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Environment

ENVIRONMENTAL PROTECTION: HEALTH REQUIRES A HEALTHY ENVIRONMENT

Healthy people can only live in a healthy environment. As a healthcare company, we therefore see it as our responsibility to protect the climate and the environment, and to be careful in our use of natural resources. It is essential to avoid any negative impacts. To this end, we identify and evaluate potential hazards, and take the necessary measures to protect the climate and the environment. This includes clearly defined climate targets, implementation of energy efficiency measures, expansion of renewable energies, reduction of the volume of waste and packaging, and a careful approach to the irreplaceable resource of water.

**OUR COMMITMENT TO LIFE NATURALLY MEANS
CARING FOR OUR PLANET. REDUCING OUR
FOOTPRINT HELPS TO SAFEGUARD ECOSYSTEMS
AND THUS STRENGTHENS OUR SOCIETY.
SO LIFE CAN THRIVE.**

Dr. Michael Moser, Member of the Management Board

Our environmental management focuses on three topics that are crucially relevant for our core business:

- [Climate protection](#)
- [Water management](#)
- [Waste & recycling](#)

Climate protection

ENERGY EFFICIENCY, SECURE SUPPLY, RENEWABLE ENERGIES

Heat waves, flooding, and the associated effects are already impacting our day-to-day lives. As a company operating on the global stage, it is imperative for us to play a role in limiting the consequences of the climate crisis. The management supports a team of experts working intensively to implement our Group-wide climate target. By 2040, Fresenius is planning to achieve climate neutrality in Scopes 1 and 2 primarily through implementing reduction measures. The intention is to offset any remaining greenhouse gas emissions.

GROUP CLIMATE TARGETS

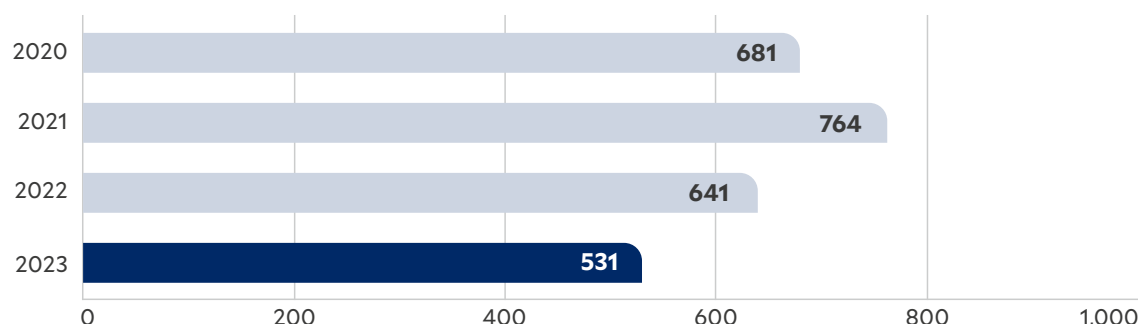
- Intermediate target: Reduction of the entire Scope 1 and Scope 2 emissions by 50% in absolute terms by 2030 (base year: 2020)
- Climate neutrality in Scopes 1 and 2 by 2040
- Net zero by 2050

Scope 1 includes direct emissions that we cause through our own business activities. Scope 2 relates to indirect, energy-related emissions; they are therefore incurred through the consumption of purchased energy. Scope 3 relates to other indirect emissions from our value chain.

OUR POSITION ON CLIMATE PROTECTION

Primarily as a result of increased use of renewable energies and efficiency measures, we succeeded in reducing our **absolute** Scope 1 and Scope 2 emissions in 2023 by 22% in comparison with the base year 2020.

Climate protection

SCOPE 1 AND SCOPE 2 EMISSIONS FROM 2020 TO 2023
(IN T CO₂ EQUIVALENTS IN THOU.)¹

¹ The Scope 2 emissions are calculated in accordance with the Greenhouse Gas Protocol, following the market-based emission calculation approach.

