

STRATEGY & MANAGEMENT

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Company profile

We are Merck, a science and technology company. We are pioneers of human progress, driven by our curiosity.

We have a unique setup, with different disciplines under one roof. Our Life Science business sector provides the tools, high-grade chemicals, and consumables that accelerate scientific breakthroughs and enable the biopharmaceutical industry to ensure that medicines are safe and effective for a global population. With a broad and deep portfolio of more than 300,000 products and an industry-leading e-commerce platform, we are focused on impacting life and health with science. In our Healthcare business sector, we advance innovation through our pipeline; enable life-changing therapies for serious illnesses; treat more than 90 million patients worldwide with cardiovascular, diabetes and thyroid disorders every day; and help many couples to realize their wish to have a child. In our Electronics business sector, we are the company behind the companies, advancing digital living. Our semiconductor and display solutions can be found in almost every electronic device. Thus, we are changing the way information is processed, releasing the potential of data and opening up possibilities for positively influencing the way we live. In addition, our specialists also explore visionary new solutions at the intersection of our three diversified business sectors.

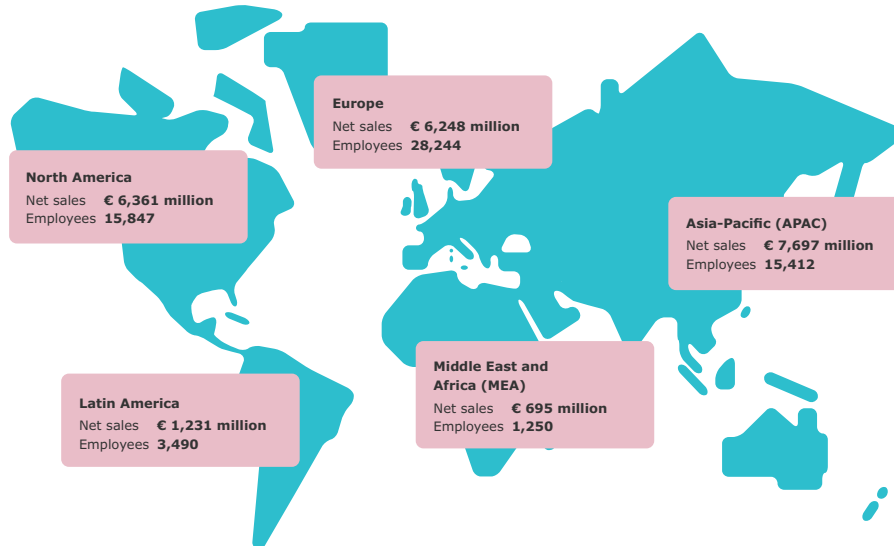
Established in 1668, our exceptional track record shows we continuously reinvent ourselves and think long-term. This mindset is rooted in responsibility, care, and respect: for our work, our people, our customers, patients, society, and our planet. We want to become the global 21st century science and technology pioneer, working toward an ambitious future: sustainable progress for humankind.

We hold the global rights to the Merck name and brand. The only exceptions are Canada and the United States. In these countries, we operate as MilliporeSigma in the Life Science business, as EMD Serono in the Healthcare business, and as EMD Electronics in the Electronics business.

Apart from our three business sectors, our financial reporting presents five regions: Europe, North America, Asia-Pacific, Latin America, the Middle East and Africa. As of December 31, 2022, we had 64,243 employees worldwide. The figure as of December 31, 2021, was 60,348 employees.

In 2022, our 224 fully consolidated companies with personnel in 66 countries generated sales of € 22.2 billion. Our 101 production sites are located across 19 countries.

Employees and sales by region – 2022



Group structure

In accordance with our strategic orientation our company comprises three business sectors: Life Science, Healthcare and Electronics.

