



Adding Quality
to People's Lives

Environmental
Report 2003/2004

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Introduction**Adding Quality to People's Lives**

"People all over the world may expect from Georg Fischer a significant contribution to their quality of life."

Kurt E. Stirnemann, CEO Georg Fischer

The Corporation's principle of sustainable development

Georg Fischer is committed to sustainable corporate development. The Corporation therefore assumes responsibility for economic, environmental and social sustainability at all levels. Georg Fischer reports regularly on these issues.

Georg Fischer's environmental policy

- We at Georg Fischer are committed to taking an active part in protecting natural resources by striving to conduct our operations in harmony with the environment.
- We endeavour to protect our natural resources by setting and implementing environmentally conscious operational targets. Monitoring progress regularly is considered part of managerial responsibility. To support this, we conduct external audits.
- We comply with relevant environmental legal regulations.
- We also strive to develop and produce our products and services in a manner that minimizes adverse environmental impacts.
- We also work actively together with our suppliers and partners to improve the conservation of natural resources.
- We endeavour to motivate, educate and train our employees to carry out their activities in an environmentally responsible manner.
- We encourage openness and dialogue with our employees and the public on environmental matters.

Introduction

The year in brief**Success right down the line**

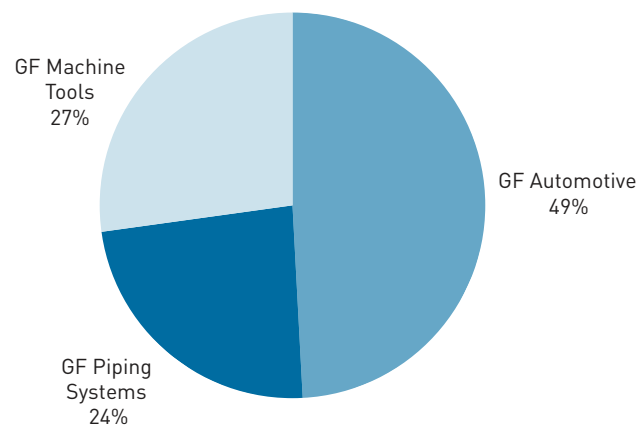
Once again, in its fifth year of environmental reporting, Georg Fischer can point to a successful environmental balance sheet.

The efforts that have been made have paid off. All indicators dealing with energy and water consumption, emissions and waste accumulation continue to show a positive trend.

- Process and building energy consumption has been reduced.
- Electricity from renewable resources is being used for the first time.
- Consumption of drinking water from public supply systems has been reduced.
- The consumption of water from GF's own water supply systems increased.
- The percentage of wastewater decreased.
- Lower consumption of fossil fuels resulted in a cut down of atmospheric and particulate emissions.
- The total quantity of solid waste could have been reduced while recyclable wastes have been significantly increased.
- Landfilled or incinerated wastes could have been reduced remarkably.
- Hazardous waste volumes were cut by half.

Introduction**The industrial corporation at a glance**

- Georg Fischer produces primarily castings, both iron and light-alloy, for the automotive industry; plastic and metal piping systems for industrial applications, gas and water distribution and domestic installations; and machines for tool and mold making
- Annual sales in 2003: CHF 3,257 millions
- 13,250 employees worldwide
- 200 locations
- 39 production sites in 9 countries
- Sales and service companies in 25 countries

2003 sales by corporate group**Core businesses of Georg Fischer****GF Automotive**

Pioneering technological development partner and manufacturer of highly durable cast components and systems in iron and light metal for the automotive industry.

GF Piping Systems

Leading supplier of piping systems in plastic and metal.

Application-oriented system solutions and high-quality components for the transportation of water, gas and other liquids in the industrial, utility and domestic installations sectors. Global market presence.

GF Machine Tools

Leading global system supplier in the tool and mould making sector, with electric discharge machinery and high-speed milling machines, as well as the related automation systems and peripherals. Extremely precise tools and moulds are decisive competitive elements in the mass production of high-end consumer goods.

Introduction

Advanced products for enhanced environmental protection

GF Automotive: lightweight products for the cars of the future

Weight savings of as much as 20% through thin-walled structures and integrated add-on parts enable automakers to build vehicles that are lighter and more economical but also safer and more reliable.

GF Piping Systems: reliable transport of clean drinking water

Georg Fischer's plastic piping systems are lightweight and easy to transport, corrosion-resistant and durable. They protect drinking water, a valuable resource, as it is piped from its source to individual homes.

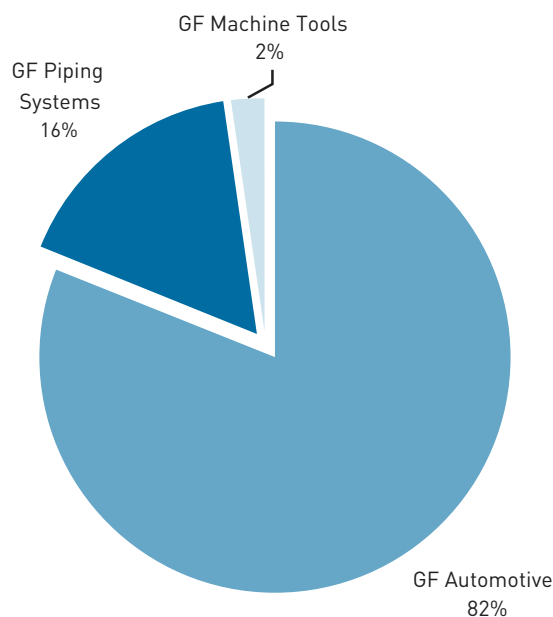
GF Maschine Tools: precision technology for mould making

Our machines make it possible to produce high-precision moulds so that thin-walled and very lightweight plastic bottles can be mass-produced economically while using resources efficiently.

Greatest environmental relevance in the Corporation: casting production

The path from the material to the finished casting is short. The end product is produced in just a few steps. This conserves resources and avoids waste. Nonetheless, the production of iron and light-alloy castings has an impact on the environment. The relevant indicators are the consumption of water and energy, the atmospheric emissions resulting from energy consumption, and the production of waste and wastewater.

Environmental relevance* within Georg Fischer 2003/2004



* The five indicators – energy consumption (electricity, natural gas, oil and coke from hard coal), water, wastewater, atmospheric emissions and waste – are not weighted according to actual environmental relevance. No impact assessment was made. The graph shows the contribution of each of the three corporate groups to the total sum of indicators analyzed.

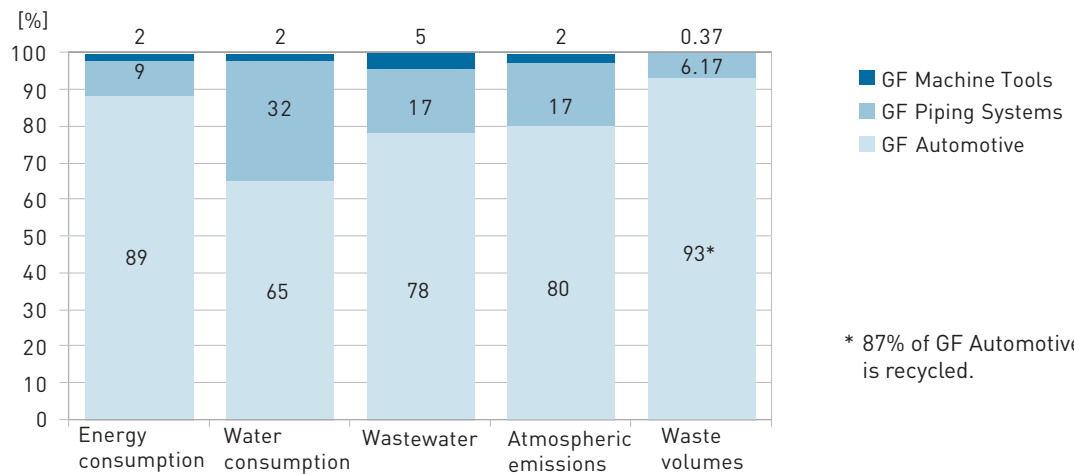
Introduction

Environmental relevance of the three corporate groups

Energy consumption in the GF Automotive foundries is high compared with the other corporate groups. This is primarily due to the energy-intensive melting process, which requires large amounts of coke, natural gas and electric power. This means that GF Automotive also has the highest percentage of atmospheric emissions.

In addition, intensive cooling processes are also essential for producing cast components. Cooling air and process water are used much more extensively than at GF Piping Systems and GF Machine Tools, the other corporate groups.

Environmental relevance



* 87% of GF Automotive waste is recycled.