In 2023, Fresenius caused a total of 531 thousand t CO₂ equivalents (2022: 641 thousand t CO₂e). This is approximately as much as 50,500 people in Germany cause together each year¹ – in other words approximately the amount generated by a medium-sized town. This number clearly highlights our responsibility for climate protection – and simultaneously demonstrates the magnitude of the lever we possess in order to make a contribution by means of climate protection measures.

- The Scope 1 emissions amounted to 308 thousand t CO₂e. In comparison with the previous year, we succeeded in reducing these emissions by 2% (2022: 315 thousand t CO₂e).
- The market-based Scope 2 emissions were reduced by around 32%, from 326 thousand t CO₂e in 2022 to 223 thousand t CO₂e in 2023. Among other things, this reduction reflects the increased proportion of electricity generated from renewable resources.

After closely examining all 15 Scope 3 emission categories, we have identified ten categories as relevant. The remaining categories are not reported as they are either already covered in Scopes 1 and 2 or are not applicable to our business model.

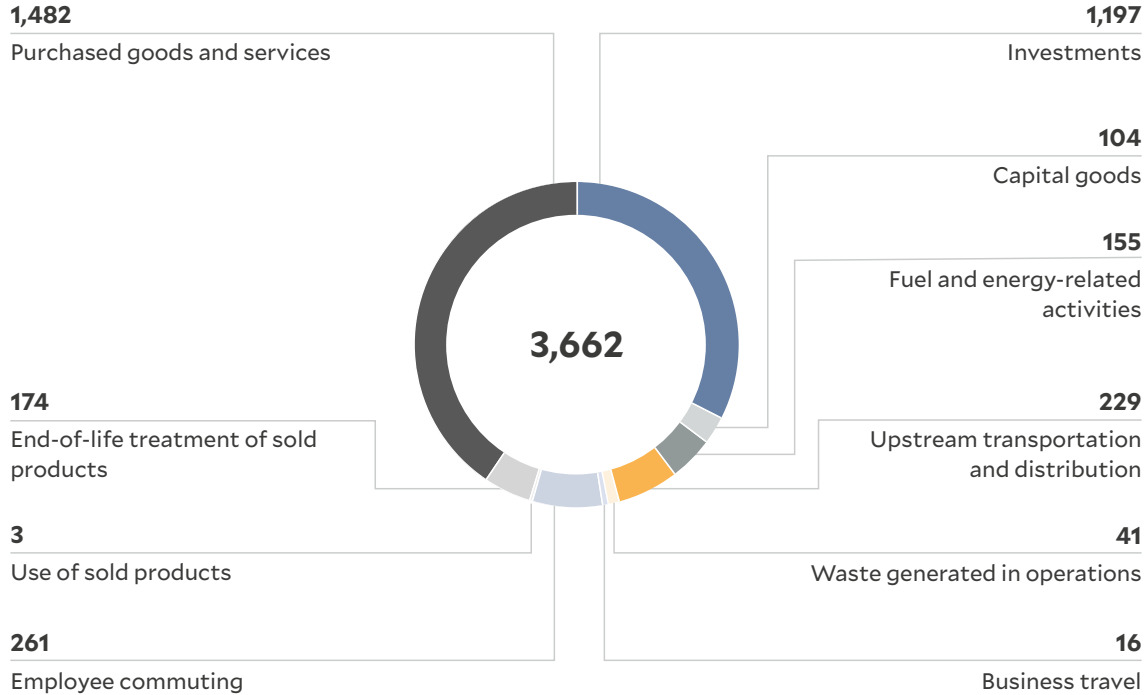
In 2023, our Scope 3 emissions totaled 3,662 thousand t CO₂e. Purchased goods and services account for the majority of our Scope 3 emissions with 40%.

We are continuously striving to improve the transparency of our Scope 3 emissions and are aiming to reduce the impact of our value chain by setting ambitious reduction targets.

¹ The calculation is based on the values of the [Federal Ministry for Environment, Nature Conservation and Nuclear Safety and Consumer Protection](#) (German language only).

Climate protection

SCOPE 3 EMISSIONS 2023
(IN T CO₂ EQUIVALENTS IN THOU.)¹



¹ The calculation of Scope 3 emissions is based partly on estimates and extrapolations.

