9. PLANET

Geberit has long stood for a high level of environmental awareness and been committed to environmentally friendly, resource-saving production as well as the development of water-saving and sustainable products. Systematic, Group-wide environmental management takes centre stage here. This is the remit of Sustainability and Process Management. Guidelines and measures pertaining to all significant environmental issues are coordinated here. A network of environmental managers practises active environmental protection at the production plants, thus ensuring that the targets and measures laid down in the Sustainability strategy are implemented worldwide. The environmental and occupational safety managers from all production plants meet once a year to discuss best practice and further develop Group-wide standards.

Eco-design has been an integral part of the product development process since 2007, with the aim of making each product more environmentally friendly than its predecessor throughout the entire product life cycle, see Chapter 10.1 Products and innovation. The goal here is for products to be manufactured locally, where possible, using durable, sustainable raw materials from carefully selected, predominantly regional suppliers in order to keep transport routes as short as possible. The developed products are optimised both in terms of the amount of materials used and in resource and energy consumption during the usage phase. Returning products to an appropriate material cycle after removal is becoming increasingly important here.

Environmental criteria are considered in all decision-making processes. These processes are continuously being examined so that a proven high standard is achieved which often greatly exceeds legal requirements. Geberit’s environmental principles are defined in the Code of Conduct. The Geberit Group has a Group certificate in accordance with ISO 9001 (quality), ISO 14001 (environment) and ISO 45001 (occupational health and safety) that is valid until 2021. All 29 production plants, central logistics, and the management company incorporating all Group functions at headquarters in Rapperswil-Jona (CH) are certified in accordance with these three standards. In addition, five German plants are certified according to ISO 50001 (energy) and ten sales companies according to ISO 9001 (quality).

The annual preparation of a corporate eco-balance has been an established part of Geberit’s environmental management since 1991. It covers all production plants worldwide, the logistics centre in Pfullendorf (DE), other smaller logistics units and the larger sales companies. The corporate eco-balance permits an overall assessment of environmental impact in terms of eco-points. For the reporting in 2020, as in the previous year, the basic data from the internationally recognised Ecoinvent database (version 3.1) and the method of ecological scarcity (version 2013) were used. The calculation was based on the national electricity mix.

The environmental impact fell by 8.9% and CO₂ emissions by 7.2% in the reporting year. The environmental impact per net sales (currency-adjusted) dropped by 10.1%, and sales-related CO₂ emissions by 8.4%. These figures are well above the long-term target of 5% per year. This progress is founded largely on continuous improvements in efficiency at the energy-intensive ceramics plants and on the targeted purchasing of green electricity. Since the acquisition of Sanitec in 2015, the absolute environmental impact has been reduced by 22.5% and CO₂ emissions by 19.9%. Eco-efficiency (environmental impact per net sales) improved by 34.8% in the same period, while sales-related CO₂ emissions fell by 32.6%.

Detailed key figures on the environmental impact are provided at Key figures sustainability > Environment.

Resources and circular economy (GRI 301)

Management approach resources and circular economy

The use of raw materials, semi-finished products and finished products with a global procurement value of CHF 798 million
is a significant production factor for Geberit. The grey energy associated with purchased materials (including mineral raw materials of the ceramic plants and raw materials of the plant in Ozorków (PL)) results in around 13,100 TJ (previous year 13,800 TJ). This is 5.3 times the entire energy consumption of Geberit’s operations. This emphasises the importance of treating raw materials with care. The resource-efficient use of raw materials is determined as early as the product development process as part of eco-design workshops, see Chapter 10.1 Products and innovation > Product management and innovation. In the area of ceramic production, Geberit’s goal is to improve resource efficiency (kg ceramic waste/kg ceramic) by 10% from 2018 to 2021.

As part of the European vision for a resource-saving circular economy, efforts are being made to identify and implement options in the area of closed material cycles. The aim is to minimise resource and energy usage, lengthen the service life of products as far as possible, close internal and external material cycles to the greatest extent possible, and constantly increase the use of internal and external recycled materials. Of key importance here is that Geberit products must have a very long industrial service life, as many of them will be installed in buildings for decades. This is guaranteed through the use of top-class materials and the application of strict quality requirements. An important factor here is the availability of spare parts for up to 25 years for a significant proportion of the product range. Furthermore, Geberit products are usually backwards-compatible and can be cleaned and repaired easily. Attention is also paid to using as little packaging material as possible. All these features combine sustainability aspects and support the circular economy, both in production as well as the use of the products in buildings.

Geberit supports the Operation Clean Sweep initiative, which is committed to ensuring that plastic granules do not pollute the environment. To this end, a review was carried out at all plastics-processing plants worldwide, and measures for improvement defined and implemented. These include raising staff awareness and verifying the implementation of measures as part of the internal and external ISO audits.