**Environmental
management****Environmental management milestones**

- | | |
|-------------|--|
| 1992 | Signing of the ICC Charter – Georg Fischer declares its commitment to sustainability (ICC: International Chamber of Commerce). |
| 1994 | Georg Fischer publishes its corporate environmental policy “Protecting the environment”. |
| 1995 | Development of Georg Fischer’s environmental management system. |
| 1996 | Definition of Georg Fischer’s environmental policies. |
| 1997 | Development of the Environmental Management Information System (BUIS). |
| 1999 | All Georg Fischer foundries are certified to ISO 14001. |
| 2000 | First corporate environmental report (published annually since 2000). |
| 2001 | Beijing Agie Charmilles Industrial Electronics Ltd is certified to ISO 14001. |
| 2002 | Tracking of the most important environmental indicators published on the Internet. |
| 2003 | Georg Fischer Piping Systems Ltd Shanghai is certified to ISO 14001. |
| 2004 | Evaluation of the sustainability indicators relevant for Georg Fischer. |
| 2005 | Development of a sustainability management system. |

Awards and recognition

- | | |
|-------------|---|
| 1998 | CIATF Environmental Award goes to Georg Fischer foundries in Singen and Leipzig, Germany (CIATF: International Committee of Foundry Technical Association). |
| 1999 | Swiss Cantonal Banks and WWF (Worldwide Fund for Nature) include Georg Fischer in their environmental funds after it is given positive ratings. |
| 2000 | Georg Fischer Fittings GmbH in Traisen, Austria, receives the BDO Auxilia Environmental Award for environmentally relevant process improvements, taking first place. |
| 2001 | Georg Fischer is included in the Dow Jones Sustainability World Index (DJSI) Fund because of its success in environmental protection. |
| 2002 | INRATE “Leader in Sustainability Award” goes to Agie Charmilles (GF Machine Tools) for environmentally responsible production. |
| 2002 | Georg Fischer Foundry in Mettmann, Germany, receives an award from the WFO (World Foundrymen Organisation) for developing methods for preventing odor emissions. |
| 2003 | A-Rating Corporate Sustainability Rating received from SIRI (Sustainable Investment Research International Ltd) in Geneva, Switzerland, and Georg Fischer Environmental Report validated by the SQS (Swiss Association for Quality and Management Systems). |
| 2004 | The 2003 Water Award “Category Business and Water Pollution Control” for Lower Austria is given to Georg Fischer Automotive subsidiaries in Herzogenburg for their project entitled “Emergency Organization for Water Pollution Control”. |

Environmental management

Environmental management

Organizational structure of environmental management at Georg Fischer

Overall responsibility:

Dr. Ernst Willi, Head of Corporate Development, Member of Corporate Executive Committee, Corporate Environmental Officer.
ernst.willi@georgfischer.com

Technical responsibility:

Manfred Leyrer, Dipl.-Ing., Head of Quality and Environmental Management.
manfred.leyrer@piping.georgfischer.com

Project management:

Rouven Kraft, Dipl.-Ing. (FH), Environmental Engineer.
rouven.kraft@piping.georgfischer.com

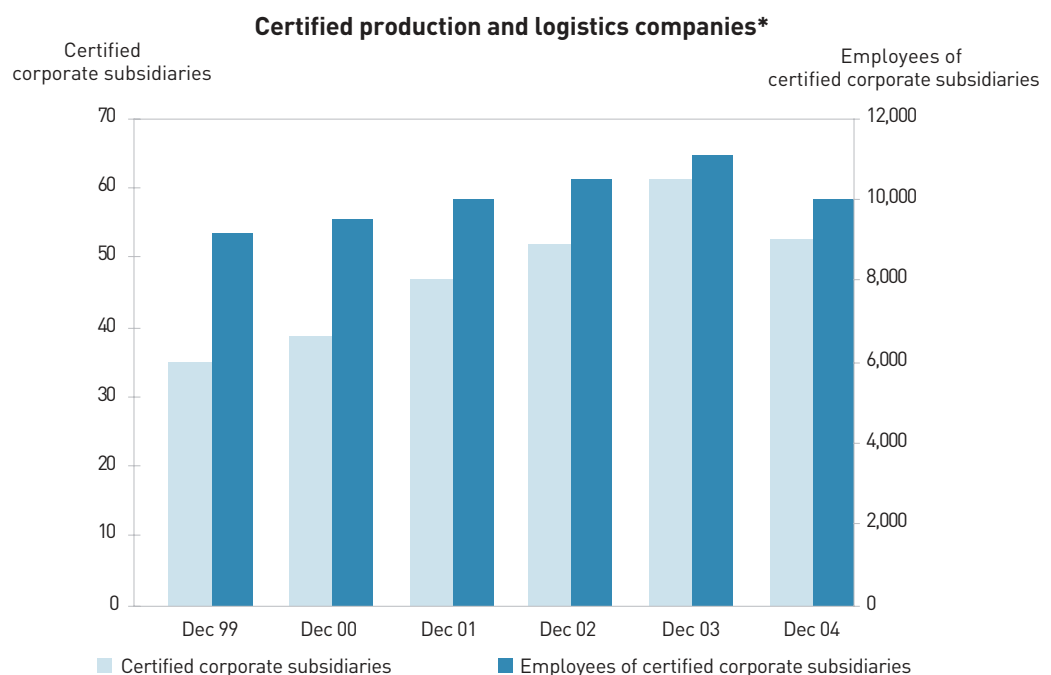
Local responsibility at corporate subsidiaries:

Environmental management representative at all environmentally certified sites.

Development of environmental management

Approximately 95% of all of the Georg Fischer production and logistics companies are certified under ISO 14001, which means that an active environmental management system ensures compliance with international environmental standards.

Because the various GF companies have different numbers of employees, the percentage of certified companies and the percentage of employees of certified companies are not identical.

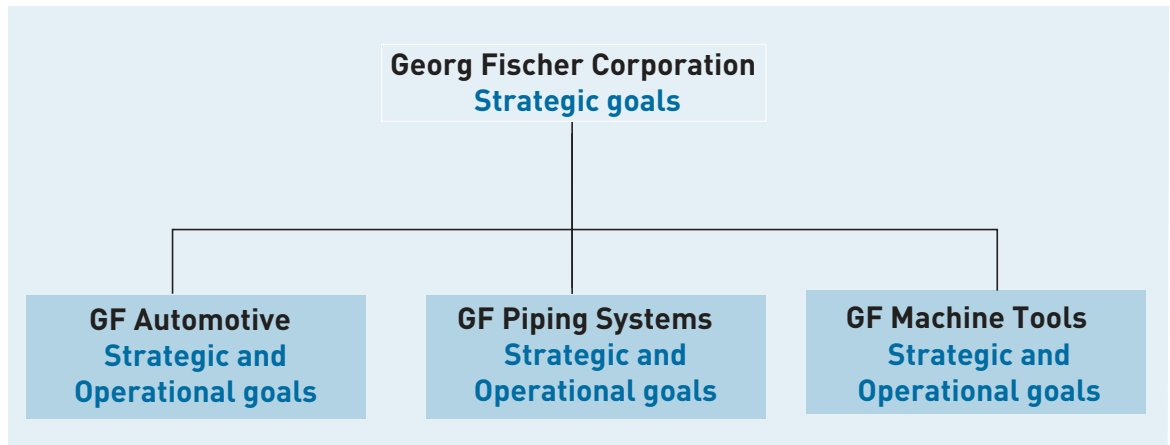


* According to the corporate guideline all corporate subsidiaries with a production and logistics orientation must have an environmental management system that is certified to ISO 14001. That are 55 companies out of 130 at present. The remaining 75 are sales companies, holdings or minority participations which are not affected.

Environmental goals**Environmental goals**

Corporate management sets the strategic environmental goals.

Additional operational environmental goals are defined each year within the corporate groups: GF Automotive, GF Piping Systems and GF Machine Tools.

**Corporate environmental goals for 2004/2005**

- Georg Fischer is planning comprehensive sustainability reporting for 2005. The Corporation will strive to maintain a leading position in all three areas of sustainability, namely
 - economic efficiency,
 - environmental responsibility and
 - social solidarity.

Development of a sustainability management system is planned in order to reach this goal.

At the corporate level, Georg Fischer is currently determining which sustainability criteria are relevant for its businesses so that it can then define concrete sustainability goals.

- All corporate subsidiaries with a production and logistics orientation must have an environmental management system that is certified to ISO 14001. Newly established companies, acquisitions and companies in which Georg Fischer has a majority interest must be certified under ISO 14001 within three years.

**Environmental
goals****Environmental goals of GF Automotive for 2004/2005**

- Conservation of resources through implementation of energy-saving measures.
These measures include more efficient use of coke, natural gas and electric power, for example. Careful management of these non-renewable energy sources helps reduce environmental pollution.
- Conservation of resources by reducing consumption of two important auxiliary manufacturing materials.
Auxiliary manufacturing materials include hydraulic fluids, coolants and lubricants, and cleaning agents, for example.

Environmental goals of GF Piping Systems for 2004/2005

- Certification of another corporate subsidiary to ISO 14001.
- Increasing energy efficiency, conservation of resources through implementation of energy-saving measures.
 - Optimization of transportation through new logistics concept
A project team is working on the optimization of the logistics concept.
 - Increasing the efficiency of compressed air systems
Specifically, leak tests of compressed air systems will be carried out at various sites, and faulty systems will be overhauled. The first tests will be run at the Schaffhausen and Subingen plants and at the Schaffhausen Distribution Centre.