REDUCING ENERGY CONSUMPTION AND GUARANTEEING SECURE SUPPLY

The reduction of energy consumption is a key factor for being in a position to reduce greenhouse gas emissions. However, this is a challenging task for us as a healthcare company. On the one hand, we would like to reduce energy consumption as much as possible. On the other hand, we have to guarantee the safety of patients in our facilities at all times and ensure robust energy supply for our production. A special backup system ensures an uninterrupted supply of electricity for our hospitals.

SECURITY BACKUP FOR POWER SUPPLY 24/7

All our German and Spanish hospitals have a backup power system on standby to ensure an uninterruptible energy supply at all times. It ensures that important equipment and systems remain operational if there is a power outage, and thereby guarantees that a supply of electricity is available for patients at all times.

Climate protection

In 2023, Fresenius consumed a total of 3.09 million MWh of energy, a decrease of 3% compared to the previous year (2022: 3.18 million MWh). The **reduced consumption** is due in part to targeted energy efficiency measures.

SMART ENERGY MANAGEMENT

A key factor in our hospitals is to use energy efficiently. **Air conditioning systems** are increasingly being used not only in our Spanish hospitals, but also in our German clinics. These systems regulate the room temperature and help to keep the air clean with bacterial filters. Both of these aspects are vitally important for the hospital stay of our patients. However, the complex cooling process means that they use a great deal of electricity. For example, at Quirónsalud the air conditioning systems are responsible for a large proportion of the total energy consumption. Since 2011, we have been working on automating the management of these devices: When the outside temperatures drop, the systems adjust their output automatically. This allows us to better adapt to increasingly frequent abrupt and extreme temperature changes, while simultaneously saving energy.

We are also committed to the implementation of smart energy management, for example through central portals that allow us to control various energy parameters, ranging from the price of electricity on the energy market to individual energy consumption at our different sites. For example, in our German hospitals, we are able to make use of a central **energy procurement and management** system to compare various consumption values, strategically introduce improvement measures, and share best practices from different hospitals.

We are gradually upgrading our **infrastructure**. At production sites, we use metrics for this, such as the performance of devices and systems that consume a lot of energy. We then compare the values with those of more energy-efficient systems, and ultimately take a decision on whether or not to convert them. This approach allows efficient and cost-effective solutions to be deployed – e.g. LED lamps or heating, ventilation and air conditioning systems (HVAC).

Fresenius also invests in new buildings and modernizations that meet the latest energy standards and the relevant statutory legislation.

Climate protection

EXPANSION OF RENEWABLE ENERGIES

In 2023, we purchased around 551,260 MWh of electricity from renewable sources Group-wide such as **hydro, solar, or wind power**. This is roughly equivalent to the annual output generated by 37 advanced wind turbines operating under good conditions.² Overall, we were able to increase the proportion of electricity consumed from renewable sources Group-wide from around 12% (2022) to around 18% in 2023. Since 2022, our hospitals in Germany have been supplied with 100% certificated green electricity. For the first time in 2023, Fresenius Kabi purchased electricity generated from renewable energies for seven production facilities.



Photovoltaic plants at Quirónsalud hospitals

Aside from the purchase of electricity from renewable energy sources, we are generating our **own electricity** at an increasing number of sites. This enables us to use renewable energies independently of external electricity utilities.

**FRESENIUS KABI USES THREE
SOLAR PLANTS TO GENERATE**

around

4,883

MWh per year

for the manufacture of MedTech
products.

**QUIRÓNSALUD
ALREADY OPERATES
PHOTOVOLTAIC PLANTS AT****19** out of **50**

of its Spanish hospitals

² The calculation is based on the data of the energy utility [EnBW](#) (German language only).

WATER: SECURING HIGH QUALITY, REDUCING CONSUMPTION

Water of the best possible quality is absolutely essential to provide safe healthcare for our patients and to manufacture our medical products. That's why water management is particularly important for Fresenius as a healthcare group.

AROUND 15 MILLION M³ OF WATER IN 2023 – WHAT FOR?