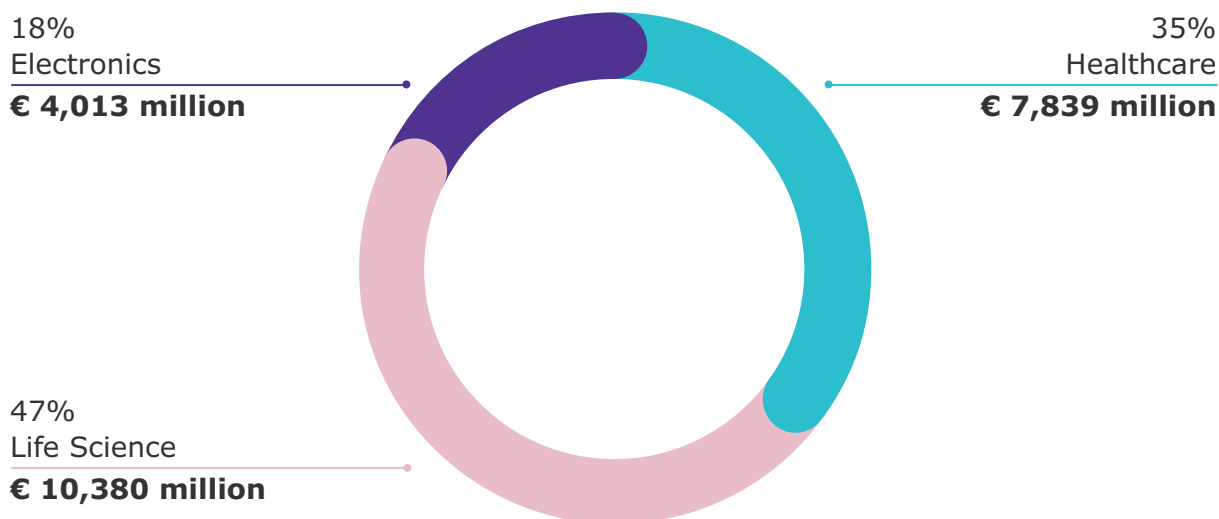
In **Life Science**, we are a leading global provider of tools, chemicals, and equipment to academic labs, biotech and pharmaceutical manufacturers, and the industrial sector. With a strong focus on innovation, we are committed to delivering the products, services, and digital platforms to create a sustainable future for generations to come. In early 2022, we announced the reorganization of the sector to support Life Science's long-term growth strategy and to better serve our global customers' evolving needs. The existing Contract Development and Manufacturing Organization and Contract Testing services were split from the Process Solutions business and consolidated into one global, fully integrated Life Science Services organization for traditional and novel modalities, including monoclonal antibodies, high-potency active pharmaceutical ingredients, as well as antibody-drug conjugates and viral and gene therapies including mRNA. The Process Solutions business will continue its focus on delivering our leading product offering for pharmaceutical development and manufacturing, including filtration devices, chromatography resins, single-use assemblies and systems, processing chemicals, and excipients. The Research Solutions and Applied Solutions business units were combined into one organization called Science and Lab Solutions. This business unit serves the pharma and biotech, industrial and testing, academic and government, and diagnostics sectors, providing customers a more seamless experience and access to a broad portfolio including reagents, consumables, devices, instruments, software, and services for scientific discovery, in addition to lab water instruments, consumables and services, microbiology and biomonitoring products, test assays, analytical reagents, and flow cytometry kits and instruments.

Our **Healthcare** business sector discovers, develops, manufactures, and markets innovative pharmaceutical and biological prescription drugs to treat cancer, multiple sclerosis (MS), infertility, growth disorders, and certain cardiovascular and metabolic diseases. Healthcare operates across four therapeutic areas with a clear ambition to become a global specialty innovator: Neurology and Immunology, Oncology, Fertility, and Cardiology Metabolism & Endocrinology. Our R&D pipeline positions us with a clear focus on strengthening our leadership

positions in oncology, neurology, and immunology. Since the start of the Covid-19 pandemic, we have been continuously making every effort to proactively handle the situation and minimize the impact of the pandemic and also of any challenges from the external context on the supply of our medicines locally and globally. To this end, we are using three main levers: the thorough implementation and further development of our business continuity plans across our network, the active management of our stocks, and the assessment of alternative transportation routes to reach our customers and patients.

With our **Electronics** business sector our main focus is on materials and solutions for the electronics market. We realigned our portfolio toward the accelerated digitization and the growth of data. This drives the need for more and higher sophisticated semiconductor chips and displays. Today, we are optimally positioned to leverage our key strengths: With a well-balanced and broad technology portfolio of materials and equipment, industry leading R&D and a global production network close to our customers, we have become one of the most relevant suppliers of materials and solutions for the semiconductor and display industries – and are on track to further expand our position. In addition, our decorative and functional solutions for innovative surfaces of all kinds make life more colorful. The business sector consists of three business units: Semiconductor Solutions, Display Solutions, and Surface Solutions.

Net sales by business sector – 2022



Governance

Based in Darmstadt, Germany, our company operates in the legal form of a corporation with general partners (Kommanditgesellschaft auf Aktien – KGaA). The general partner E. Merck KG holds around 70% of the total capital of Merck KGaA (equity interest); the shareholders hold the remainder, which is divided into shares (share capital). Our shares have been included in the DAX®, the blue-chip index of the Deutsche Börse, since 2007. In September 2008, our company was added to the FTSE4Good Index, a sustainability index that assesses the social, ecological and ethical conduct of companies.

Group strategy

We are curious minds dedicated to human progress. We believe that scientific exploration and responsible entrepreneurship are key to technological advances that benefit us all. Our values – courage, achievement, responsibility, respect, integrity, and transparency – guide us in every step we take and in every decision we make. As a company, we have a strong foundation. These fundamentals have been defined by the Merck family. We always take them into consideration when discussing and deciding on our Enterprise strategy.