Environmental goals of GF Machine Tools for 2004/2005

- Further reduction in energy consumption at all major plants.
Measures for achieving this goal include building modernization, heat recovery and more efficient energy utilization.

CO₂**CO₂-Strategy of Georg Fischer Corporation**

- On May 1st 2000 Switzerland's "CO₂-law" became effective. Thereby Switzerland took over a leading role as a nation in terms of climate protection. This law is considered to reduce CO₂-emissions by voluntary measures by 10% until 2010 compared with 1990's status. A decision on the introduction of a possible national CO₂-tax is expected in spring 2005 – in case these voluntary measures are not effective.
- At three of its sites, Georg Fischer has joined groups affiliated with the Business Energy Agency (EnAW) and has signed voluntary target agreements in order to reduce CO₂-emissions.
- In July 2003, the EU adopted its Emissions Trading Directive, which is designed to limit CO₂-emissions in conjunction with implementation of the targets specified by the Kyoto Protocol. In the same year Switzerland became a signatory to the Kyoto Protocol.
- Georg Fischer has carried out a corporation-wide analysis in order to develop a corporate CO₂-strategy and to find out which sites might fall under the provisions of the directive. The first emission trading period – from 2005 to 2007 – is of no concern to Georg Fischer. The second phase – from 2008 until 2012 – could be relevant for two foundries depending on the final legislation and the EU-definition of the term "installation".

BUIS

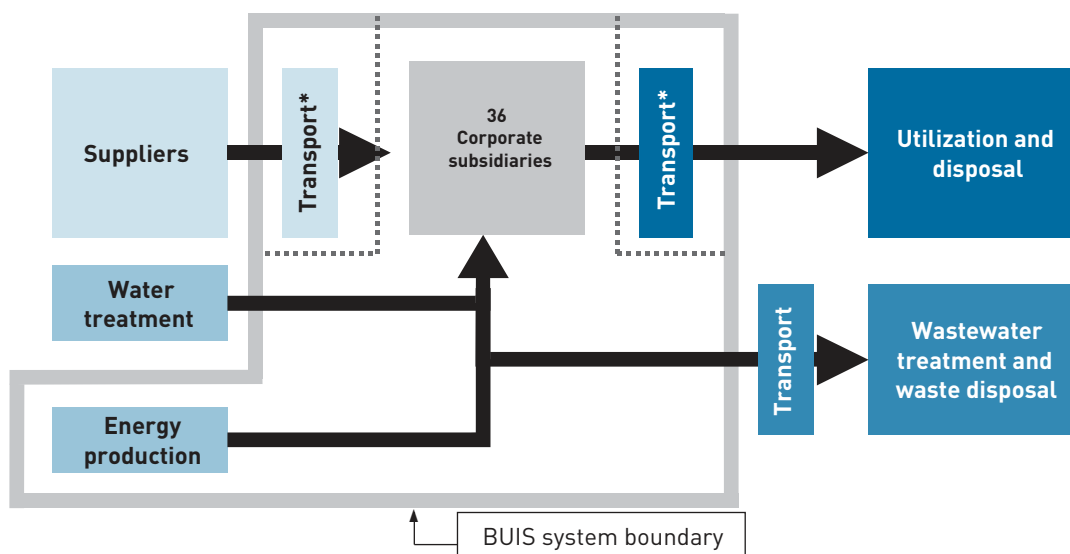
Corporate Environmental Information System – BUIS

- Since 1997 Georg Fischer reports environmental key figures via the Corporate Environmental Informations System (BUIS). All corporate subsidiaries that have production and logistics operations are globally linked by the Environmental Management Information System (BUIS). Environmental reporting therefore includes 74 % of all employees. Trained staff members at the individual corporate subsidiaries are responsible for collecting and reporting environmental data. Data on effective area, on consumption of electricity, natural gas, oil and water, and on atmospheric emissions and wastes are collected on an annual basis.
- The BUIS corporate reporting system covers 36 corporate subsidiaries, including all sites with production and logistics operations. The data for these companies is not extrapolated for the Corporation as a whole, which includes over 130 companies.
- A new database solution had been installed for this year's data reporting. Only authorized, BUIS responsables have access to a special BUIS manual content in order to enter data via online entry masks that are directly combined with the database.
- A consolidation and evaluation of the data set is then carried out by the corporate environmental management.

BUIS system boundary

- The Environmental Management Information System tracks the material and energy streams of the 36 BUIS corporate subsidiaries. These streams include energy and water as input and emissions, wastewater and waste as output.
- BUIS acquires all data within the system limit, also referred to as the system boundary (see diagram).

System boundary of the Environmental Management Information System (BUIS)



* Data on shipments delivered to these companies, shipments earmarked for product distribution, and business trips are also included in the system but are not published in the environmental report for reasons of data quality.

Environmental successes

Water utilization

Efficient utilization and economical consumption are essential for conserving drinking water, a natural resource. Early on, Georg Fischer companies began to recycle the process water that was needed for production – generally cooling water. Switching to non-water-based processes also contributes to conservation of resources.

Location and goal	Action	Result
GF Automotive Mettmann (Germany) Water conservation in all areas	Installation of waterless urinals in restrooms	Savings totalling 1,200m ³ were achieved in 2003
GF Automotive Herzogenburg (Austria) Emergency organization for water pollution control	Comprehensive emergency planning to protect the Mühlbach River and to minimize water pollution in the case of a serious accident. Retrofitting a service vehicle belonging to the company fire department as an environmental protection and water pollution control vehicle	Receives the 2003 Water Award "Business for Water Pollution Control" for Lower Austria for the project entitled "Emergency Organization for Water Pollution Control"
GF Automotive Altenmarkt (Austria) Reduce usage of fresh water by optimizing the production process	Use of new lubricants and release agents	Fresh water consumption reduced by over 1,000 m ³ per year
GF Automotive Gleisdorf (Austria) Reduce usage of fresh water by optimizing the production process	New lubricants and release agents and installation of spray heads in production	The amount of fresh water saved cannot yet be quantified
GF Automotive Zhangjiagang (China) Save on fresh water	Installation of a cooling tower for process water	Fresh water consumption reduced by 80 % in 2003

Environmental successes

Heat recovery and energy conservation

Reutilization of waste heat, primarily from energy-intensive foundry processes, is an efficient measure for reducing primary energy requirements. Heat exchangers are used primarily – for heating water, heating buildings and conditioning dry process air. The waste heat stems mainly from casting cooling processes or from machines such as air compressors.

Location and goal	Action	Result
GF Automotive Leipzig (Germany) Heat recovery and energy conservation	In 2003, Georg Fischer Leipzig installed four new heat exchangers in the melting furnace cooling system	Heat recovery for water heating. Result: conservation of resources and lower energy consumption. Savings not quantifiable at present
GF Automotive Singen (Germany) Further reduction in energy expenses	Installation of a new system for cooling the spray of castings (cluster)	Energy expenditure reduced to a minimum in 2003
GF Machine Tools Geneva (Switzerland) Reduction of building energy requirements	Insulation of roofs of production facilities at Agie Charmilles	Energy expenses reduced by as much as 50 % in 2003
GF Machine Tools Losone (Switzerland) Energy conservation	Installation of three new refrigerating machines with six compressors, two cold storage units and one heat storage unit	Electricity savings of approximately 23,000 kWh per year. The expected reduction in oil consumption through heat recovery is about 25,000 to 30,000 litres per year
GF Piping Systems Epe (Netherlands) Conservation of heating energy	A new heating system was installed in the WAGA production plant in 2003	Energy savings of over 30%

Green power

Electric power generated in an environmentally responsible way from renewable sources such as water power, solar energy or wind power is being used to an increasing degree in industrial production at Georg Fischer. The advantage of using “green power” as opposed to electricity from fossil fuels lies in its neutrality as regards CO₂. In other words, no CO₂-emissions are produced. This type of power therefore does not pollute the environment with greenhouse gases.

Location and goal	Action	Result
GF Automotive Altenmarkt and Gleisdorf (Austria) Permanent increase in the proportion of green power in the aluminium and magnesium foundries	Ecologically oriented purchasing processes	Green power already accounts for 6% of the total power consumption in Altenmarkt and 4.8% in Gleisdorf

Environmental successes

Compressed air

Compressed air is used in industrial production on a large scale as a flexible energy source. One drawback of compressed air is that a disproportionately large amount of primary energy must be used to generate it. Its efficiency is low compared with other sources of energy, and therefore compressed air is one of the most expensive forms of energy. Compressed air systems must consequently be designed to be very efficient and must operate with virtually no loss of air. Leaks in piping systems represent the greatest potential for energy savings.