In addition, an internal workshop on eco-design and plastic in the circular economy was held in collaboration with the University of Antwerp (BE) during the reporting year. The primary aim here was to show where the risks and opportunities lie in the area of plastics recycling, what Geberit is already doing in this regard, and what influence product design has on the use of recycled plastics.

Conserving resources also means making appropriate use of products that, although in mint condition, can no longer be sold. The brand switch from Sphinx to Geberit, coupled with major efforts to reduce the complexity of the ceramic-product portfolio, gave rise to residual items of stock still in mint condition. Rather than scrapping these products, attempts were also made in 2020 to put them to good use, such as in social projects.

Materials used (GRI 301-1)

The use of materials depends on the various manufacturing processes: ten plants for manufacturing sanitary ceramics, twelve plants for processing plastic and metal, and seven other plants in the area of metal composites and metal. The range of production processes used thus includes the areas of ceramic production, injection moulding, blow moulding, extrusion, metal- and thermoforming, and assembly.

The most important materials for production are plastic and metal raw materials, mineral raw materials and various semi-finished products and finished products. A total of 408,861 tonnes of materials were used in 2020 (previous year 419,713 tonnes). These amounts include the mineral raw materials of the ceramic plants and materials from the plant in Ozorków (PL). Detailed key figures on the use of materials can be found at Key figures sustainability > Environment.

In 2017, the implementation of a software-based solution for managing hazardous substances began, with roll-out due for completion in 2021. The aim here is to implement a standardised process in all production plants, improve efficiency in the management of hazardous operating and auxiliary materials, and scale down the use of hazardous substances by 5% every year. In 2020, a 6% reduction was achieved here. An adjustment to the production process at the plant in Langenfeld (DE) in 2020 meant that the pickling process could be partially omitted, resulting in a substantial reduction in the use of hazardous substances.
substances in the form of acids and bases. When fully implemented, omission of the pickling process altogether will allow around 64 tonnes of hazardous substances to be saved each year.

**Percentage of recycled material (GRI 301-2)**

When determining the share of recycled material in production, a distinction is made between internal and external sources.

**Internal sources:**

In terms of the raw material plastic, recycled material is primarily generated internally and is ground on site or via a decentralised mill and fed back into the process. The proportion fluctuates depending on the manufacturing process. For blow moulding it is around 35%, for injection moulding around 15%, depending on product class, and for pipe extrusion around 3%. This corresponds to around 9,200 tonnes in total. In addition, old, non-standard small load carriers were collected, shredded and used to manufacture fastening components for the Duofix installation elements. As a result, it was possible to recycle around 12,500 small load carriers or 30 tonnes of plastic in 2020.

Raw materials are also recycled internally and fed back into the process in ceramic production. The recycling rate for the ceramic slip is 5 to 10% and 20 to 40% for the glaze, corresponding to around 27,900 tonnes in total. Another goal is to improve resource efficiency in ceramic production to 0.47 kg ceramic waste/kg ceramic by 2021. A value of 0.48 kg ceramic waste/kg ceramic was achieved in the reporting year.

**External sources:**

The share of recycled material in purchased metals is relatively high. This data originates from the Wuppertal Institute for Climate, Environment and Energy. Extrapolated, the raw material metal purchased contains around 37,000 tonnes of recycled material.

With plastics, virgin material is primarily used. The search for suitable, high-quality regranulate from external plastic waste (post-consumer waste) is, however, an integral part of Geberit’s procurement strategy. In terms of the material Acrylonitrile Butadiene Styrene (ABS), a suitable alternative made of 100% recycled material was found. This alternative is based on high-quality plastic waste from the electronics industry (e.g. used computer cases). According to the supplier, the manufacture of this regranulate consumes over 80% less energy compared to the manufacture of a tonne of new petrochemical-based plastic, while releasing around three tonnes less CO₂ into the atmosphere. In 2020, 940 tonnes of ABS regranulate were used for various components in exposed and concealed cisterns. Thanks to an intelligent redesign, half of the material used for the flush valve type 240 can be made of high-quality ABS regranulate, for example. The use of plastic regranulate is generally to be increased further and applied to other product areas. Since 2020, a second high-quality recycled plastic (post-consumer waste) in the form of polypropylene (PP) has been available, 1.2 tonnes of which were used in the reporting year.

