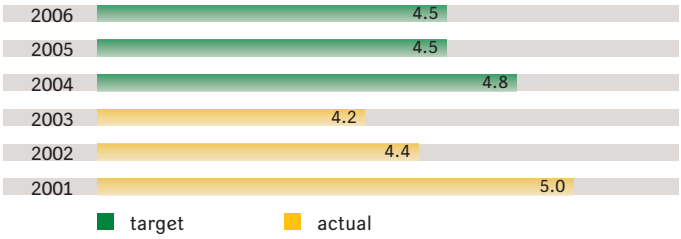
Specifc water consumption by breweries

hl water/hl beer



Specifc water consumption by maltings

m^3 water/tonne malt



Specific water consumption for soft-drink production decreased to 3.3 hectolitres per hectolitre of soft drinks, mainly due to the physical separation of the beer and soft-drink production units at Skopje and reduced operation of the CO_2 generator, and hence reduced usage of water for cooling and cleaning, at our plant in Kinshasa (Democratic Republic of Congo).

Water sources

The production units draw most of the water they use from the public utility supply or their own boreholes.

Shanghai Asia Pacific Breweries

Reducing water consumption

ZHOU ZHI HUA

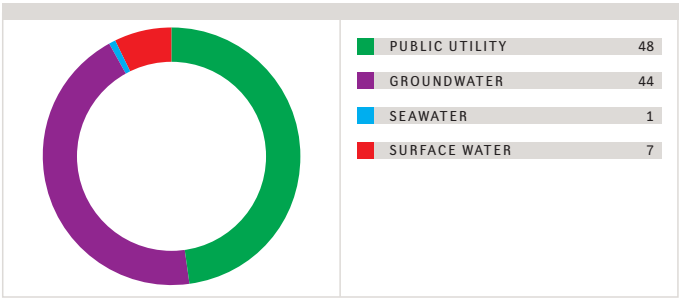
In 1999, Shanghai Asia Pacific Breweries in China was using more than 9 litres of water to brew one litre of beer. By replacing its underground piping system, using basic waste water to remove sulphur dioxide from flue gas, introducing computerised management of its waste-water treatment plant and adopting a number of simple practical measures, the brewery has cut its consumption by 40 per cent, while beer production has risen by a similar per centage.

Surface water is used to a minor extent. Heineken's brewery on the Bahamas uses seawater, which is purified to drinking-water quality.

Water quality and availability are issues which receive our constant attention. Every two years, a survey is carried out to assess the quality and vulnerability of our water sources. This involves analysing all of the chemical parameters and comparing them with international drinking-water guidelines such as those published by the European Union and the World Health Organisation. Although the 2003 survey showed that, in some locations, the incoming water was contaminated with heavy metals and/or solvents, even in these cases Heineken's water-treatment processes were able to raise the water to drinking-water quality in accordance with the applicable quality standards. The survey showed that water availability had not changed since the previous survey in 2001. At Heineken's request, a study was

Water sources

%



carried out by Prof. Dr. E.K. Duursma, Emeritus Professor at Groningen University, to relate our breweries' water consumption to rainfall within their catchment areas. This resulted in the development of a method for determining the hydrological footprint of each brewery and predicting water availability.

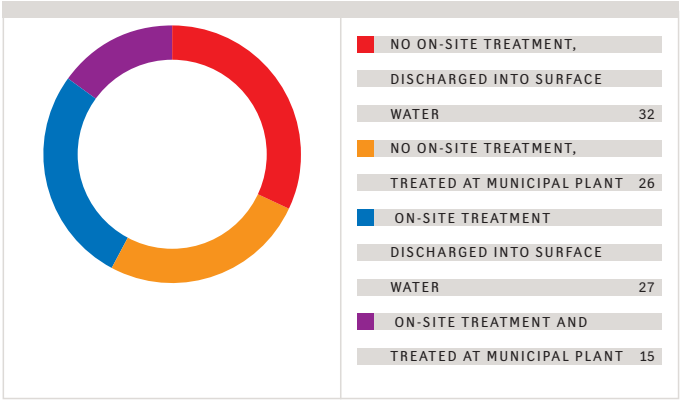
Waste water

The water used as a consumable by our operating companies is ultimately discharged as waste water. Waste water from 68 per cent of our production units is treated, either in their own on-site plants or in municipal plants. Waste water from the other production units is discharged untreated into surface water.