- We follow a risk diversification strategy with three distinct business sectors, and we avoid overexposure to any single customer, industry, or geography. We ensure resilience against business disruption and deep crises.
- With our science and technology focus, we want to be leaders in our fields of expertise and markets, always pushing the boundaries to find new solutions and drive innovation. We aim to create value for our business and for society.
- We continue to operate under our current ownership with the Merck family as the majority owner.
- We deliver sustainable value, and we want to maintain an attractive financial profile (for example, a strong credit rating) while assessing and considering the ESG (environmental, social, governance) impact of our growth ambition.
- Mergers and acquisitions (M&A) are an important driver of our long-term value creation strategy with a focus on innovation-driven technology.

Our ambition is to become the global 21st century science and technology pioneer. To achieve this, we will continue to focus on our “Big 3” businesses: Process Solutions and Life Science Services, new Healthcare products, and Semiconductor Solutions. Until 2025, these businesses are expected to generate approximately 80% of the targeted sales growth, and more than 50% of total sales by 2025.

Our highly resilient business sectors are the foundation for our bold plans to accelerate efficient growth and seize organic and inorganic opportunities. We attribute our high capacity for resilience to several factors, notably:

- Good financial position: strong balance sheet, sufficient cash reserves and moderate fixed cost exposure
- High degree of diversification in the three business sectors amid low cyclicalities
- Robust supply networks due to increasing localization
- Lower dependency on single regions thanks to diversified footprint
- Strong focus on sustainability as an integral part of the company strategy, linked with clear sustainability goals.

You can find more information on our company strategy in our [Annual Report 2022](#). Details on the sustainability strategy can be found there and [here in the report](#).

Letter from the CEO



Dear readers

A cascading series of global crises and conflicts starting with the Covid-19 pandemic has made our world much more complex and uncertain.

The threats these global challenges pose to health, security, and sustainability were highlighted in two U.N. reports issued in 2022. The **first** stated that the 17 Sustainable Development Goals (SDG) under the 2030 Agenda “are in jeopardy.” The **second** declared that there is no longer a realistic pathway to restricting climate change to 1.5 °C. Moving forward, the only viable path to avoid the worst effects of the climate crisis is through the “rapid transformation of societies.”

In short, we have only a few decades to fundamentally change the ways in which we consume food, energy and other resources while addressing global inequity in health, education and living standards. It will require nothing less than humanity raising the bar higher than ever before.

As the leader of Merck, I am confident we can do it. Most of all, three things will enable society to rise above these challenges and thrive in the 21st century: resilience, collaboration and technology.

Resilience underpins us

Resilience allows us to navigate through tough times and seize the moment. It is what has helped our company for centuries to cope with and emerge stronger from major international economic and geopolitical crises. Our resilience is helping to ensure that we remain firmly on track to achieve our most important sustainability goals. By 2030, we aim to have integrated sustainability into all value chains and contributed to human progress for more than one billion people through sustainable science and technology. And by 2040, we expect to achieve climate-neutral operations.

We made significant strides towards the achievement of these overarching goals during 2022. For example, the independent Science Based Targets initiative (SBTi) confirmed our targets to reduce direct (Scope 1) and indirect (Scope 2) greenhouse gas (GHG) emissions by 50% by 2030 compared with 2020. Furthermore, SBTi

confirmed our plans to halve Scope 3 emissions as a percentage of gross profit across our entire value chain by 2030. These targets will help us in complying with the goal of the Paris Agreement to limit global warming to 1.5 °C.

Our direct and indirect GHG emissions fell by almost 10% in 2022, thanks to our reduction of process-related emissions, implementation of energy efficiency measures, and increasing the share of energy we use from renewable sources. After signing two new Virtual Power Purchase Agreements (VPPAs) in 2022, renewable sources now cover 90% of our electricity consumption in the U.S. and 55% globally. We look forward to securing additional VPPAs in Europe, the Asia-Pacific and other regions.

It is also important to highlight some of our many significant SDG contributions. For Good Health and Well-Being (SDG 3), I refer you to the latest [benchmarking report](#) of the Access to Medicine Foundation on how the top 20 largest research-based pharmaceutical companies support low-and middle-income countries. Our company advanced from eighth to fifth place in the 2022 ranking thanks to our strong performance in R&D, intellectual property waivers and local capacity building.

Regarding to gender equality (SDG 5), we increased the percentage of women in leadership positions from 36% to 38% in 2022 and aim to achieve gender parity by 2030. And for life on land and below water (SDGs 14 and 15), we committed globally to even higher animal welfare standards in 2022.

Collaboration makes us stronger

My second reason for confidence in the future advancement of society lies in how public and private organizations, including our company, have successfully collaborated in recent years. Through the pandemic, we learned how important it is to amplify our collective impact by aligning with a sense of urgency around a common purpose and shared values.

Our company's partnerships with more than 100 organizations to develop Covid-19 vaccines, therapeutics and diagnostic solutions are prime examples of collaboration at its finest.