Location and goal	Action	Result
GF Machine Tools Nidau (Switzerland) Reduction of compressed air losses and lower energy consumption	Leaks were found in compressed air lines in the assembly building using an acoustic detector. The cost of investing in improved air and power supply systems was CHF 210,000	Efficient, leak-free compressed air supply and energy savings
GF Automotive Altenmarkt (Austria) Reduction of compressed air energy consumption and cost reduction	All compressors were equipped with a heat recovery system. The waste heat can be used for building heating, and the compressors are operated more efficiently through an integrated control system	Savings of 275,000 kg fuel oil per year
GF Automotive Mettmann (Germany) Energy savings and resource conservation	Determining the leakage losses in the compressed air system	10% reduction in compressed-air energy requirements

Waste

Different types of wastes are generated in different amounts in industrial processes. The goal of each company is to increase the overall percentage of reusable production wastes (recycling) and to reduce the percentage of undesirable hazardous wastes.

Location and goal	Action	Result
GF Automotive Munich (Germany) Waste reduction	Recovery and recycling of accumulated waste emulsion instead of disposal as hazardous waste	60% reduction in waste emulsion quantities disposed of as hazardous waste
GF Piping Systems Traisen (Austria) Waste reduction	The accumulated foundry wastes are reused effectively wherever possible (waste sand, filter cake, core sand, cupola slag, fly ash)	The percentage reutilized is about 75%. Any additional reutilization possibilities – provided they are even technically feasible – are not economical
GF Piping Systems El Monte (USA) Reduction in hazardous waste at George Fischer Signet Inc.	Liquid epoxy resin residues must be disposed of as hazardous waste. The volume of liquid epoxy resins was sharply reduced through internal measures. A change in suppliers also enabled the company switch to recyclable containers	Reduction in hazardous waste volumes (epoxy resin and empty containers). The first accounting will be done during the next disposal operation at the end of 2004

Environmental successes

Manufacturing supplies

Auxiliary materials and manufacturing supplies are used in all industrial production processes. Such materials include coolants, lubricants, hydraulic fluids, release agents and cleaning agents. These manufacturing supplies are generally accumulated as waste after they are used. Prolonging the period of use and reducing consumption will have a positive effect on the waste balance sheet. In addition, reduced consumption will conserve resources.

Location and goal	Action	Result
GF Automotive Mettmann (Germany) Material savings and process optimization	Further development of existing programs for computer-assisted casting process simulation	Less circulating material necessary, more reliable process and lower-cost castings, less scrap
GF Automotive Altenmarkt (Austria) Reduction of environmentally harmful release agents and water consumption	Introduction of a new spraying agent ("Liquid Powder") based on synthetic oils	17% reduction in release agent consumption per tonne of castings. Reduction in water consumption of just under 1,000 m ³ per year and wastewater decrease of 300 m ³ per year
GF Automotive Leipzig (Germany) Savings on hydraulic fluid	Installation of a hydraulic fluid cooling unit to cool hydraulic fluid for the large mould plant, thereby increasing tool life	Oil change interval extended from every year to every three to four years, resulting in reduced oil consumption. Instead of 72,000 litres, only 18,000 litres are needed in 4 years

**Material
cycles****Material cycles at Georg Fischer**

The main focus of recycling management is to avoid or reuse waste material. Material recycling leads to minimized waste disposal costs and additionally reduces raw material consumption. Ideally used raw materials are recycled at the end of a product's life cycle.

Georg Fischer strives to promote such recycling systems.

Material cycles

Material cycles can be divided into either small- or large-scale recycling loops:

Small-scale recycling loop:

Wastes which are generated during production can often be reused in the own production without any extra treatment. This small-scale recycling system is a standard procedure at Georg Fischer.

Large-scale recycling loop:

The goal for the future will be to establish a large-scale recycling system as well. Meaning that used materials will be recycled after the end of their life cycles. The large-scale recycling process involving both producers and customers does only exist partly so far.

**Illustration
of units****Units****Energy**

A gigajoule (GJ) is equivalent to the energy content of 27 liters of fuel oil (extra-light) or 278 kWh of electricity. It is sufficient to operate one PC station for an entire year.

Water

The annual consumption of water by Georg Fischer is about 60 m³ per employee. That is approximately equivalent to the contents of one 10-meter outdoor swimming pool.

Air

The combustion of 27 liters of oil yields 1 GJ of energy. But the combustion process also produces emissions, principally CO₂ (about 73 kg), but also SO₂ (0.1 kg) and different amounts of NO_x and VOC.

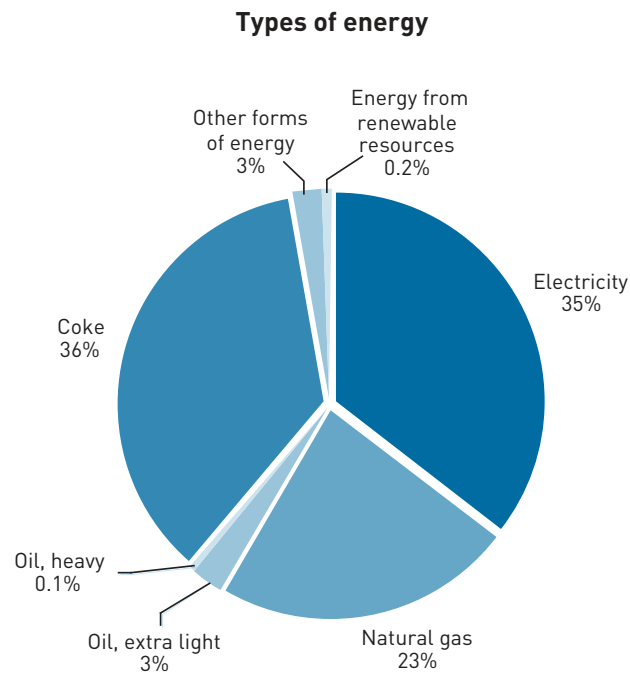
Energy

Energy

We distinguish between process energy consumption and building energy consumption. Production and logistics account for 87% of overall energy consumption, which is the major share.

The most important sources of energy at Georg Fischer are

- Coke
- Electricity
- Natural gas
- Oil



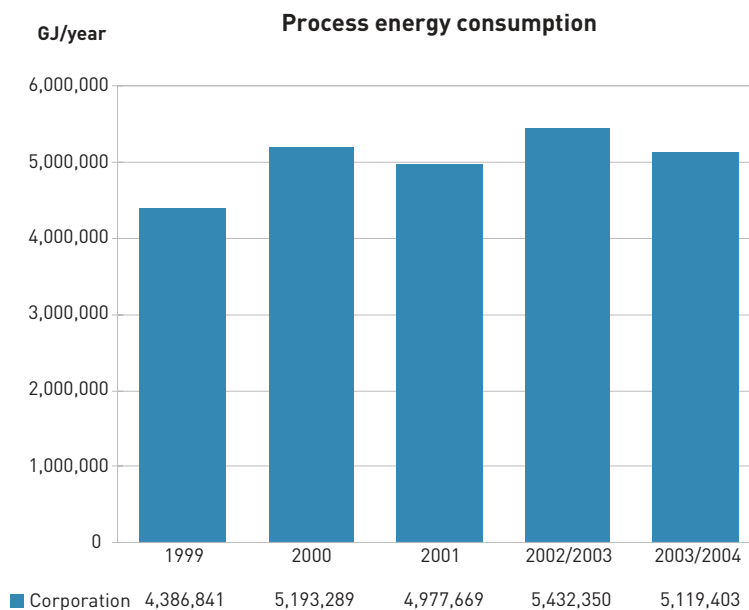
Types of energy

- Coke is used in the cupola furnaces of the iron foundries for melting and carburization.
- Electricity and natural gas are used primarily as process energy sources, whereas oil (fuel oil) is used chiefly to heat buildings.
- Other types of energy involve energy from heat recovery and waste heat utilization.
- Green power is being used for the first time at two sites. Green power is electric power generated from renewable resources such as water power.

Energy

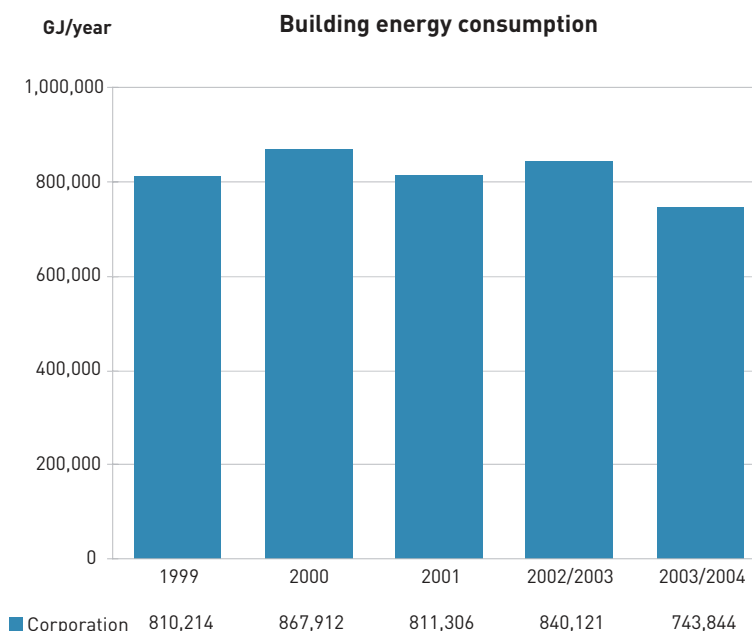
Process energy consumption decreased – efficiency increased

Energy consumption in production and logistics was reduced in the period under review. Increases in efficiency, process optimization and merging of production facilities account for the fact that energy consumption was reduced at the same time as sales were increased.