Heineken has embarked on a programme to build

Waste water treatment

%



water-treatment plants at all existing breweries where waste water is discharged untreated, most of which are in Africa. All new breweries, such as the brewery at Ama (Nigeria) which opened in 2002, have their own treatment plants. The programme has suffered some delay.

Even after treatment, waste water still contains contaminants including organic matter, nitrogen, phosphates and suspended solids. A widely-used measure of this contamination is the chemical oxygen demand (COD).

Compared with 2002, the specific COD load presented by the untreated waste water discharged by our breweries was 2.5 per cent lower at 1.2 kg per hectolitre of beer produced. Advances have been made, for example, by reducing the amount of yeast discharged by our breweries at Kaduna and Ama (Nigeria) and Thessaloniki and Patras (Greece). Better monitoring and more accurate measurement have also been a factor in this improvement. Over the same period, the specific COD load presented by the waste water discharged by our maltings increased by 4 per cent to 4.3 kg/tonne, mainly due to an increase in the volume of organic material removed from barley in Ruisbroek (Belgium), following a change of grade. The level of organic contamination normally fluctuates a little from year to year. The COD load associated with soft-drink production remained practically unchanged at 0.3 kg per hectolitre of soft drinks. The total COD load presented by untreated waste water in 2003 was 106,600 tonnes, an increase of 7 per cent on 2002, largely reflecting production growth.

After treatment, 21 per cent of the total COD load, or 22,500 tonnes, was discharged into surface water, a slight improvement on 2002 when 23 per cent was discharged after treatment.

3.7 Raw materials used in brewing

Brewing is a natural process in which the main ingredients are malt, water and hops. Malt is produced in maltings by steeping, germinating and drying barley. Beer can also be made from other grains, such as corn, rice or sorghum. Various consumables are used within the production units, such as detergents and disinfectants. Soft drinks are made from water, compound, sugar, sugar syrup and carbon dioxide.

Sustainable agriculture in the Netherlands

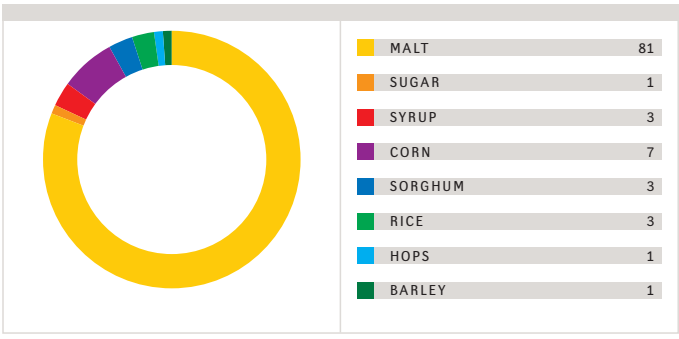
Heineken launches the Skylark Project

HAGGE DE VRIES

The Skylark Project is a joint venture between Heineken International, Agrarische Unie and twelve farmers, which is working to develop sustainable methods of barley production. The project involves measuring a range of indicators at the participating farms, which will help the farmers to improve the quality of the land, air and water. From 2012, much of the barley used by Heineken for brewing beer will come from farms using sustainable production methods.

Raw material consumption 2003

% by weight, excluding water



3.8 Packaging

Beers and soft drinks are packaged in many different ways to preserve the quality of the product and protect it against harmful external influences. The most widely used primary packaging forms are glass bottles, kegs and cans. Some operating companies also use PET bottles. Cellar beer is delivered by tanker. With glass and plastic bottles, the crown cork closure or cap and the label form part of the primary packaging. Most products are enclosed in secondary packaging, generally consisting of cardboard and plastic film, for transportation. Returnable bottles are generally packed in plastic crates.

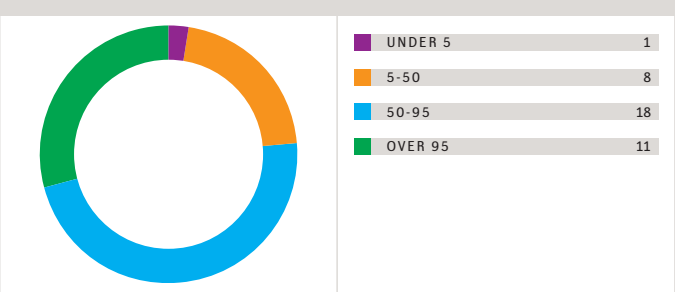
Kegs and, in most countries, glass and plastic bottles are returnable. After use, they are sent back to the production site, where they are cleaned and refilled. Crates are also returnable.