In 2023, we withdrew 15.1 million m³ of water – approximately as much water as that consumed by two million people in Germany every day.¹ At Fresenius, water is primarily used in two areas:

1. Water in production

In production, we use water for most sterilization and cooling processes, as a component in the manufacture of medical products, and for hygiene procedures. The water used for our products, e.g. for infusion solutions such as sodium chloride, has to meet stringent quality requirements to ensure product quality and patient safety.

2. Water in our healthcare facilities

For our healthcare facilities, an adequate supply of fresh water is vital to patient well-being and hygiene. Most of the water is withdrawn from local public water utilities.

Sufficient volumes of water of the highest quality are therefore absolutely essential. At the same time, we are responsible for appropriate handling of wastewater, particularly in relation to water from production facilities.

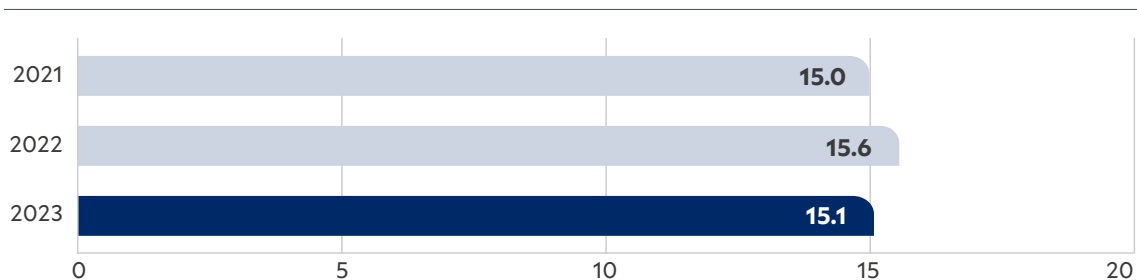
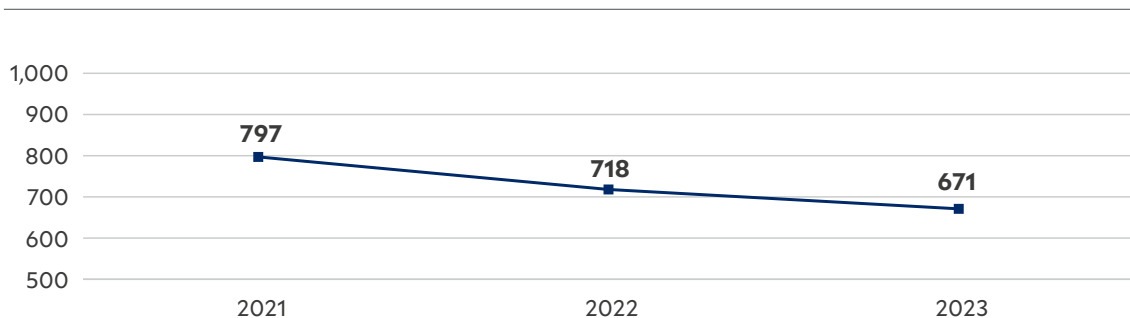
OUR APPROACH TO WATER

We use internally and externally controlled **water management systems** to control all the workflows in our daily operations. The aim is to use no more water than is absolutely necessary and where possible to make savings, and to ensure the maximum water quality at all times.

¹ The calculation for the comparison is based on the following [statistics](#) from the German Environment Agency Umweltbundesamt (German language only).

Water management

Since 2021, we have continuously reduced our relative water withdrawal per €1 million of revenue and reduced consumption by nearly 16%.

**ABSOLUTE WATER WITHDRAWAL
(M³ IN MILLIONS)****RELATIVE WATER WITHDRAWAL
(IN M³ PER €1 MILLION REVENUE)****MONITORING AND GUARANTEEING DRINKING WATER QUALITY**

Water quality is key for delivering high-quality and safe healthcare to people, and for the manufacture of medical products. All our facilities have risk-based processes in place to identify contamination or irregularities in the **drinking water**. Where necessary we can treat water. Most importantly, for situations where fresh water is polluted or contaminated by hazardous substances, our hospitals have access to appropriate technology.