**Reuse of products and packaging materials (GRI 301-3)**

Due to their long service life and the way in which they are installed, Geberit products can only be reused to a very limited extent. In the case of packaging materials, Geberit’s goal – also as part of eco-design workshops – is to keep amounts as low as possible, to continuously increase the share of recycled material, and to simplify the recycling and return processes. In a preliminary study, potential for optimisation in the amount of packaging was identified from both an ecological perspective and from the customer’s point of view. Efforts to reduce packaging amounts are already starting to bear fruit. For example, certain packaging levels are being omitted, bags reduced in size or thinner foils used, while instructions are printed directly on the packaging rather than on paper, or replaced by a QR code. In addition, care is being taken to avoid the use of polystyrene (EPS) wherever possible and, where necessary, to replace it with recyclable cardboard. As part of a project at the production plant in Rapperswil-Jona (CH), some 2.5 tonnes of plastic can be saved each year by switching to thinner foils. Application in other plants is under consideration.
In 2020, around 36,100 tonnes of packaging material were used, of which around 60% was collected and recycled by Geberit or by financed contractual partners. The rest was disposed of and recycled on a country-specific basis.

### Management approach energy

Representing a 96.4% share of the corporate eco-balance, the consumption of energy in the form of electricity, combustibles and fuels represents Geberit’s greatest environmental impact. Software introduced in 2012 permits monthly monitoring of water and energy consumption, as well as the Group-wide calculation of environmental impact and CO₂ emissions. In addition, a systematic energy monitoring and an energy master plan are being implemented in the most energy-intensive plants to manage and plan energy consumption. This is based on the three pillars energy saving, increased energy efficiency and the targeted expansion of the share of renewable energy sources. Targets were also defined for the share of renewable energy sources as part of the development of a long-term CO₂ target that is compatible with the two-degree target set out in the Paris Agreement and the Science Based Targets Initiative. By 2021, the share of renewable energy sources should account for 45% for electricity and 10% for combustibles.

At present, the five German plants in Lichtenstein, Pfullendorf, Langenfeld, Wesel and Haldensleben are certified according to the ISO 50001 standard for energy management. Furthermore, all Geberit companies implemented the European Energy Efficiency Directive 2012/27/EU in 2015, which was reviewed again in 2019.

For the development of energy-efficient products, see Chapter 10.1 Products and innovation.

### Energy consumption within the organisation (GRI 302-1)

Geberit generally uses energy purchased externally. The direct energy carriers (Scope 1) include the combustibles natural gas, biogas, liquefied petroleum gas (LPG), diesel for power generation, heating oil extra light, as well as the fuels diesel, gasoline, liquefied petroleum gas (LPG) and natural gas (CNG). The indirect energy carriers (Scope 2) include electricity and district heating.

Energy consumption decreased by 5.1% in the reporting year and is now 723.1 GWh. Since the acquisition of Sanitec in 2015, it has been possible to reduce energy consumption by 20.7%, making a significant contribution to reductions in the environmental impact.

Combustibles (primarily for ceramic production), including district heating, still account for the greatest share of energy consumption at 67.0%, followed by electricity with 29.8% and fuels with 3.2%.

Renewable sources of energy are to be expanded continuously as part of the sustainability strategy. Since 2012, a block heating station has been in use in Pfullendorf (DE). In 2020, this plant was fed by 8.8 GWh of regionally produced biogas. The electricity generated by the plant (3.3 GWh) is fed into the transmission grid and the resulting heat (4.3 GWh) can be used in production, thereby reducing the use of natural gas. In total, renewable energy sources accounted for 4.5% of combustibles.

Since 2013, the roof area at the plant in Givisiez (CH) has been made available to an energy services provider for a 3,050 m² photovoltaic installation. It generated 0.5 GWh of electricity in 2020. However, this contribution is not included in the energy balance as the energy produced is managed by the regional energy supplier. Overall, the volume of purchased green electricity was increased by 15 GWh to 68 GWh in 2020 – meaning that renewable sources of energy accounted for 46.1% of total electricity consumption.

For detailed key figures on the consumption of combustibles and fuels (Scope 1), as well as electricity and district heating (Scope 2) and the electricity mix, see Key figures sustainability > Environment.
Energy consumption outside the organisation (GRI 302-2)

Where the energy balance outside the organisation is concerned, Geberit concentrates on purchased materials, intercompany and distribution logistics, and business travel.

In 2020, purchased materials resulted in grey energy consumption of around 13,100 TJ.

Logistics services are provided by external transport service providers. A logistics calculator developed by Geberit is used for monitoring purposes and covers all intercompany and distribution logistics. In the reporting year, the transport service providers handled 528.6 million tonne-kilometres (previous year 560.5 million tonne-kilometres). This gave rise to energy consumption of 1,015 TJ (previous year 1,148 TJ). The decrease in transport services and energy consumption was mainly due to a decline in deliveries to far-away countries.

Business flights have been recorded and included in the assessment since 2012. The flight distances are calculated according to the respective departure and arrival airports. Due to the COVID-19 pandemic, energy consumption arising from business flights fell sharply to 6.2 TJ in the reporting year (previous year 23.2 TJ).