Cans, PET bottles and, in some countries, glass bottles are non-returnable and, after use, are disposed of with the household waste. In many countries, packaging waste (including glass and metal) is collected separately or separated from the waste stream. Secondary packaging, such as cartons and cardboard trays wrapped in plastic film, is generally removed at the point of sale and collected separately for processing.

Packaging choices (one-way or returnable, bottle or can) are made by our operating companies at the national level. Each country has its own packaging system, chosen in consultation with public authorities, wholesalers, producers and consumers. Heineken respects these choices. In most countries in which we operate, glass is the packaging material of choice and, in 76 per cent of the countries, beers and soft drinks are distributed predominantly in returnable packaging.

Use of returnable packaging

by number of countries



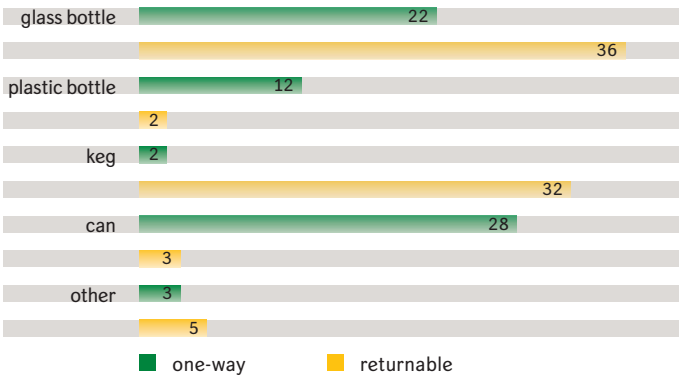
All our packaging meets the highest quality standards and complies as a minimum with the statutory guidelines. Heineken's principles in this area are embodied in policy statements and regulations.

All materials which can come into contact with the beer comply with food industry standards and are approved by agencies such as TNO in the Netherlands and other organisations complying with the US Food and Drug Act (FDA). Particular attention is paid to ensuring that the coatings applied to beer cans contain no harmful materials. Our programme to replace PVC with polyethylene for the inlays in crown cork closures is almost complete. No pigments based on heavy metals are used in our packaging, including labels and crates. New beer kegs are fitted with safety spears and bursting discs to protect the user if the pressure in the keg rises too high.
The effectiveness of this policy is monitored by carrying out regular inspections at suppliers' premises, focusing specifically on the quality of the materials supplied, the product safety risks and the supplier's environmental and safety performance.

We have undertaken several projects to reduce the environmental impact of our packaging still further. A trial is in progress in Leiden (Netherlands) with a system whereby our drivers, when making deliveries to on-trade outlets, collect their empty non-returnable bottles for recycling. Another example is a project to make container transportation of beer to the US more efficient. By changing the packaging and the loading pattern, around 5 per cent more beer can be packed into every container. A third project relates to the removal of cadmium from the old yellow Heineken crates used on the Dutch market, in accor-