But also consider our efforts to improve health equity worldwide by building long-term partnerships with global and local stakeholders to help underserved patient populations. As one example, we have collaborated with the World Health Organization (WHO) and other NGOs across sub-Saharan Africa to combat schistosomiasis – the world's second most devastating tropical disease in terms of public health burden and economic growth. By providing more than 1.7 billion praziquantel tablets to WHO over the last 15 years and enabling many other on-the-ground initiatives to prevent, diagnose and treat schistosomiasis, we expect to eliminate this disease as a public health problem by 2030.

I am also proud to represent our Group on a new Health Systems Taskforce recently established under the [Sustainable Markets Initiative](#). Together with six other pharmaceutical companies, we jointly agreed to ambitious near-term GHG reduction targets in 2022 and to collaborate with our global networks of suppliers to further accelerate the shift to a climate-neutral healthcare industry.

Technology leverages untapped potential

My third reason for confidence is the untapped potential of science and technology itself. Many of the technologies needed to deliver a sustainable future in the coming decades are already known today. Most, however, such as those for green hydrogen, carbon capture and cultured meat, are still being developed or commercialized by various innovators. However, if society is to make a difference, we must become more efficient and effective in how we select the most promising technologies and accelerate their path to market.

As a globally diversified science and technology business with strong values and leading positions across life science, healthcare and electronics, we are in the sweet spot. It is our goal to serve as a preferred development partner and solutions provider for sustainability. That is why sustainability is now a cornerstone for future innovation and growth.

We are committed to helping new and existing customers meet their sustainability targets. Our ambition is to embed sustainability across our entire value chain until it becomes a core competitive advantage for us.

As our transformation into a global sustainability leader accelerates, we will remain accountable for our positive and negative impacts, and transparent in how we track our performance. As one example, we will measure our progress in integrating sustainability across all value chains together with 54,000 suppliers across more than 140 countries. Furthermore, accountability must always start at the top. That is why my compensation and that of my fellow Executive Board members is now clearly linked to achieving these and other sustainability goals.

Thinking and acting sustainably is deeply important to me, the Merck family of owners and the 64,000 people who work for our Group companies worldwide. By continuing to demonstrate leadership in resilience, collaboration and technology, we look forward to helping our company, our customers and society to aim higher and thrive. I look forward to keeping you updated on our progress.



Belén Garijo

Chair of the Executive Board and CEO

Sustainability strategy & goals

The world is facing multiple challenges that we too as a company face. These include climate change, international conflicts and economic crises, for instance. Our ambition is to leverage science and technology to achieve sustainable progress for mankind.

Our approach: sustainable progress

For us, sustainable entrepreneurship and profitable growth go hand in hand; we can remain competitive only by creating **added value for society**. Through our innovative and high-quality products, we want to help meet global challenges. At the same time, these types of product secure our financial performance capability.

Responsible action is an integral part of our company culture. This also includes respecting the interests of our employees, customers, investors, and society. For more than 350 years, our company has been shaped and **guided by strong values**. Our success is built on courage, achievement, responsibility, respect, integrity, and transparency – values that underpin our understanding of sustainable entrepreneurship. We want to set an example for ethical conduct.

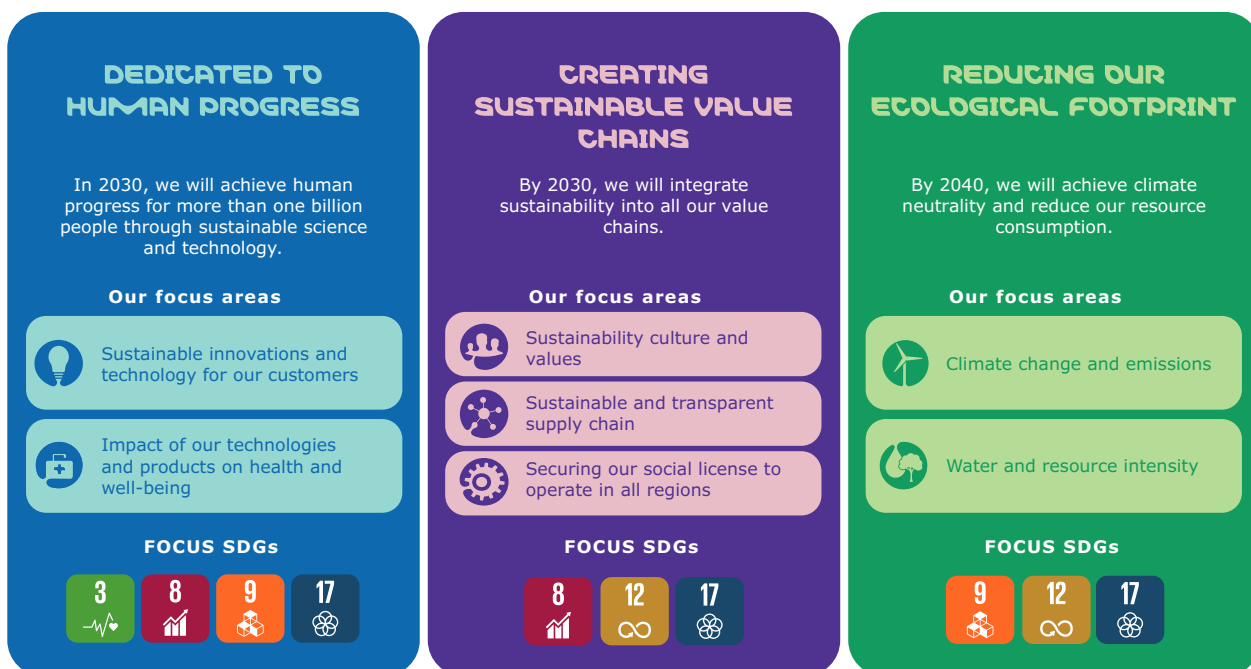
Safety and ethics matter just as much to us as business success. We mitigate **ethical, economic, environmental, and social risks** as far as possible. From the early stages of development through to disposal, we keep an eye on the entire life cycle of a product. We apply strict sustainability standards to our procurement activities. During product manufacture, we strive to keep the environmental impact as low as possible, which is why safe production techniques, high environmental standards and strict quality management are of course so important to us. And with our sustainable products, we also help the companies that we supply to achieve their sustainability goals.