Energy intensity (GRI 302-3)

Energy intensity is an important performance indicator at the production plants, and is monitored monthly in the management cockpit. Those plants which are certified to ISO 50001 (energy) have also introduced a more refined system of monitoring. At Group level, net sales constitute a key indicator alongside environmental impact and CO₂ emissions. In 2020, energy consumption per net sales improved by 6.4% compared to the previous year.

Energy saved (GRI 302-4)

Important energy-saving measures in production include:

- The optimisation of production processes in terms of efficiency, scrap, stability, energy and resource consumption
- The continuous modernisation of the machine fleet and the purchase of energy-efficient equipment, and the systematic switchover of lighting to LED technology
- Increasing the capacity utilisation and efficiency of production equipment
- The optimisation of cooling systems through the use of natural ambient cold (free cooling, ground water)
- The improved use of waste heat available internally (heat recovery, e.g. for the pre-heating of plastic granules)
- The careful use of compressed air
- Improved insulation of buildings

Concrete examples which show the reduction in energy consumption in production:

- Demolition and safe disposal of infrastructure that was no longer required in Daishan (CN) and construction of a new waste disposal centre in Villadose (IT).
- Increase in the number of injection moulding machines with energy-efficient drive technology (hybrid, fully electrical, standby) from 192 to 211 machines, and commissioning of a fourth fully electrical blow-moulding machine.
- Process optimisation for the manufacture of bent Mapress fittings in Langenfeld (DE) through flow production and full automation leading to a reduction in electricity and natural gas consumption, reduced use of lubricants and lower quantities of hazardous waste.
- Reduction of waste quantities and energy consumption in the production of plastic-aluminium multilayer pipes thanks to the new laser-welding process in Givisiez (CH).

Measures to reduce energy consumption in (outsourced) logistics operations:
Great importance is attached to central transport management as the interface between plants, markets and transport service providers in order to enable cost- and resource-optimised transport solutions. The efficient utilisation of freight capacity is of key importance here. In the case of product deliveries from the logistics centre in Pfullendorf, the capacity of the loading vessels can now be utilised more efficiently thanks to the optimised calculation of loading space and implementation of organisational measures. This leads to a reduction in the number of transport runs and in CO₂ emissions. The share of transport services handled by Euro 5 trucks was 26% and the share handled by state-of-the-art Euro 6 vehicles 73%. In addition, two trucks powered by natural gas are in operation on the Jona (CH) to Pfullendorf (DE) route, and the use of electric trucks has been analysed.

Where possible, Geberit takes the opportunity to shift truck traffic to rail. From Pfullendorf, almost 100% of ocean freight shipments to Hamburg (DE), 80% of shipments to Italy, and 15% of shipments to Switzerland are conducted by rail. The percentage of rail consignments from Italy to Pfullendorf is 59%.

With regard to transportation by truck, Geberit continues to look for options for making more efficient use of freight compartments and using bigger shipping containers. As such, the percentage of "high cube swap bodies" (offering around 10% more capacity) deployed from the logistics centre in Pfullendorf and the use of double-decker systems is being successively increased. In addition, the use of long trucks (with a length of up to 25 metres and a total weight of up to 60 tonnes) in Scandinavia increases load volumes and the number of transported pallets per truck by around 40%.

Reductions in energy requirements of products and services (GRI 302-5)

The biggest environmental contribution by Geberit products lies in the conservation of water, which indirectly also saves on energy. According to the Ecoinvent database (version 3.1), some 10.3 MJ of energy are required and 0.64 kg of CO₂ emissions released per cubic metre for the conveyance, processing and distribution of water and the subsequent processing of the unpolluted waste water in a treatment plant. The water footprint calculated for Geberit shows that nearly 100% of water consumption is attributable to the usage phase. The water volume saved owing to Geberit products is enormous: according to one model calculation, all dual-flush and flush-stop cisterns installed since 1998 have so far saved around 34,620 million m³ of water in comparison with traditional flushing systems. These water savings go hand-in-hand with substantial energy savings.

Direct energy savings when using the products are made possible thanks to systematically improved energy efficiency. Specific examples include:

- The Geberit DuoFresh module removes unpleasant odours by extracting the air directly from the WC ceramic appliance and purifying it using a ceramic honeycomb filter. This can save up to 50 litres of heating oil per year compared to opening the window for ventilation.

- The Geberit energy retaining valve ERV uses a magnetic diaphragm system to cap the ventilation pipe for waste water above the roof. This opens only when required and ensures pressure compensation only when this is necessary. This helps avoid unnecessary heat loss and can save up to 50 litres of heating oil a year.

- The Geberit AquaClean Sela Comfort shower toilet uses innovative WhirlSpray and heating-on-demand technology to considerably reduce energy consumption compared to its predecessor.