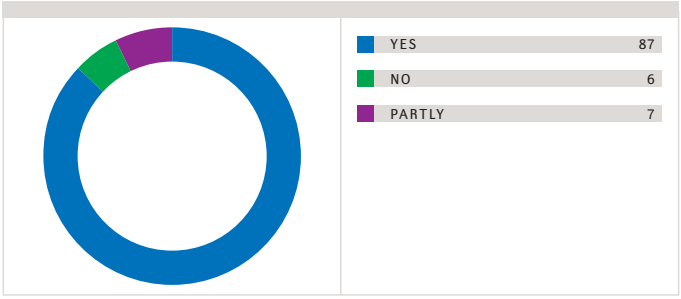
Packaging materials

countries per packaging type



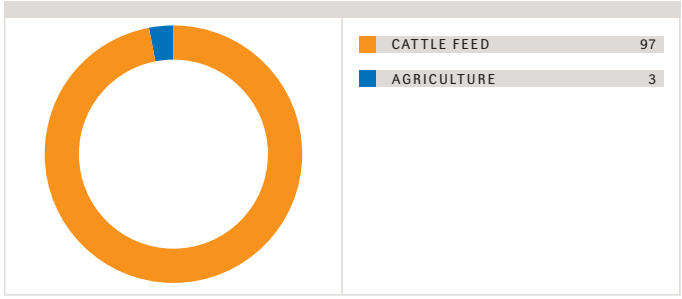
Brewers' grains: recycling

%



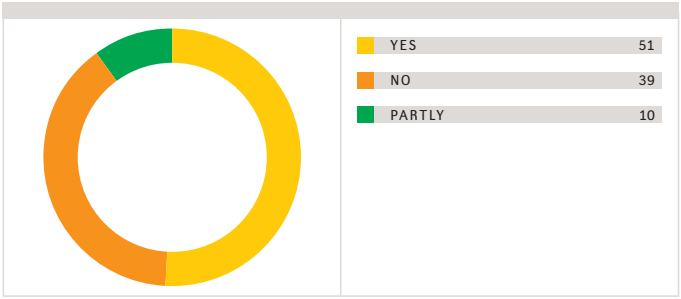
Brewers' grains: uses

%



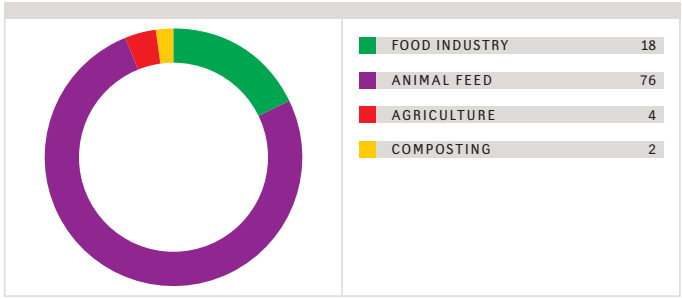
Surplus yeast: recycling

%



Surplus yeast: uses

%



dance with a covenant signed with the environmental movement in 1986. After many years' research, we have now found a processor who uses a new process to isolate the cadmium-containing pigment, which will be stored at the C2 Deponie waste-storage facility at Botlek (Netherlands). Once the cadmium has been removed, the plastic can be recycled.

3.9 Co-products and waste

Co-products

Brewing creates a number of co-products, the most important of which are brewers' grains and surplus yeast. Brewers' grains (wet malt residue) are valuable as cattle feed. Surplus yeast is also used in animal feeds and has applications in the pharmaceutical industry and in the production of flavourings.

Brewers' grains are recycled entirely by the majority of our breweries and partially in a small number of cases. Surplus yeast is recycled entirely by over half of our breweries and partially by the remainder.

Non-recycled industrial waste

Non-recycled waste increased in 2003, mainly due to the commissioning of a new brewery in Ama (Nigeria), which is not yet able to recycle brewers' grains, and the smaller volume of brewers' grains recycled on New Caledonia. Reporting accuracy has also improved in recent years. Primary sludge (solid

Brewers' grains as fuel

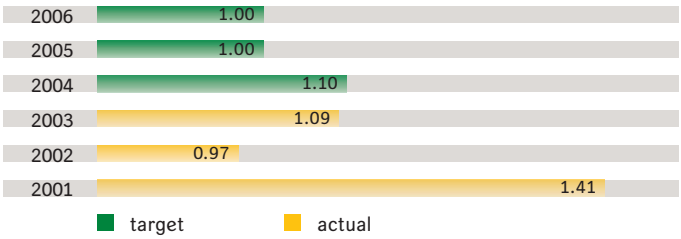
Waste used as fuel in Nigeria

AART VAN DEN BOOGAART

Where brewers' grains – the residue of barley and other grains used in the brewing process – can't be sold as cattle feed, one option is to burn the material in a boiler and return the heat to the production process. A brewers' grains boiler is being built at the Ama brewery in Nigeria which will cut its fossil fuel consumption by 3,000 tonnes a year and its greenhouse gas emissions by 8,000 tonnes. The investment will be recovered in five years.

Specific non-recycled industrial waste production

kg/hl beer



waste removed from waste water by settling or filtration), which was previously reported as waste-water sludge, is now included in industrial waste, which has increased the volume of industrial waste reported by 's-Hertogenbosch (Netherlands) and Warka (Poland) in particular. Specific non-recycled industrial waste production in 2003 was 12 per cent higher at 1.09 kg per hectolitre (beer and soft drinks).

Kieselguhr, which is used by breweries to filter beer, is recycled entirely or partially by 35 per cent of our production units. Kieselguhr is used mainly in agriculture and in some cases as a raw material for brick manufacture.