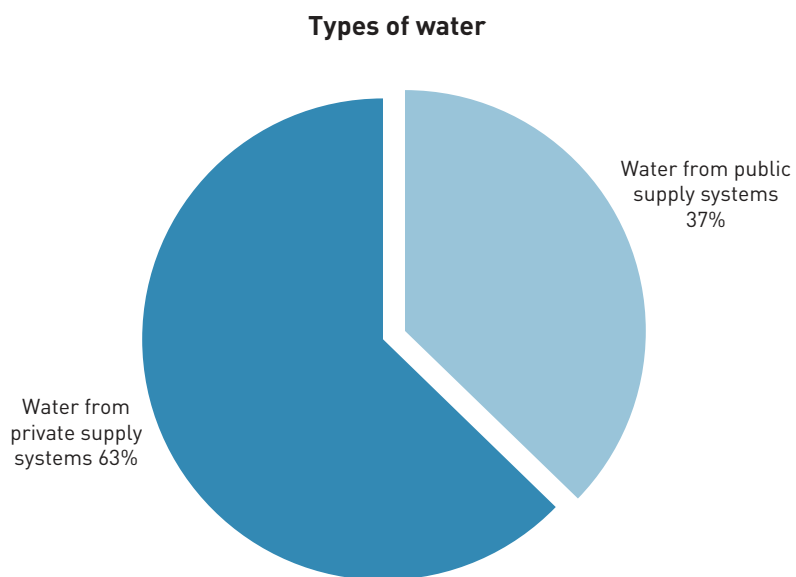
Building energy consumption – decline due to decrease in effective area

Decreased building energy consumption is a result of the reduction in overall effective area. The effective area decreased by 15% as the result primarily of plant mergers.



Water**Water from public and private supply systems**

At some sites, GF subsidiaries use not only drinking water from public supply systems but also water from their own sources (wells and surface water). Extensively purified drinking water from public systems accounts for only 37% of total water consumption. The remaining 63% comes from private sources.



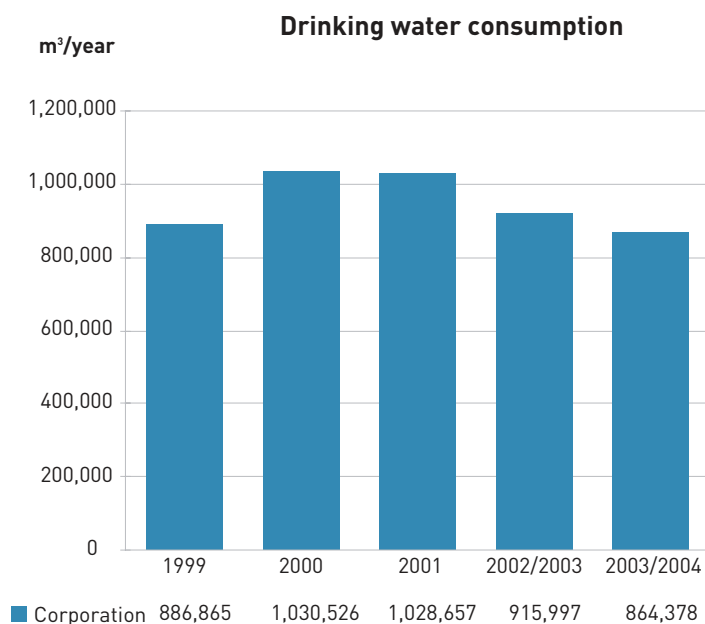
Water

Drinking water from public supply systems – consumption reduced

The consumption of drinking water from public supply systems was reduced by 6%.

Reasons:

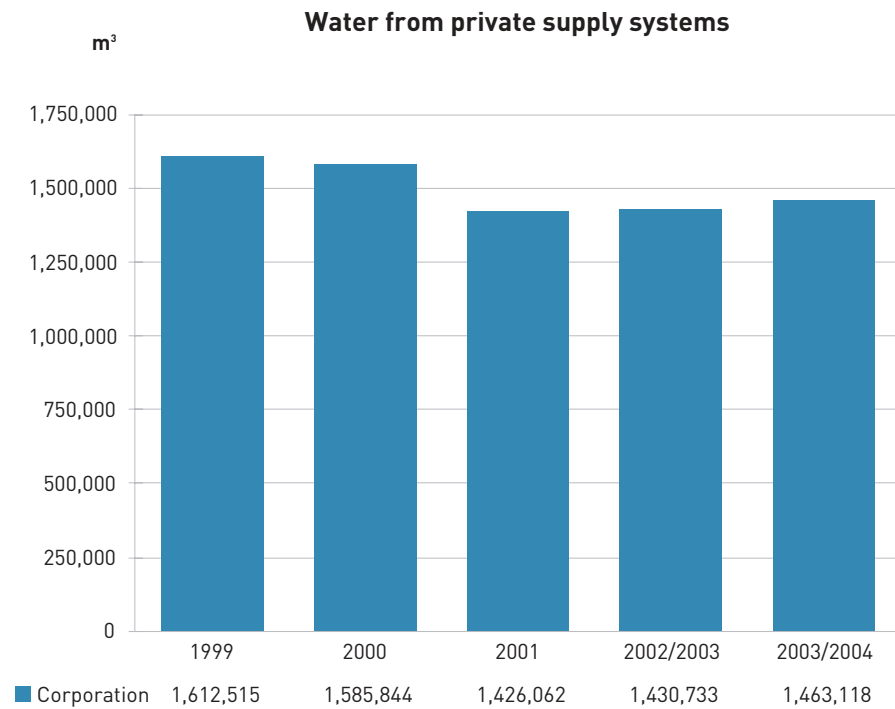
- The percentage of companies that use drinking water from public supply systems has declined. At the same time, the number of sites that use well water has increased.
- The merger of production facilities and better capacity utilization made it possible to reduce drinking water consumption.
- In addition, there has been an increase in cooling water recirculation.



Water

Water from private supply systems – consumption increased

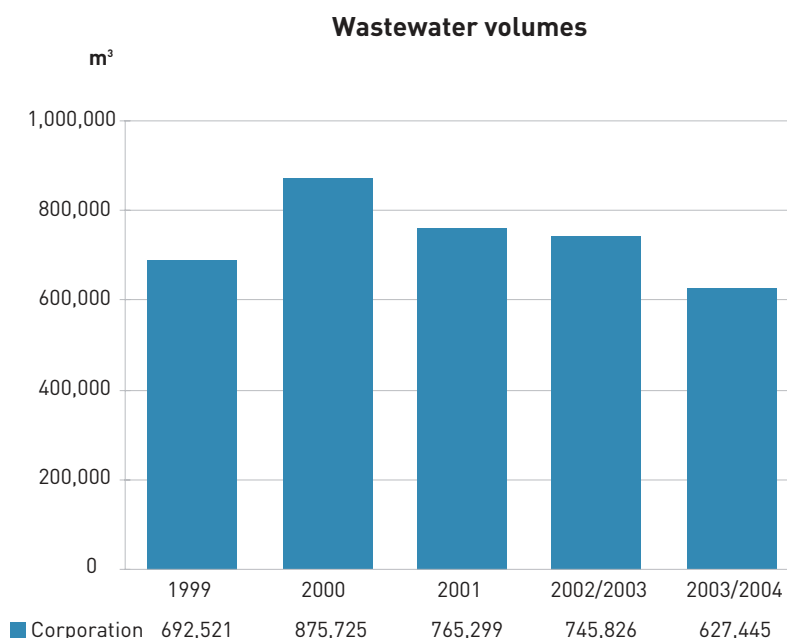
Consumption of water from private sources is increasing. This is due to a percentage shift in favor of companies that use well water.



Water

Wastewater – further reduction

- Wastewater generated by corporate subsidiaries is always treated in the local water treatment plants. In some cases, water is fed through in-house treatment stages before entering the public wastewater system.
- Less than $\frac{1}{3}$ of the water volume from public and private supply systems used by corporate subsidiaries is accumulated as wastewater. The major portion is used as cooling water, for instance, and is released to the natural environment as clean water.
- Measures taken to decrease the consumption of fresh water also have a positive effect on wastewater levels. The reduced water consumption is also reflected in the decrease in wastewater flow.



Air

Atmospheric emissions

- The consumption of fossil fuels such as coke, natural gas and oil results primarily in the following emissions:
CO₂: Carbon dioxide
NO_x: Oxides of nitrogen
SO₂: Sulfur dioxide
VOC: Volatile organic compounds
- Production processes result in the additional accumulation of particulate matter and additional VOCs.