- The Geberit urinal system comprises urinals with electronic flush controls but also with completely waterless operation. The central elements are the two rimless urinal ceramics Preda and Selva, which were developed by Geberit. Thanks to the low consumption of resources and the option of a control system supplied with electricity by an autonomous energy source, the urinals satisfy the most stringent requirements for green building and economic operation. For this purpose, a proprietary environmental and cost calculator was developed for various sales companies, see www.international.geberit.com > Products > Geberit urinal system > Urinal system sustainability calculator.

- The modular Geberit tap system is the ultimate in sophisticated installation technology, different energy concepts and elegant tap housings for wall-mounted and deck-mounted taps. The product boasts both optimal user-friendliness and ease of installation as well as minimal water and energy consumption.

- The Geberit Control App enables product configuration via smartphone, meaning appliances can be operated simply and also continuously optimised in terms of energy management and water consumption, among other aspects.
Water and waste water (GRI 303)

Management approach water and waste water

The biggest environmental contribution made by Geberit products lies in the conservation of water at customers, which is one of the pivotal aspects in the company’s contribution towards sustainable development. Innovative Geberit sanitary products reduce the amount of water consumed and help to systematically optimise the way in which water is used in buildings while maintaining the highest hygiene standards – including in terms of drinking water. According to one model calculation, all dual-flush and flush-stop cisterns installed since 1998 have so far saved around 34,620 million m$^3$ of water in comparison with traditional flushing systems. In 2020 alone, the water saved amounted to 3,350 million m$^3$. This is more than half of the annual consumption of all German households. Since 2016, Geberit has been publishing its detailed water balance as part of the CDP Water Program.

For the development of water-saving products and Geberit’s commitment beyond product development, see → Chapter 10.1 Products and innovation.

Handling and use of water (GRI 303-3, GRI 303-5)

The → Water footprint, which covers Geberit’s entire value chain, shows that nearly 100% of water consumption is attributable to the use of the products, while the manufacture of the products by Geberit accounts for less than 0.1% of water consumption.

The corporate eco-balance shows a similar picture. Here, the environmental impact caused by water consumption and subsequent waste water treatment also accounts for only a minor share of the company’s overall impact (1.2%). Despite this, Geberit also aims to serve as a role model with respect to its own water consumption and to further optimise this every year. This includes measures such as reusing water in laboratories and production processes. Ceramic production accounts for the biggest share of water consumption. Geberit’s goal in this area is to reduce water consumption (l water/kg ceramic) by 5% by 2021 compared with 2018.

In the reporting year, water consumption in production amounted to 953,284 m$^3$ (previous year 1,036,947 m$^3$) and is categorised into drinking water (38%), well water (41%), lake and river water (20%) and rain water (1%). According to the Water Risk Atlas from the World Resources Institute (WRI), the production sites in Lichtenstein (DE), Gaeta (IT), Kolo (PL), Wloclawek (PL), Shanghai (CN) and Pune (IN) are located in areas with high or very high water stress, and account for 28% of total water consumption. Key figures concerning water consumption by source can be found at → Key figures sustainability > Environment.

Water withdrawal and water consumption (GRI 303-1)

Waste water of varying quality accounts for around 75% of the water withdrawn, see → GRI 303-4. The remaining 25% evaporates into the atmosphere either during cooling processes or when the ceramic parts and plaster moulds dry.

The manufacture of ceramic sanitary appliances accounts for around 80% of water consumption, i.e. during preparation of the ceramic slip and glaze, and cleaning the moulds and systems. On average, 6.5 litres of water are needed for every kilo of ceramic produced. Around 5 to 10% of the water used in ceramic production is recycled internally, corresponding to around 73,700 m$^3$ in 2020.

Another major consumer is the Geberit sanitary laboratory in Rapperswil-Jona (CH), where newly developed products are tested. The tests required 146,097 m$^3$ of water, of which only around 1% (1,683 m$^3$) was fresh water. The remaining 99% was reused in a closed-circuit system.

Other processes that consume water are steam foaming of expandable polystyrene (EPS), cleaning work, powder coating,
and water used in staff sanitary facilities.

Handling of waste water (GRI 303-2)

All resulting process waste water and domestic waste water is treated. Process waste water can contain inorganic substances (e.g. mineral raw materials). This water is cleaned in a two-stage process involving sedimentation and filtration before being fed into the public sewage system or returned to surface waters. Only few Geberit processes (e.g. powder coating, electroplating, cleaning of metal fittings) produce waste water that is more heavily contaminated. This waste water is treated in a separate stage before being fed into the public sewage system.

Waste water (GRI 303-4)

The 2020 figure for waste water was 709,743 m^3 (previous year 799,639 m^3). At 69%, process waste water from the production of sanitary ceramics accounted for the largest share of the total. Other important categories are domestic waste water (29%), which passes into the communal waste water treatment plant or is pretreated and fed into receiving waters, and other waste water (2%), which is pretreated and fed to a communal waste water treatment plant. Waste water was not reused by external companies. Detailed key figures on waste water can be found at Key figures sustainability > Environment.