We closely monitor new **global trends and challenges**. For example, in order to clearly understand the complex nature of the expected changes, we make use of the so-called scenario technique, which enables us to identify and incorporate aspects of strategic relevance. In addition, we participate in dialogues and initiatives, consult with other organizations in our industry and assess media and news coverage. This allows us to minimize risks while also leveraging **new business opportunities**.

Implementing the strategy globally

The rapidly growing challenges facing both society and the environment require a clear objective for the coming years. Consequently, sustainability is an essential element of our enterprise strategy. We are pursuing three strategic sustainability goals.

Our sustainability strategy



In order to achieve our sustainability goals, we are concentrating on **seven focus areas** within which we are realizing numerous initiatives and projects today and tomorrow, measuring our progress as we go.

Implementing the sustainability strategy

In 2022, we focused on creating the right conditions for achieving our sustainability goals. All three business sectors derived sustainability strategies from the overarching company strategy and started executing them. We are fostering the cultural change within the company by embedding sustainability aspects even more firmly into daily work and the decisions made by employees. Training courses and best-practice sharing are two routes we follow to achieve this.

On the basis of 14 key indicators, which we defined back in 2021, we record and assess our progress towards achieving our sustainability goals. In 2022, we implemented various digital working tools that we believe will allow us gain greater transparency with regard to our achievements. For instance, we record internal and external sustainability data in our ESG database, allowing us to compare, correlate and use them as the basis for initiatives and measures.

In the year under review, we specified that also when assessing potential acquisitions, we would **always include sustainability aspects**. This will be the case even more so in the future, also when it comes to capital allocation and investment decisions as well as research & development. To assess the potential impacts of our products throughout their entire life cycle, we use a scorecard developed in-house. We introduced this scorecard for all three of our business sectors in 2022.

Moreover, we added a sustainability factor to the Merck Long-Term Incentive Plan (LTIP) in 2022. It measures the performance of three selected sustainability goals over a period of three years, thus making it possible to

increase or reduce target achievement resulting from the key financial performance indicators by up to 20%. Details on how this sustainability factor is calculated can be found in [the Compensation Report](#).




We are now in the process of transforming the company and are integrating sustainability into the innovation process and all parts of the value chain. It is our aim to decouple the growth of our businesses from negative environmental impacts.

Our key indicators

Goal 1: In 2030, we will achieve human progress for more than one billion people through sustainable science and technology.



Focus area	Sustainability key indicators	Further details
Sustainability innovation and technology 	◆ Percentage of newly published patent families with positive sustainability impact	Sustainable innovation & technologies
Health and wellbeing impact 	◆ People treated with our Healthcare products ¹	SASB index

Goal 2: By 2030, we will integrate sustainability into all our value chains.

Focus area	Sustainability key indicators	Further details
Sustainability culture and values 	◆ Percentage of women in leadership positions ◆ Percentage of employees trained on sustainability	Diversity, equity and inclusion Attracting and retaining talent
Sustainable and transparent supply chain 	◆ Percentage of relevant suppliers (in terms of number and supplier spend) that are covered by a valid sustainability assessment ¹	Responsible supply chain
Securing our social license to operate in all regions 	◆ Environment, Health and Safety (EHS) Incident Rate ◆ Violations of Global Social and Labor Standards Policy ◆ Lost Time Injury Rate (LTIR)	Process, plant and transport safety Human rights Health and safety

¹ The key indicator is used to determine the sustainability factor for the Merck Long-Term Incentive Plan (LTIP).