Atmospheric emissions: related effects

- **Related effects caused by the major emitters:**
CO₂: greenhouse effect → global warming
SO₂: soil acidification, winter smog → forest dieback
NO_x: summer smog → air pollution, allergies, respiratory diseases
CH₄: global warming
VOC: ozone generation (summer smog)

- **Global warming potential (GWP) of emitters:**

Global warming potential describes the contribution of a substance to the greenhouse effect in relation to the contribution of an equal amount of carbon dioxide. Example:

Gas	Global warming potential
CO ₂	Factor 1
CH ₄	Factor 30

The global warming potential of one ton of CH₄ (methane) is 30 times the GWP of the same amount of CO₂ (carbon dioxide).

The combustion of fossil fuels always produces CO₂-emissions primarily. For this reason, the main focus of environmental activities is on reduction of CO₂-emissions.

Air

Atmospheric emissions from energy consumption

Energy generation and utilization results primarily in emissions of carbon dioxide (CO₂) but also sulfur dioxide (SO₂), oxides of nitrogen (NO_x), methane (CH₄) and volatile organic compounds (VOC).

The percentages of

SO₂

NO_x

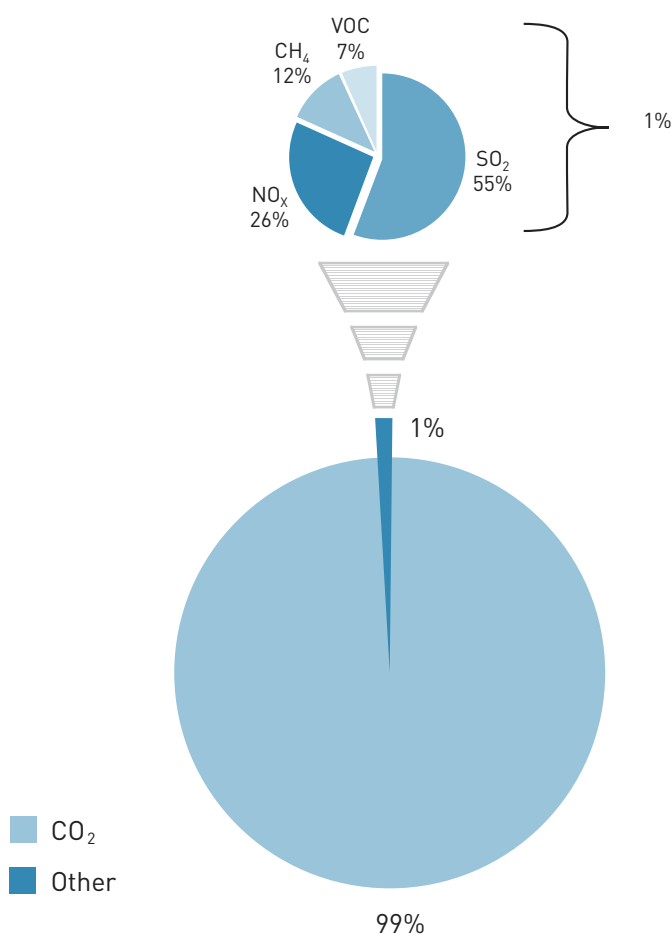
CH₄

VOC

have changed slightly from the previous year.

This is due to the current year's distribution of types of energy used.

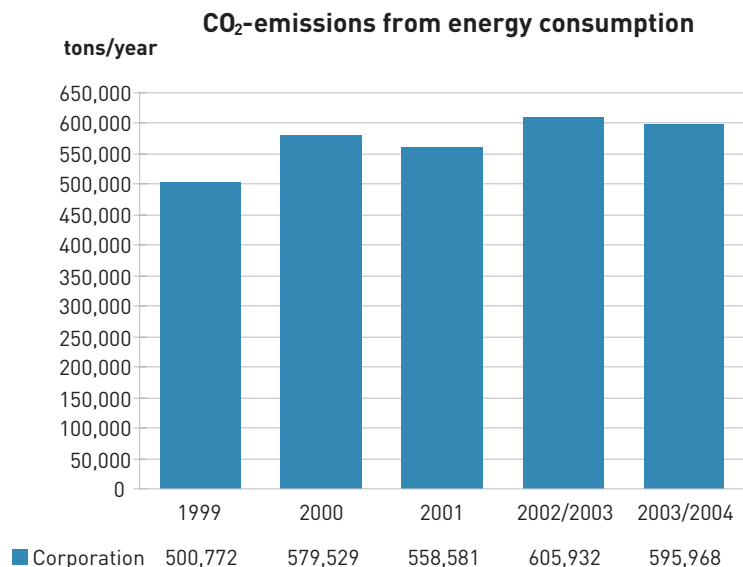
Emissions of CO₂ and other compounds



Air

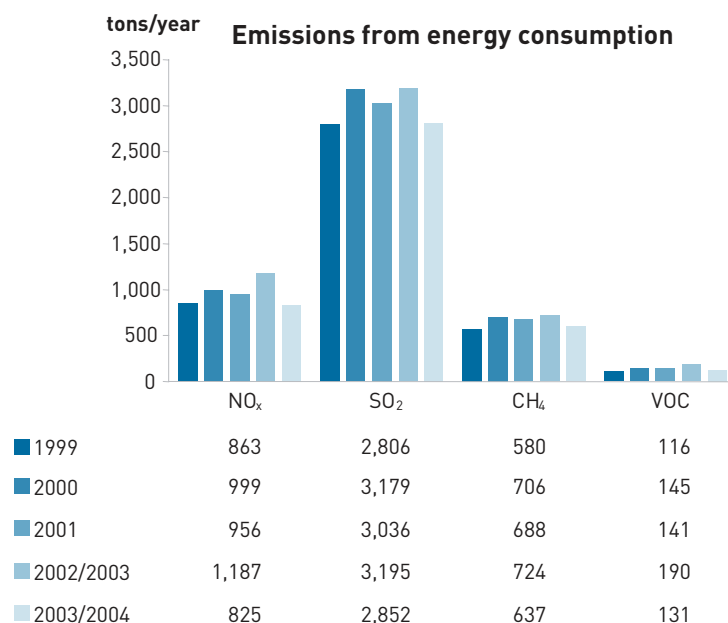
Atmospheric emissions from energy consumption – CO₂

Since emissions into the atmosphere also decrease with diminishing consumption of fossil fuels, there has been a reduction in CO₂-emissions as energy consumption has declined.



Atmospheric emissions from energy consumption – SO₂, NO_x, CH₄, VOC

Emissions of oxides of nitrogen (NO_x), sulfur dioxide (SO₂), methane (CH₄) and volatile organic compounds (VOC) have been declined.



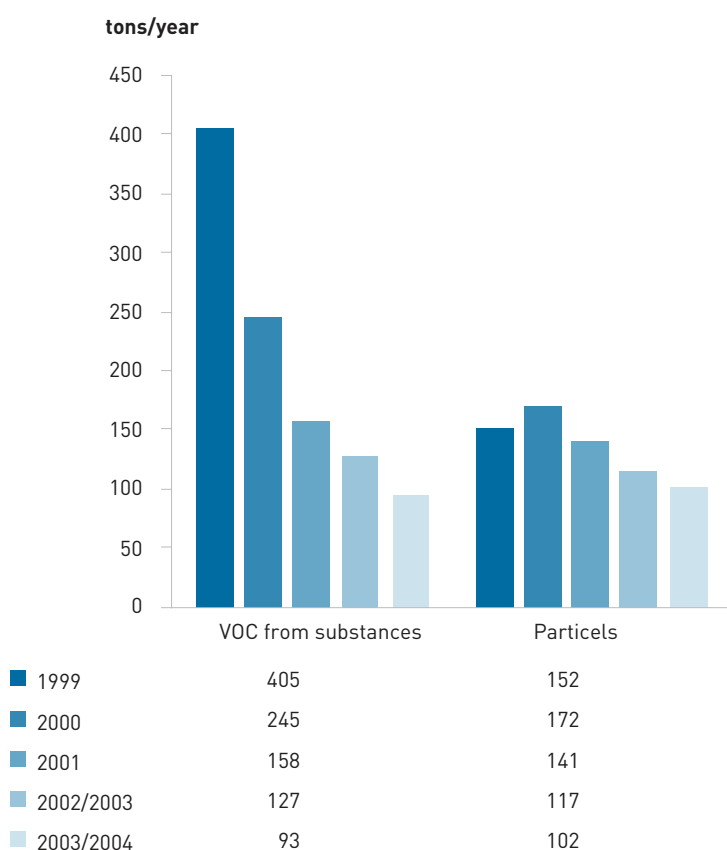
Air

Atmospheric emissions from production processes – particulates, VOC

Products (such as cleaning agents) that contain volatile organic compounds (VOC) are used in various production processes. These environmentally critical substances (summer smog) have been further reduced – through more efficient handling, replacement by alternative products, or elimination by process changes.

Foundries also produce particulate emissions. New successes have also been achieved in this area through continued efforts.