Hazardous waste

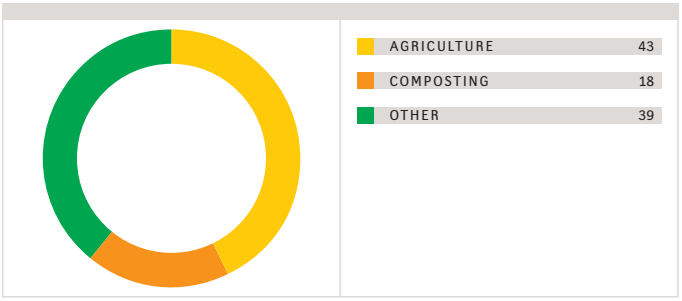
The reported volume of hazardous waste decreased to 599 tonnes in 2003, due to a change in the reporting basis whereby non-recycled hazardous waste is now reported. There was an actual decrease in the volume of hazardous waste compared with the year before at a number of locations, including Madrid (Spain) and Pedavena (Italy), where the 2002 figure had been increased by several non-recurring waste streams.

Waste-water sludge

Over half of the waste-water sludge finds useful applications in agriculture, in some cases after composting. The volume of non-recycled (aerobic) waste-water sludge has remained fairly constant and amounted to 4,810 tonnes (dry matter) in 2003.

Sludge recycling

%



3.10 Chain responsibility

Environmental performance is an important criterion in the selection of the suppliers from which our maltings, breweries and soft-drink plants purchase their raw materials. Suppliers are regularly assessed and those on which we rely for strategic materials are subjected to audits.

We make every effort to minimise the environmental effects of transportation of our products to our customers, which include the wholesale and on-trade sectors. One result of this policy is the container terminal we have built at our brewery in 's-Hertogenbosch, so that we can move our products by water instead of by road.

The Louis Stokes Urban Health Policy Fellows Program

Heineken USA joins fight to eliminate disparities in urban healthcare

DAN TEARNO

Heineken USA has pledged US$250,000 over five years to a programme which aims to help eliminate the disparities in urban healthcare provision between the private sector and the government-sponsored Medicaid Programme. The fellows appointed annually under the programme will work on the development of policy and legislation in Congress. Four forums in major cities are also planned, at which the public will have an opportunity to express their views.

3.11 **Incidents**

Incidents with environmental consequences in 2002 included the following.

Schiltigheim (France)
Ammonia was released when a leak developed in an ammonia refrigeration system. The incident was reported to the authorities and the fire service. The refrigeration plant was shut down in order to replace components and repair the condenser. A total of five tonnes was lost in the form of aqueous ammonia; the amount released into the atmosphere was negligible.

's-Hertogenbosch (Netherlands)
As a result of a power failure in the waste-water treatment plant, untreated waste water had to be piped to the municipal treatment plant. No additional measures needed to be taken. The incident was reported to the authorities.

Chur (Switzerland)
A fault in the milling process caused around 15 tonnes of malt to enter the waste water. The incident was reported to the authorities and a fine was paid. Additional safety measures were taken to prevent any recurrence.

Incidents with environmental consequences in 2003 included the following.

Marseilles (France)
During maintenance of components of a filling line in the brewery's workshop, a detector was damaged and there was a spillage of radioactive caesium 137 on the floor of the workshop. The authorities were notified of the incident, the requisite checks were carried out and the workshop was cleaned and decontaminated, after which the brewery was given permission to recommission the filling line. The waste was disposed of in accordance with the French regulations. The incident caused neither physical injury nor environmental damage. The brewery has introduced a new procedure to prevent incidents occurring in the course of work of this kind and has decided to replace the detectors employing caesium 137 as soon as possible.

Aosta (Italy)
The fuel tank on a commercial vehicle was damaged by the cover over a waste-water pipe, allowing fuel to leak into untreated waste water. The authorities were notified of the incident.

Hurbanovo (Slovakia)
A fine was paid by the brewery when a defective waste-water pipe allowed untreated waste water to contaminate the soil. Following a study, a capital expenditure plan was drawn up to replace the old pipework and an action plan was formulated to prevent such incidents occurring in the future.

Ama (Nigeria)
When the connection between the treatment installation and the waste-water outlet was damaged by flooding during the rainy season, treated waste water contaminated the soil. The system was repaired and the authorities were notified of the incident, but did not impose a fine.