CO2 and other emissions (GRI 305)

Management approach CO2 and other emissions

Production emissions are recorded, calculated and analysed in detail as part of the corporate eco-balance. CO2 emissions are particularly important to Geberit. Other air emissions (NOx, SO2, hydrocarbons, etc.) are also recorded and calculated, but have a comparatively minor impact on the environment. The reduction of these emissions is directly related to the reduction targets of the CO2 strategy. Under the current CO2 strategy, the aim is to reduce CO2 emissions per net sales (currency-adjusted) by 5% per year on average. Geberit remains on track here, see GRI 305-2. In 2016, a long-term CO2 target was established that is compatible with the two-degree target set out in the Paris Agreement and the Science Based Targets Initiative. Within this context, Geberit planned to reduce its absolute CO2 emissions (Scopes 1 and 2) by 6% between 2015 and 2021 to under 240,000 tonnes (based on organic growth). This target had already been achieved by the end of 2018. Specific goals for the share of renewable energy sources by 2021 were also established: 45% for electricity and 10% for combustibles. Further goals for reducing CO2 emissions will be defined and communicated in 2021 for the next period.

A CO2 footprint across the entire value chain (Scopes 1 to 3) has been calculated since 2012. This carbon footprint covers the provision of raw materials, combustibles and fuels, the manufacturing of products at Geberit, logistics, use and disposal. With regard to the former Sanitec, only mineral raw materials and raw materials from the plant in Ozorków (PL) are taken into account. An analysis revealed that product use (70.1%) and the provision of raw materials (16.0%) are by far the largest sources of CO2 emissions. During product use, the provision of water, processing of unpolluted waste water and generation of hot water play a central role. All in all, manufacturing of the products at Geberit accounts for only 5.3% of total CO2 emissions. Similarly, transport (1.7%), the provision of combustibles and fuels (0.8%) and the disposal (6.1%) of the products also cause only few emissions.

The measures for implementing the CO2 strategy are based on the three pillars energy saving, increased energy efficiency and targeted expansion of the share of renewable energy sources, see also GRI 302.

The calculation of greenhouse gas emissions is based on the internationally recognised Ecoinvent database (version 3.1), with the IPCC (Intergovernmental Panel on Climate Change) factors from 2013 used, production-related process emissions included, and the national electricity mix taken into account. The seven leading substances (CO2 fossil, CH4, N2O, HFC, PFC, SF6 and NF3) are used for the calculation of the greenhouse gas emissions and shown as a sum parameter according to IPCC (CO2 equivalents or simply CO2).
Direct greenhouse gas emissions (Scope 1) (GRI 305-1) and indirect, energy-related greenhouse gas emissions (Scope 2) (GRI 305-2)

In 2020, CO₂ emissions (Scopes 1 and 2) amounted to 206,553 tonnes (previous year 222,639 tonnes), corresponding to a decrease of 7.2%. At 48.9%, combustibles are the largest source of CO₂, followed by electricity at 47.9 % and fuels at 2.9%, as well as process emissions and district heating at 0.3% in total. The purchase of 68 GWh of green electricity in Jona (CH), Pfullendorf (DE), Bromölla and Mörrum (SE), Kolo (PL) and Daishan (CN) meant that it was possible to reduce CO₂ emissions by around 32,500 tonnes.

Key figures concerning greenhouse gas emissions can be found at Key figures sustainability > Environment.

Other indirect greenhouse gas emissions (Scope 3) (GRI 305-3)

Where other indirect greenhouse gas emissions (Scope 3) are concerned, Geberit concentrates on the following categories:

- Raw materials used and the resulting CO₂ emissions at 670,192 tonnes (previous year 717,221 tonnes).
- The provision of combustibles and fuels, which accounted for 30,487 tonnes from combustibles and 4,342 tonnes from fuels in 2020.
- CO₂ emissions of power generation from the upstream chain are included in GRI 305-1.
- Logistics (see GRI 302-2) gave rise to total CO₂ emissions of 61,653 tonnes in 2020 (previous year 69,729 tonnes). The decrease in CO₂ emissions was mainly due to a decline in deliveries to far-away countries. Since 2015, Geberit has managed to improve the eco-efficiency of its logistics operations (environmental impact per tkm) by around 30%.
- Business travel by air, at 445 tonnes of CO₂ emissions (previous year 1,663 tonnes). These CO₂ emissions comprise direct and indirect emissions and are based on the Ecoinvent database (version 3.1) and the IPCC conversion factors from 2013.