Emissions from production processes



Waste

Waste**Recycled wastes:**

- Substances that can be utilized as materials or to produce energy by entities other than Georg Fischer companies. These substances are reused as raw materials for products or are burned as fuels (externally recycled wastes).
- Wastes that can be sold to a recycling company. These wastes are referred to as valuable materials.
- Recyclables that are reused within the company and reduce raw material requirements. Foundries do not report recyclables, since materials are already recycled a number of times in the casting process – for process-engineering reasons rather than for environmental reasons. If these volumes were counted, the result would be so great that the individual achievements of other companies would no longer be apparent.

Landfilled or incinerated wastes

Production or office wastes that cannot be recycled or used to produce thermal energy are either deposited in landfills or incinerated.

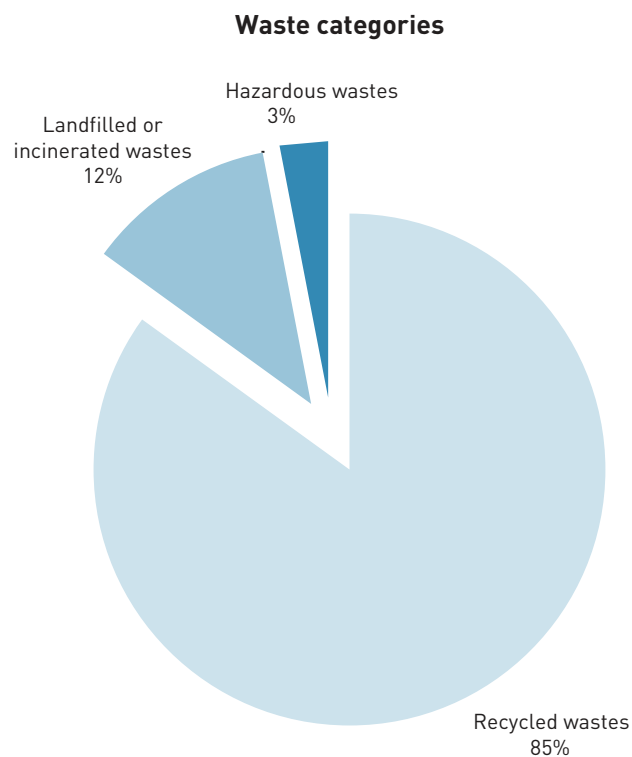
Hazardous wastes

Are considered a separate category and are transferred to licensed disposal companies. This category includes wastes that must be stored separately and undergo special treatment and/or monitoring (hazardous waste dump or incineration) because of their composition.

Waste**Waste categories**

Georg Fischer distinguishes the following waste categories:

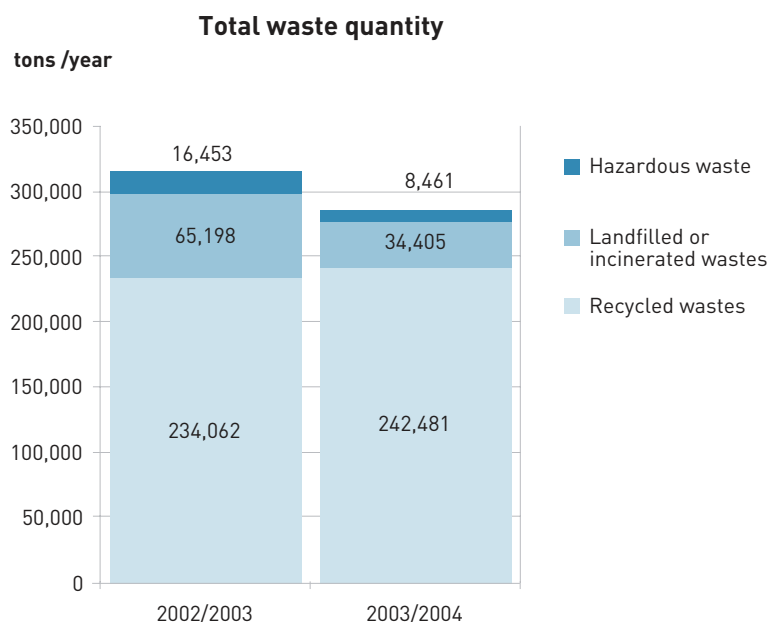
- wastes that are recycled,
- residential or industrial wastes that are landfilled or incinerated,
- hazardous wastes that are treated or disposed of separately.



Waste

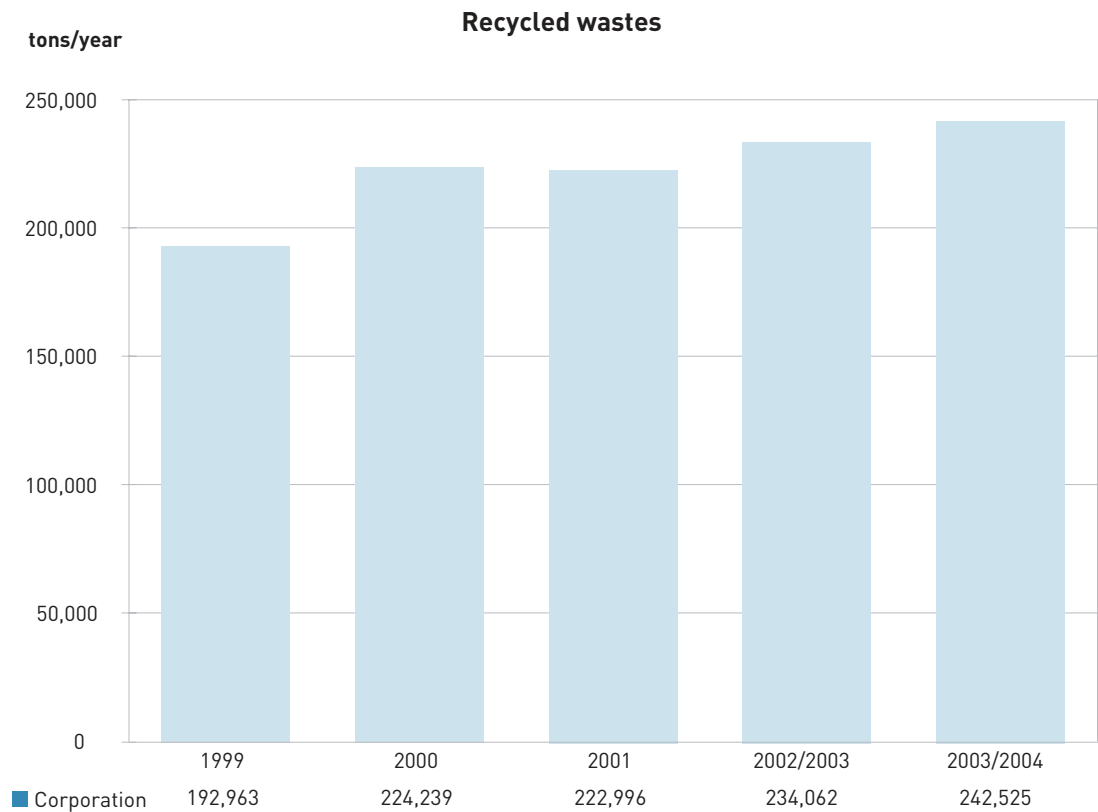
Waste balance – total volume reduced

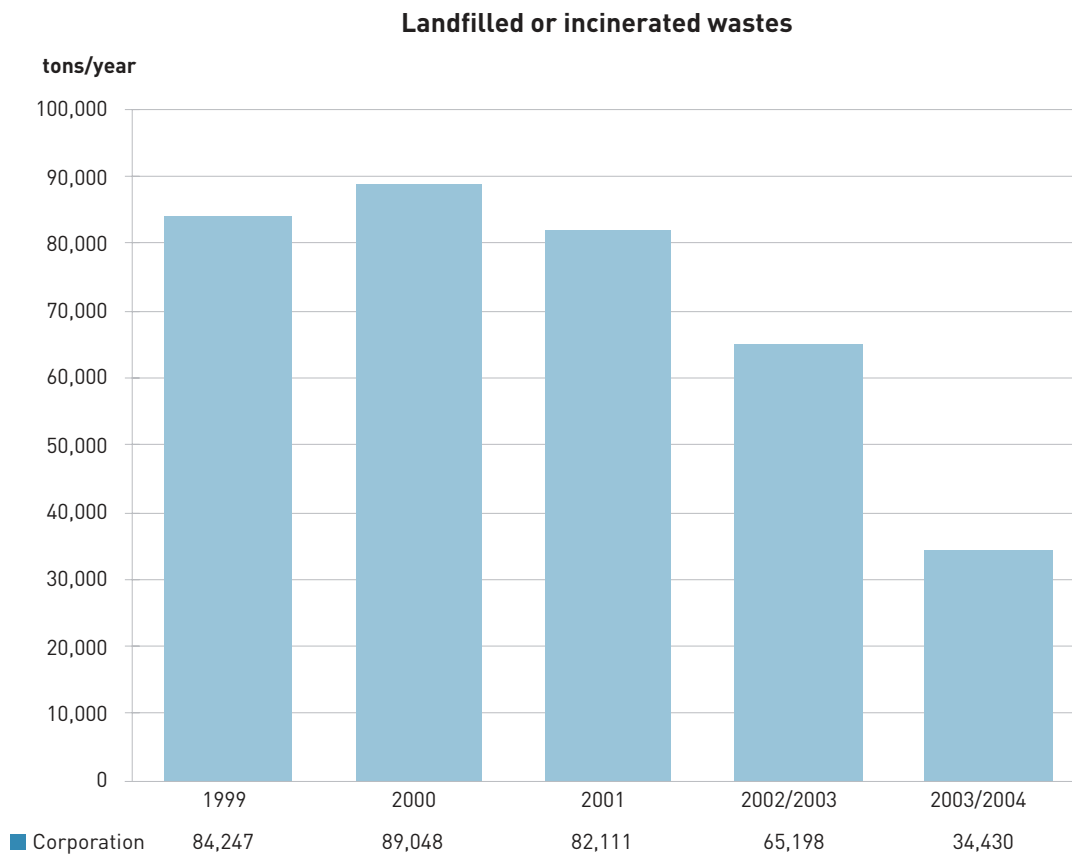
- The significant reduction of the total waste quantity is due to a successful environmental management. Another contribution is the merger of production facilities.
- The percentage of recycled wastes shows a positive trend – a result of several measures. For example external recycling of used sand and dried filter sludge for road construction.
- Wastes deposited in landfills or incinerated as well as hazardous wastes were reduced by almost 50%.