Goal 3: By 2040, we will achieve climate neutrality and reduce our resource consumption.

Focus area	Sustainability key indicators	Further details
Climate change and emissions 	◆ Greenhouse gas emissions (Scope 1 and 2) ¹	Climate action
	◆ Indirect greenhouse gas emissions (Scope 3)	Climate action
	◆ Percentage of purchased electricity from renewable sources	Climate action
Water and resource intensity 	◆ Waste Score	Waste & recycling
	◆ Water Intensity Score	Water management
	◆ Wastewater quality	Water management

¹ The key indicator is used to determine the sustainability factor for the Merck Long-Term Incentive Plan (LTIP).

In order to assess the impacts of our products, technologies and business activities on the environment and society, we developed the **Sustainable Business Value (SBV) method**. It enables us to calculate the positive and negative impacts of our activities along our entire value chain, based on various sustainability criteria. The result is a monetary value that quantifies the benefit that product has for consumers, the environment and society, for instance. In 2022, we worked to make the method more user-friendly.

Our operational sustainability goals

Our three strategic goals make our long-term sustainability ambition clear. In order to achieve them, we have also defined operational sustainability goals. These are more specific, may apply for a shorter time frame and are aligned with our current business activities.

Roles and responsibilities

Our Executive Board has Group-wide responsibility for our sustainability strategy. It has adopted our three strategic goals.

The Group Corporate Sustainability unit is responsible for developing and shaping the sustainability strategy and it informs the Executive Board at least once a year about the progress made and the need for action. It is part of the Group function Corporate Sustainability, Quality and Trade Compliance (SQ), which reports to the Chair of the Executive Board. Consequently, overarching Executive Board responsibility for Environment, Social, Governance (ESG) also lies with the Chair of the Executive Board.

Group Corporate Sustainability is also responsible for coordinating the Merck Sustainability Board (previously Corporate Sustainability Council), which was set up in 2022. The Merck Sustainability Board is chaired by the Head of SQ and consists of representatives from our business sectors and from key Group functions, such as Procurement, Communications, as well as Controlling and Risk Management. Members from Europe, the United States and Asia provide input on regional sustainability aspects.

The Sustainability Board steers and monitors the Group-wide **implementation of the sustainability strategy**. It aligns the strategy with the individual business strategies, defines priorities and specifies globally applicable sustainability guidelines. In addition, the Sustainability Board ensures that the initiatives of our various business sectors, Group functions and subsidiaries align with our global sustainability strategy. Moreover, it recommends corresponding initiatives to the Executive Board. Within their respective area of responsibility, each Executive Board member is also responsible for sustainability, reviews the priorities that have been set, and decides on the implementation of initiatives.

In 2022, the Sustainability Board met nine times by video conference. The participants addressed the following topics: Implementing the sustainability strategy in the business sectors, key indicators for measuring and steering sustainability within the company, lowering greenhouse gas emissions, and supply chain due diligence requirements.

The measures adopted by the Sustainability Board are implemented by our line managers as well as by interdisciplinary project teams. To achieve our operational sustainability goals and depending on the topic, responsibility is assigned to specific teams, functions and business units. Those responsible for implementation exchange ideas and coordinate actions in an overarching committee. They identify synergies between the projects and align their direction with our sustainability goals.

An **external expert committee for sustainability** issues has been supporting our company since 2021. The Merck Sustainability Advisory Panel (MSAP) consists of six independent experts on sustainability-related topics from several institutions worldwide. They advise the members of the Sustainability Board on selected issues and assess the sustainability of our company's business models as well as planned activities. Moreover, they provide their external insights to help address societal and political challenges and developments that could be strategically relevant for our businesses. This panel is chaired by the Head of SQ.

The members of our Sustainability Advisory Panel

Glynda Bathan-Baterina 	Michael Braungart 	Todd Cort 
Deputy Executive Director of Clean Air Asia	Founder and Scientific CEO of EPEA Internationale Umweltforschung, Professor at Erasmus University Rotterdam and Leuphana University Lüneburg	Faculty Co-Director of both the Center for Business and Environment (CBEY) and the Initiative on Sustainable Finance (YISF) of the Yale School of Management
Maja Göpel 	Ioannis Ioannou 	Huiyao (Henry) Wang 
Scholar, speaker, author, advisor, Expert for sustainability policies and transformation research, Honorary Professor at Leuphana University Lüneburg	Associate Professor for strategy and entrepreneurship at the London Business School	Founder and President of Center for China and Globalization (CCG)

Sustainable Development Goals

The United Nations (UN) 2030 Agenda is a global plan to sustainably promote peace and prosperity and to protect our planet. Since 2016, countries and organizations have been working to implement this agenda with its 17 Sustainable Development Goals (SDGs). Our aim is for our business activities to create shared value that is both measurable and makes a recognizable contribution to society. We rely on the power of science and technology to make a positive impact.