We communicate directly with local authorities and inform them immediately if we have detected critical deviations from the local drinking-water standard. A number of our hospitals in Germany even act as **test centers** for the quality of local drinking water. This service allows us to protect the safety of our patients, as well as ensuring that the local population and the local communities which supply us have access to safe drinking water.

Water management

KNOW YOUR RISK – RISK ASSESSMENT IN WATER MANAGEMENT

We aim to make our daily water consumption as resource-efficient as possible. For this we need to be able to precisely assess the **impacts** of our water usage at the different locations. We analyze the local shortage and availability of water at our locations across the world, and derive the current and potential future **water risks** from the data available.

This analysis informs us about the production sites that are in areas at high risk of water shortage. These areas are then identified as particularly important for efficient management of water as a natural resource in order to ensure the **availability of water** for our production and healthcare services and to avoid the negative impacts on the local water situation as far as possible.

Our production sites also generate a climate risk analysis which includes water risks such as flooding, droughts, or heavy rain. On the basis of these risk profiles, they take appropriate measures to avoid risks or mitigate their consequences. Such measures are documented in action plans for high water risk sites. Measures in an action plan may include regular inspection and maintenance of high water-consuming machinery, reviewing emergency management procedures, or training employees to optimize water use.

REDUCING WATER CONSUMPTION

We are working in all regions – irrespective of whether they have a high or low risk of water shortage – to reduce the consumption of water as much as possible. This is achieved by our water management systems making provision for appropriate **savings measures**. Water is reused at a number of production locations, e.g. condensate water from air conditioning systems or by using steam condensate recovery systems. Waste-water treatment systems and recycling programs also aim to minimize the amount of wastewater discharged and to use resources more efficiently.

REUSE OF RINSING WATER

At our production facility in Kutno, Poland, we have started to reuse the rinsing water from the cleaning of carbon filters. As the filters mainly adsorb chlorine and organic compounds, the rinse water is of sufficient quality to be used for cooling purposes. The measure leads to a reduction in annual water consumption of 1,000 m³ of water.

Water management

USE OF RAINWATER AND WATER TREATMENT

We have installed a rainwater harvesting system at our Aquiraz production facility in Brazil. The rainwater is fed from the roof into a cistern, from where it can be used. The project saves a good 2,200 m³ of water per year. In addition, a system has been installed at the site to reuse the water in the cooling towers, reducing daily water consumption by an additional 50 m³.

The use of fresh water plays a key role in our healthcare facilities because this enables us to comply with **hygiene regulations** and hence guarantee patient safety. This is why we are not targeting a significant reduction in water withdrawal in this area. Due to strict internal regulations for the quality of drinking water, we do not reuse water, or use gray water, i.e., treated water from showers or wash basins.

WATER TREATMENT AND DISCHARGE – FOCUS ON ANTIBIOTICS

Our wastewater should minimize a negative impact on the environment. The production of antibiotics is one example of the special requirements governing wastewater management in healthcare. If antibiotics find their way into the environment through the wastewater from production, they may promote the development of resistant bacteria. This may in turn lead to these drugs becoming less effective for medical treatments. Our goal is to minimize these risks as far as possible. With this in mind, we have implemented high quality and safety standards at our production sites. Furthermore, we are committed to the following measures:

Responsible antibiotic production: International cooperation

Fresenius Kabi has been a member of the Antimicrobial Resistance (AMR) Industry Alliance (AMRIA) since 2020 and has been actively involved in the association's governing bodies since 2021. In 2022, AMRIA and BSI Standards Limited released the **Antibiotic Manufacturing Standard**, providing guidance to manufacturers on responsible antibiotic production. A key component of the approach involves the use of a risk-based methodology to evaluate waste streams generated during antibiotic manufacturing and to control them.

Water management

Mass balance approach in wastewater management

In 2022, Fresenius Kabi introduced a methodology that supports the manufacturing sites producing antibiotics in complying with the regulations governing concentrations of antibiotics in wastewater. The overarching goal of this [i mass balance approach](#) is alignment with the Predicted No-Effect Concentrations (PNEC) defined by AMRIA. This refers to a concentration level of a substance in the environment below which no adverse effects are expected. We have developed a template for this purpose that enables our locations to implement the approach and collect comparable data across the Group.