Intensity of greenhouse gas emissions (GRI 305-4)

CO₂ emissions (Scopes 1 and 2) in relation to net sales (currency-adjusted) decreased by 8.4%. This figure is above the target of 5% per year. Since the acquisition of Sanitec in 2015, CO₂ emissions per net sales have fallen by 32.6%.

Reduction of greenhouse gas emissions (GRI 305-5)

In 2020, Geberit purchased another 15 GWh of green electricity, bringing the total to 68 GWh. Overall, renewable energy sources thus accounted for 46.1% of electricity (previous year 42.1%).

For combustibles, the share of renewable energy sources should be increased to 10% by 2021. The block heating station in Pfullendorf (DE), which was commissioned in 2012 and which was fed by 8.8 GWh of regionally generated biogas in 2020, makes a key contribution. An additional 12.7 GWh of district heating was sourced from a paper factory and a block heating station powered by wood. This brought the share of renewable energies for district heating and combustibles to 4.5% in total in 2020 (previous year 4.3%).

Fuel consumption is determined primarily by the company’s own and leased fleet of cars and delivery vans. Since early 2008, binding guidelines have also applied for the purchase of new vehicles. As of 2019, these guidelines were adjusted to take into account the new Worldwide Harmonised Light Vehicles Test Procedure (WLTP).

Substantial volumes of CO₂ emissions can also be saved by consistently applying eco-design principles in new product development. One concrete example is the flush valve type 240 for cisterns, where half of the material used is made of high-quality ABS regranulate. Indirectly, this means that almost 500 tonnes of CO₂ can be saved each year, corresponding to a saving of 1 GWh of average European electricity.

Geberit also encourages awareness among all employees for the promotion of environmentally friendly behaviour. New employees receive training on the subject of sustainability at Geberit as part of their job orientation programme. In the
largest plants, this is also tailored to the target group of production employees.

All targets and measures for improving the carbon footprint are disclosed in detail as part of the company's participation in the CDP.

Emissions of ozone-depleting substances (GRI 305-6)
Emissions of ozone-depleting substances, measured in CFC-11 equivalents, can be calculated based on the eco-balance using the base data from the Ecoinvent database (version 3.1). The calculation includes both direct emissions (Scope 1) from the burning of combustibles and fuels and process emissions (solvents), as well as indirect emissions (Scope 2) resulting from electricity consumption and the provision of district heating. Key figures concerning ozone-depleting substances can be found at → Key figures sustainability > Environment.

Nitrogen oxides (NO\textsubscript{x}), sulphur oxides (SO\textsubscript{2}) and other air emissions (GRI 305-7)
Emissions of NO\textsubscript{x}, SO\textsubscript{2}, NMVOC (non-methane VOC) and dust (PM10) can be calculated on the basis of the eco-balance using the base data from the Ecoinvent database (version 3.1). The calculation includes both direct emissions (Scope 1) from the burning of combustibles and fuels and process emissions (solvents), as well as indirect emissions (Scope 2) resulting from electricity consumption and the provision of district heating. Key figures concerning emissions can be found at → Key figures sustainability > Environment.

Waste (GRI 306)

Management approach waste
According to the corporate eco-balance, waste disposal accounted for just 1.8% of the overall environmental impact. The avoidance, reduction and safe handling of waste is promoted at the plants within the scope of environmental management according to ISO 14001. Waste is sorted so that as much as possible is recycled, and as little as possible has to be incinerated or sent to landfill sites. As part of a resource-saving circular economy, efforts are being made to generate secondary material for other processes from waste.

Waste generation and management of waste-related impacts (GRI 306-1 and GRI 306-2)
Waste occurs along Geberit’s entire value chain: during the manufacture of purchased raw materials and of semi-finished and finished products, during transportation and production, as well as during the installation and utilisation of products right through to their ultimate disposal when a building is renovated or dismantled.

Production waste at suppliers can only be influenced by Geberit to a limited extent. By complying with the binding Code of Conduct, suppliers undertake – among other things – to reduce the quantity of waste they produce. The matter is also addressed during visits to suppliers and audits. Packaging waste that occurs when raw materials and semi-finished products are delivered to production and logistics can be influenced to a greater extent. For example, agreements with suppliers can stipulate that reusable containers are used instead of disposable ones, or that silo deliveries are made rather than supplying goods in sacks.

Consistent efforts are made to minimise waste in Geberit’s production plants, with actions prioritised as follows: avoid and reduce waste, sort the waste and, if possible, recycle it internally or externally: if this is not possible, use the waste for energy recovery by burning it as fuel at an incineration plant or dispose of it in an inert waste landfill. Wherever possible, hazardous waste requiring special disposal and treatment is avoided. The same applies to waste that has to be sent to a mixed waste landfill. As part of a resource-saving circular economy, efforts are being made to generate secondary material for other processes from waste. The type and quantity of waste generated depends to a large degree on the relevant production processes. The most important production processes at Geberit are:

- Plastics processing (injection moulding, blow moulding, extrusion): these processes primarily generate plastic waste, most
of which can be processed and recycled internally (either directly at the machine or via a decentralised mill). The proportion that can be recycled internally fluctuates according to the manufacturing process, see \( \rightarrow \) GRI 301-2.