Waste

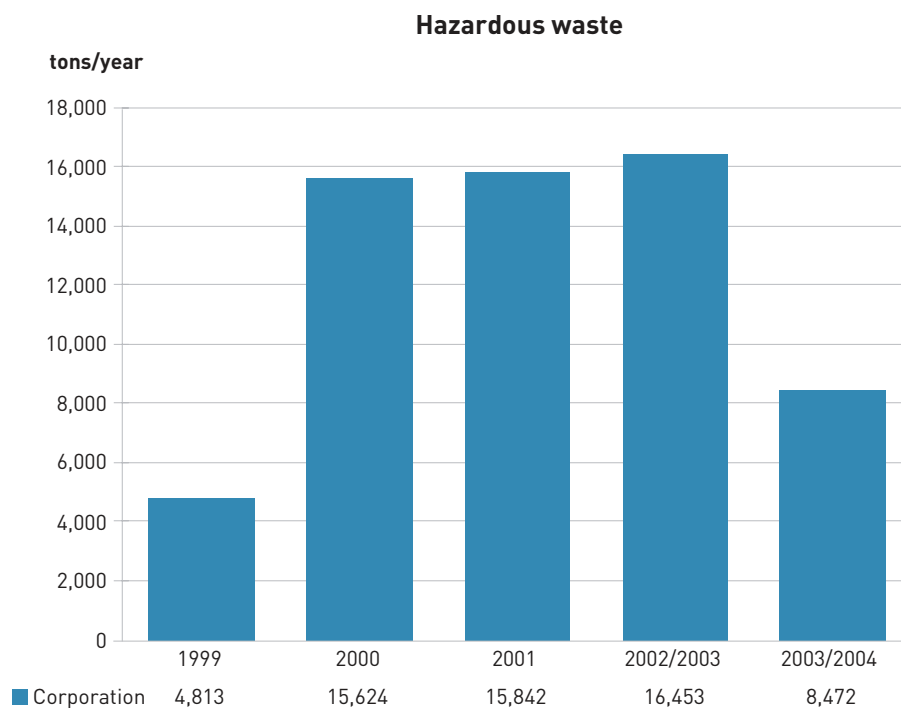
Recycled wastes – noticeable increase in recyclable wastes



Waste**Landfilled or incinerated wastes – significant reduction**

Waste

Hazardous waste – volumes cut by half

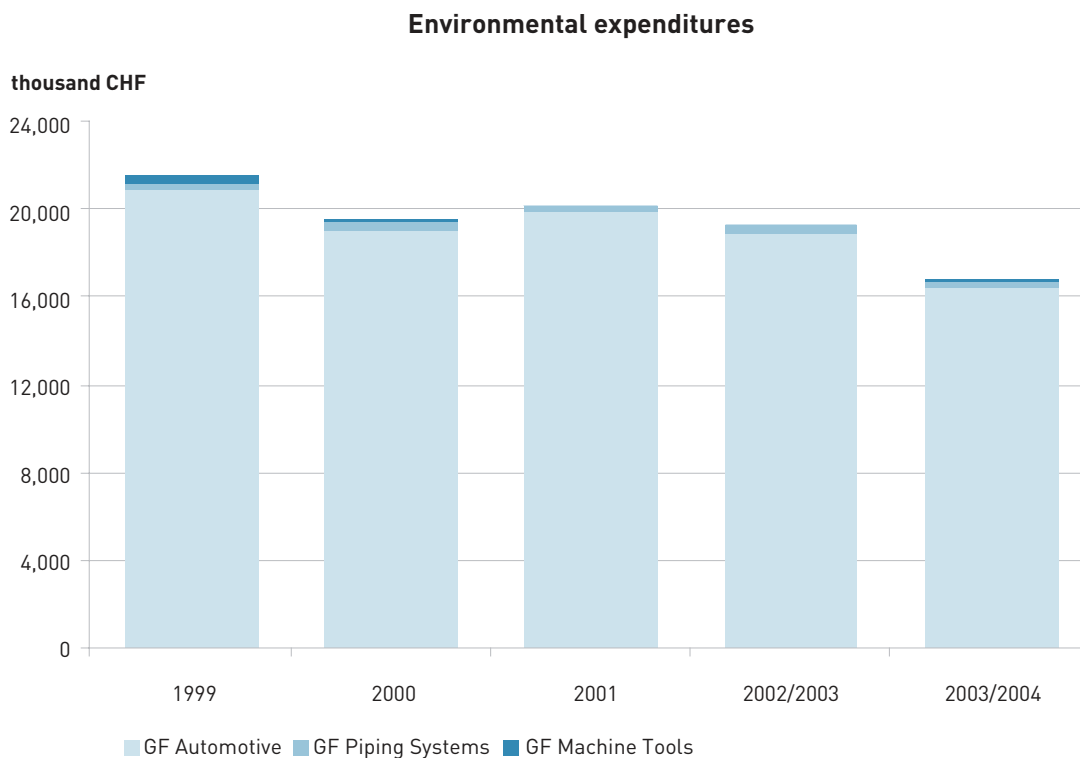


(The 6 foundries that were newly affiliated in fiscal year 2000 explain the sharp increase from 1999 to 2000 in the volume of hazardous wastes produced by the Corporation)

Environmental
expenditures
and
investments

Environmental expenditures

Environmental expenditures include operating costs and depreciation on environmental systems, training and further education of specialized staff, consulting fees or other environmentally motivated costs. Energy, waste management, and water and wastewater expenses are reported separately and are not included in the environmental costs.



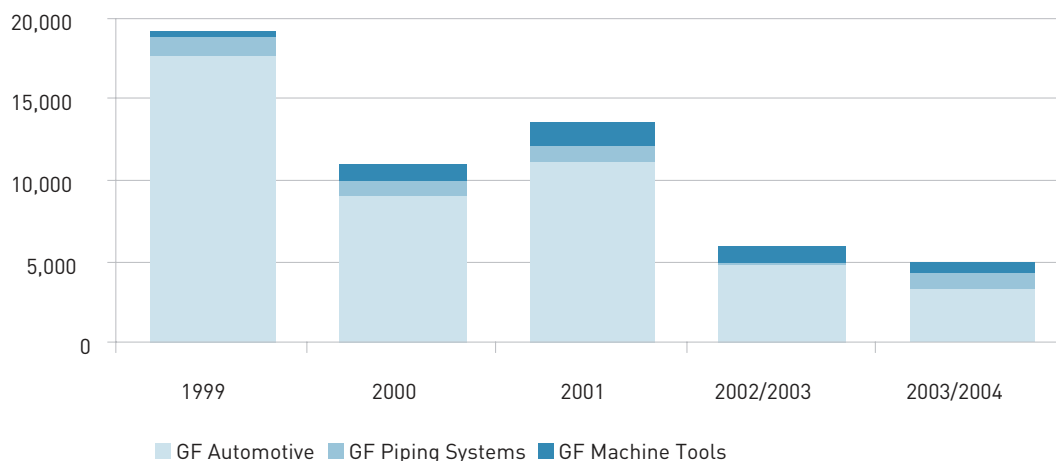
Environmental
expenditures
and
investments

Environmental investments

Environmental investments are capital expenditures that are made primarily for environmental reasons or in response to environmental laws. They are reported as assets on the balance sheet and are depreciated over their useful life. E.g. drainage installations, flue gas scrubbing systems and investments due to Highly Protected Risk Standard. Investments are correlating mainly with the actual projects.

Environmental investments

thousand CHF



Contact

Environmental management – feedback**Your contact persons**

We would appreciate your feedback on this environmental report.

We will be happy to answer any questions you may have.

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