Antibiotic Manufacturing Standard: Communication across sites

Furthermore, Fresenius Kabi has developed a dedicated communication channel that connects local sites with the global environmental team of the business segment. This initiative is intended to assist the sites in continuously aligning with the Antibiotic Manufacturing Standard for the production of antibiotics published in 2022. At the same time, the aim is to foster ongoing compliance and improvement in the future.

WASTE MANAGEMENT: SAFE HANDLING AND CONSERVING RESOURCES

Waste encompasses a huge potential for valuable resources.

At the same time, waste that is not disposed of properly presents a significant risk to people and the environment – particularly in the case of medical waste. Fresenius concentrates on minimizing waste, handling waste carefully and hygienically, and reusing it with the best possible effect.

WASTE MANAGEMENT IN HEALTHCARE: SPECIAL REQUIREMENTS

Fresenius wants to make a contribution to using resources efficiently. However, there are strict hygiene standards in the healthcare sector that are essential for patient safety: For example, our hospital staff use numerous supplies in day-to-day hospital operations such as gloves, face masks, and syringes, which must be disposed of after they have been used once. At its production sites, Fresenius has to use certain materials for packaging pharmaceuticals, even though these are disposed of by nursing staff or private individuals immediately after unpacking. However, systematic waste management can help us to achieve our goal of efficient use of resources, and to minimize our impact on the environment as far as possible through our waste handling.

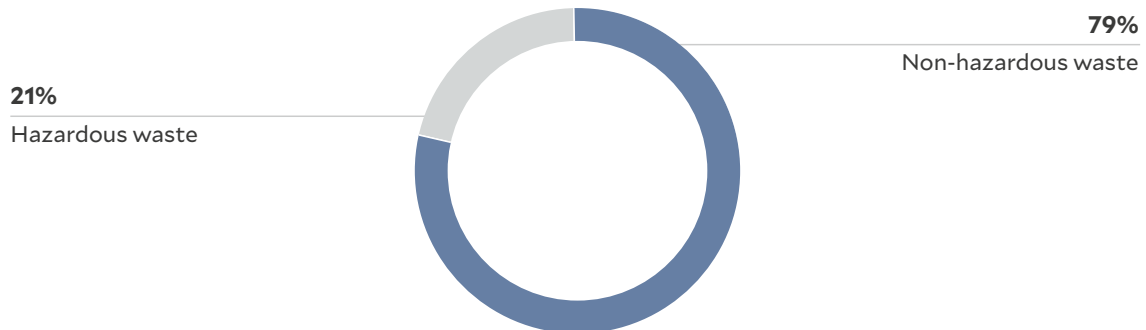
Handling waste in the health sector is strictly regulated. Waste must not pose a danger to our patients, our employees, or the environment. Our production processes and the treatments at our healthcare facilities must always be carried out under hygienic and sterile conditions. All business segments must always dispose of their waste professionally and safely.

WHAT WASTE IS GENERATED AT FRESENIUS

After a shift in production, empty drug containers, solvent residues and other waste products must be disposed of – however, each has a very different route. This is because containers or bottles are non-hazardous waste, whereas solvents represent a potential hazard. Hazardous waste may be infectious or toxic, but it is also capable of undergoing reactions. This means that if it is not handled properly, it may become hazardous for employees, facilities and systems, or the environment, due to its potential for chemical reactions. Hazardous substances therefore need to be handled with a great deal of care.