Doing our part

Our **sustainability strategy** focuses on the five SDGs on which we have the strongest impact through our entrepreneurial actions.

SDG 3 – Good health and well-being

With our products, we positively impact the health and quality of life of people around the world. Through technological and scientific innovations, we are also helping to improve the health of underserved populations in low- and middle-income countries.

SDG 8 – Decent work and economic growth

We see it as our responsibility to respect human rights both within our company and along our supply chain. That is why we are dedicated to upholding appropriate and fair labor and social standards. We want to drive sustainable economic growth through progressive resource efficiency.

SDG 9 – Industry, innovation and infrastructure

We use our expertise in science and technology to make our products, processes and infrastructure sustainable. In addition, we want to promote the work of scientists worldwide with our innovations and support programs.

SDG 12 – Responsible consumption and production

We use resources efficiently and reduce waste and emissions. We pay attention to this in our product development and in our manufacturing activities. We also help our customers to manufacture their products more sustainably and efficiently and to achieve their own sustainability goals.

SDG 17 – Partnerships for the goals

We need strong partners in order to drive sustainable development within our company and beyond and to better meet societal challenges. We therefore collaborate with a wide range of organizations, companies, federations, and networks.

Through our sustainability strategy, we help **to solve challenges globally**, not just within these five SDGs. Our management approaches and projects also support **SDG 4** (Quality education), **SDG 5** (Gender equality) –

supplemented by diversity and inclusion, **SDG 6** (Clean water and sanitation), **SDG 7** (Affordable and clean energy), and **SDG 13** (Climate action).

Detailed information on our quantitative and qualitative contributions to the specific SDGs is provided in our **interactive SDG tool**.

Our contribution in detail

In our online report, we offer an **interactive tool** to visualize how we contribute to the SDGs in qualitative and quantitative terms.



Stakeholder dialogue

Engaging with our various stakeholders is crucial for us. Through this dialogue, we communicate our decisions and actions transparently in order to secure our social license to operate. We aim to unite divergent interests, as well as build and sustain trust.

Dialogue at various levels

Our key stakeholders include our employees, customers and business partners, various patients, the Merck family as the majority owner of the company, shareholders, and our suppliers. We pursue a continuous dialogue with our stakeholders and use this exchange to identify trends and developments in society and in our business fields so as to take them into account in our corporate responsibility endeavors.

Our stakeholders



We regularly conduct a systematic [materiality analysis](#) to learn about our **stakeholders' expectations**. In doing so, we identify the economic, social and environmental issues that are important to our stakeholders – and thus also to us.

We have established [guidelines and principles](#) for interactions with certain stakeholders, with a focus on compliance. For example, we have defined internal policies and review processes for [patient relationships](#), [interactions with healthcare stakeholders](#), and [business partnerships](#).

The Merck Sustainability Advisory Panel (MSAP), a group of external experts from various disciplines, has been advising us on the topic of sustainability since 2021. It enables our company to understand even more diverse stakeholder perspectives and helps us to develop our sustainability strategy further. More information on MSAP and its members can be found under [Sustainability strategy and goals](#).

We communicate regularly with our stakeholders through a variety of channels. For instance, we conduct stakeholder surveys and organize topic-specific dialogues at regional, national and international level. We also participate in discussions and informational forums as well as through our advocacy work and industry coalitions. Here are some examples of the dialogue formats used:

Employees

Employee engagement surveys

- [Unlocking our collective potential](#)
- [Empowering our employees](#)

360-degree feedback

- [Embracing conversation and dialogue](#)

Intranet "EVA"

Career fairs

- [Attracting and inspiring key talent](#)
- [Supporting the next generation](#)

Patient organizations

Patient Advisory Boards (PAB) to engage patient organizations in our clinical research

- [Close dialogue with patients and advocacy groups](#)

Member of various initiatives on the quality and efficiency of clinical trials

- [Close dialogue with patients and advocacy groups](#)

Employee representatives

Involvement of local employee representatives in company decisions

- [Our commitment: Employee representation](#)
- [A competitive compensation structure](#)

Science

Merck Ethics Advisory Panel (MEAP); Digital Ethics Advisory Panel (DEAP); TU Darmstadt

- [Merck Ethics Advisory Panel](#)
- [Digital Ethics Advisory Panel](#)
- [Fruitful strategic partnership](#)
- [Promoting the circular economy](#)

Communities

Discussion and information forums for residents in the vicinity of our sites

- [Roundtables and informational forums](#)

Healthcare systems

Collaborating with health authorities and other stakeholders as well as event series and network meetings

- [Engaging stakeholders](#)
- [Collaborating with patient advocacy groups](#)
- [Close dialogue with patients and advocacy groups](#)

Associations/Politics

Collaboration in working groups

- [Advocacy groups and industry coalitions](#)

Suppliers

Supplier surveys

- [Supply chain assessments and audits](#)
- [Auditing our mica supply chain](#)

Knowledge sharing

- [Ambassadors for sustainable procurement](#)

Shareholders

Annual General Meeting

- [Investor Relations](#)

Events for investors

- [Capital markets days](#)

Public authorities

Subject-specific cooperation

- [Pharmacovigilance in Access to Health](#)
- [Inspections and audits for drug safety monitoring](#)

Further information on stakeholder dialogues can be found in the individual report chapters.