- Metalworking (bending, stamping, drilling, welding, forming): these processes primarily generate metal waste that can be recycled and reused externally. In addition, typical waste from metal processing – such as lubricating oils, machine oils and emulsions – are produced.

- Ceramic production: this process generates the largest volume of waste in terms of weight. The waste mainly comprises fired ceramic scrap, mineral sludge (from waste water treatment), and plaster (from used ceramic moulds). As well as minimising the volume of waste through efficient, stable process management, ways of recycling waste internally or externally are also being explored. Trials are underway to examine the possibility of grinding fired ceramic scrap externally and then feeding them back into the production process. In addition, it is possible to dispense with plaster moulds altogether as part of the high-pressure casting process, thus avoiding this waste fraction, see \( \rightarrow \) GRI 301-2. As far as external recycling is concerned, fired ceramic scrap can be recycled for use in tile production or road building. In 2020, more than 17,000 tonnes of plaster were delivered to the cement industry as a by-product for further use, which reduced the amount of waste sent to landfill accordingly.

Geberit also aims to minimise the volume of packaging waste for customers, see \( \rightarrow \) GRI 301-3.

Construction site waste is waste that is generated during the installation and processing of products. Apart from product packaging, this typically includes pipe sections that remain after drinking water and waste water pipes have been assembled, protective caps on fittings and pipes that have to be removed prior to assembly, pressing indicators that fall off when the fittings are pressed, various protective components that are removed after tiling is completed, and sections of GIS profiles or plaster panels left over after a prewall has been installed. This waste is disposed of either by the plumber or by local waste management at the construction site. From 2021, as part of the roll-out of the new Geberit FlowFit supply system, Geberit will also offer the possibility of returning protective caps from drinking water fittings and pipes to a Geberit recycling partner. New protective caps or other products can then be made from this waste depending on how clean it is.

Only small quantities of waste are produced during the use phase of Geberit products. This is because Geberit products have a very long service life, the majority of them require little maintenance, and they can be repaired easily in the event of a problem. They are also easy to clean, which means less cleaning work for end users and reduces the amount of cleaning agents used. Waste includes used active carbon filters, batteries, seals and defective components. Geberit has a very large selection of spare parts offering a high degree of backwards compatibility, with availability of up to 25 years for a significant proportion of the product range. This ensures the durability and functionality of the products while simultaneously saving resources.

Waste is also produced when a sanitary installation or bathroom is renovated or dismantled. Since Geberit products can have a service life of up to 50 years, they will often be dirty or blocked with limescale upon removal (e.g. WC ceramic appliances, waste water and drinking water pipes) or may be connected to other parts of a building (e.g. a tiled prewall or waste water systems embedded in concrete). This makes the products more difficult to recycle. The obligation to take back used electrical equipment such as tools, electronic washbasin taps and control systems, shower toilets and other electronic components is regulated by the WEEE Directive (Waste Electrical and Electronic Equipment). As part of the eco-design initiative, Geberit ensures that its products are easy to sort and recycle, and that product materials are clearly labelled.

Volume of waste (GRI 306-3, GRI 306-4, GRI 306-5)

The total volume of waste (including recycling) amounted to 73,969 tonnes in 2020 (previous year 80,049 tonnes). 18.3% of the waste was disposed of, while 81.7% (previous year 78.3%) was recycled externally. The total amount includes 1,263 tonnes (previous year 1,473 tonnes) of hazardous waste, of which 59% was disposed of by incineration and 41% was able to be recycled.

The reduction and safe handling of waste is promoted at the plants within the scope of environmental management according to ISO 14001. At Geberit, all waste is disposed of and recycled by licensed disposal companies and inspected as
Management approach environmental compliance

In its Code of Conduct, Geberit states that it will limit the environmental impact of its business activities to a minimum. This calls for consistent compliance with all applicable laws, internationally recognised guidelines and industry standards. With many of the initiatives that it implements, Geberit goes above and beyond legal and official requirements. Reviewing and ensuring compliance with the law is a mandatory element of ISO 14001 certification (environment); as of 2020, this process was simplified with the roll-out of a new EHS (environment, occupational health and safety) compliance tool in logistics and the production plants in Switzerland, Poland and Ukraine. Monitoring is also part of the annual Group-wide survey on compliance with the Code of Conduct at all companies, see → GRI 419.

Sanctions due to non-compliance with environmental laws and regulations (GRI 307-1)

There were no sanctions due to non-compliance with environmental laws and regulations in the reporting year.