Waste & recycling

WASTE VOLUMES 2023

**Examples of non-hazardous waste**

- Paper and cardboard packaging
- Empty containers and packaging material without contamination
- Uncontaminated disposable gloves
- Plastic and metal waste from administrative areas and medical devices
- Production waste from nontoxic and nonreactive materials
- Food waste
- Glass containers without residues
- Uncontaminated medical devices
- Laundry and disposable clothing
- Bandages and diapers

Examples of (potentially) hazardous waste

- Contaminated syringes and needles
- Infectious samples and tissues
- Biological waste such as blood, or materials such as cell cultures
- Chemicals for disinfection such as formaldehyde
- Radioactive waste from diagnostic procedures
- Residues from chemical reactions, e.g. sulfuric acid
- Residues of filtration and cleaning processes
- Waste from chemotherapy
- Sharp and pointed objects such as scalpels
- Packaging material with residues of hazardous chemicals

Waste & recycling

The different forms of waste are categorized at all facilities, production sites, logistics and [i compounding centers](#), and sorted by types of waste and disposal methods. Plastic waste represents the largest proportion at Fresenius Kabi. Wound and plaster dressings, underwear, disposable clothing, and diapers make up the largest proportion of waste at Helios and Quirónsalud.

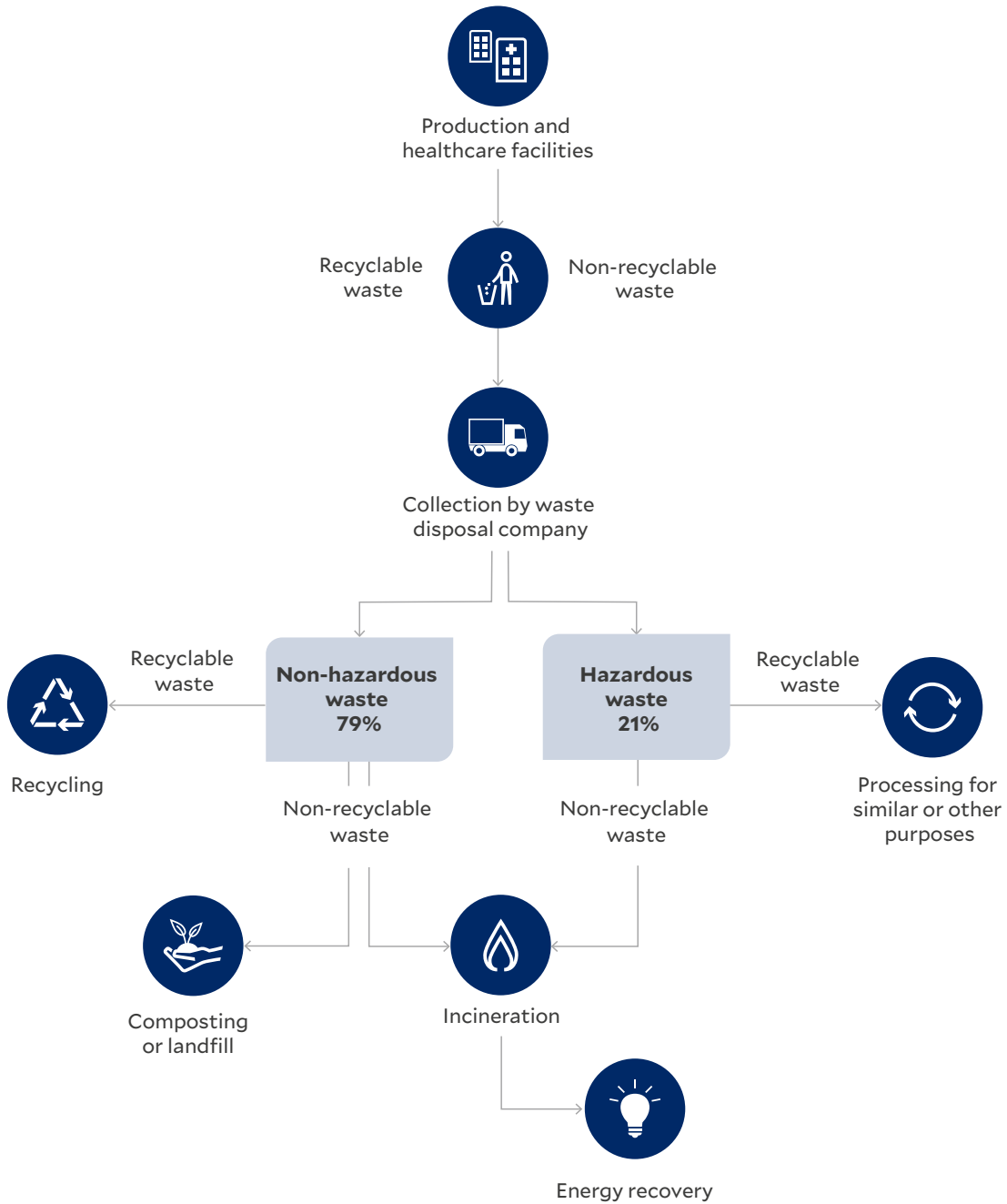
THE PATHWAYS TO DISPOSAL AND RECYCLING

Our precise approach to waste depends on the business activity and business segment. We must separate our waste in accordance with local, national, and industry-specific regulations, and store and dispose of the waste in such a way as to ensure that the environment is not polluted or contaminated, and no harm comes to people.

After a production run or treatment, our staff dispose utensils that can no longer be used into appropriate disposal bins. Waste management companies take the various types of waste away to a depot. If waste can be reused, it is sent for recycling. Most recyclable hazardous waste is processed and then reused for a similar or different purpose. Non-recyclable hazardous waste is mainly incinerated. A large amount of energy can be obtained from this source and used. Non-hazardous waste that cannot be reused is disposed of by incineration, or composting, or sent to landfill. Biological waste derived from patient care and laboratories – for example infectious waste or [i spent cultures](#) – depending how dangerous they are, are incinerated or converted and ultimately taken to a safe landfill.

Waste & recycling

DISPOSAL ROUTES



PRODUCT DEVELOPMENT: CONSIDERING WASTE AVOIDANCE

When we design new healthcare products and upgrade existing ones, we take account of environmental aspects right from the start. One example of this approach is the reduction of the **proportion of plastic** by more than 30% in our EasyBottle containers for hydration since 2011, by comparison with the previous model. Furthermore, we are seeking to reduce the **amount of packaging** for finished products. We also incorporate

Waste & recycling

feedback from customers and patients so as to reduce unnecessary waste in our product packaging. However, since we have to meet strict requirements for patient safety and the quality of pharmaceutical products, we can only optimize medicinal products and protective packaging to a certain extent while conserving resources. Ultimately, the priority here as elsewhere is always **safety**.

REUSING AND RECYCLING

Fresenius has established many processes to promote the use of reusable products and recycling at different levels. For example, we clean and package various medical instruments and supplies such as scalpels and clamps in hospitals and other medical facilities so that they can be reused in sterile condition. This enables us to save on single-use items.

All visitors to Helios cafeterias in Germany are able to borrow recyclable food containers for their takeaway food instead of using throwaway tableware. Furthermore, all hospitals operated by Quirónsalud in Spain have order catalogs for disposable items made of more sustainable materials such as recycled or recyclable paper, and cardboard.

RESCUING FOOD

It's not easy for hospital kitchens and cafeterias to make precise plans for the amount of food required in advance because the number of patients and visitors varies. In 2022, Quirónsalud launched a collaboration with Too Good To Go in order to reduce the amount of food waste. This app allows any surplus food to be purchased at a reduced price. In 2023, this app enabled around 6,500 meals to be passed on instead of being thrown away.

Quirónsalud is pursuing its ambition of increasing the recycling rate of packaging materials and is primarily concentrating on the use of paper and lightweight packaging. Furthermore, employees should be able to recognize recyclable material quickly and easily in order to be able to place it in the correct containers. The segment was already working on realizing this ambition in 2022 by cooperating with a supplier to provide better identification for recyclable packaging.

Waste & recycling**IT'S ALL ABOUT THE CORRECT AMOUNT**

Since 2021, Quirónsalud has been increasingly making use of bulk packages with dispensers and dosing aids. Compared with smaller packages of the same products, bulk packaging uses less packaging material. The dispensers make it easier for our employees to refill reusable containers and bottles. The dosing aids assist nursing staff in using the exact amount that they need for a treatment.