Roundtables and informational forums

We hold roundtable discussions and informational forums for local residents at our major sites. Since 1994, we have been holding an annual public planning forum in Darmstadt to discuss the development of our site with members of the city council, local authorities and the community.

Involvement in initiatives

We collaborate with an array of civic organizations such as the World Environment Center ([WEC](#)) and also participate in other [initiatives](#) that share our commitment to responsible corporate conduct, such as [Chemie³](#) and [Responsible Care[®]](#).

Advocacy groups and industry coalitions

We actively participate in the **political process** and advocate our positions and views by engaging policymakers in a direct dialogue as well as through our work with industry coalitions. The major national and international industry associations in which we are members and also hold positions include:

- The German Federation of Chemical Employers' Associations ([BAVC](#))
- The European Federation of Pharmaceutical Industries and Associations ([EFPIA](#))
- The International Federation of Pharmaceutical Manufacturers & Associations ([IFPMA](#))
- The German Chemical Industry Association e. V. ([VCI](#))
- The European Chemical Industry Council ([Cefic](#))
- National Association of Manufacturers ([NAM](#))
- United States Chamber of Commerce ([USCC](#))
- Association of International Chemical Manufacturers ([AICM](#))

Political contributions

Our interactions with actors in the political sphere focus on political dialogue, information exchange and open and transparent knowledge sharing. Our guidelines stipulate that our interactions and contributions must comply with all applicable laws and must never aim to inappropriately influence or compensate officials for political favors. Even if permitted by local law, we do not make contributions in the form of donations to or sponsorships of political parties or related organizations. Furthermore, we do not make donations to or sponsor holders of public office or candidates for such, nor do we make other types of financial contributions.

In the United States, political action committees (PACs) have been set up through which our employees can donate money to support political candidates and organizations. These are not donations made by our company, but rather contributions made by employees. The contributions donated are reported to the U.S. Federal Election Commission and are fully disclosed.

Materiality analysis

With our annual materiality analysis, we identify the social, economic and environmental issues that are of special importance to us and our stakeholders. In 2022, we broadened this materiality analysis to show to the extent to which our business activities impact these issues, both positively and negatively.

Identifying the material issues

Materiality analyses help us define and verify the focus of our sustainability management efforts and the contents of our reporting. In 2022, we adapted our material analysis to the new requirements of the Global Reporting Initiative (**GRI**) reporting standards. In the analysis, we focused on actual and potentially positive and negative environmental, economic and social impacts of our business activities.

Based on the set of topics included in our **most recent materiality analysis**, we have already made an initial comparison with the potential topics of the EU Corporate Sustainability Reporting Directive (CSRD), which is expected to apply to our company as of the 2024 reporting year. In addition, we drew on internal data and secondary sources such as specialist literature, databases and publicly available ESG indices to investigate the ecological and social impacts of our work. In doing so, we looked not only at our own activities, but also at the impacts within our upstream and downstream value chain.

This data provided us with a basis for a quantitative assessment of the actual and potentially positive and negative impacts across the entire value chain, which we then used to derive a net assessment. We classified the negative impacts into four categories: low, moderate, significant, and critical. Similarly, we categorized the positive impacts as follows: low, moderate, significant, or substantial.

Internal subject matter experts validated the results in three topic workshops.

The following list of topics provides an overview of our actual and potentially positive and negative impacts. A topic was classified as being material if a positive or negative impact was at least categorized as “moderate”. A checkmark is used in the table to indicate this.

Compliance

(incl. anti-corruption, anti-competitive behavior, data protection and privacy, interactions with health systems, responsible marketing)

Negative impacts along the value chain



Positive impacts along the value chain

Chapter:

- [Compliance management](#)
- [Data protection & cyber security](#)
- [Interactions with health systems](#)

Due to the nature of our business activities, there is always the possibility of compliance-related risks resulting in potentially moderate negative impacts. In response, our company aims to ensure that all business activities adhere to the relevant laws, regulations and ethical standards. In addition, we do not limit our compliance management to the boundaries of our own company; we also include suppliers and our interactions with sales parties such as commercial agents, distributors and dealers.

Through our compliance policies, standards and procedures, we have comprehensive mitigation measures in place. We believe that there are no additional positive impacts that exceed the regulatory requirements for compliance management systems. Nevertheless, further efforts and continuous improvements are always analyzed and implemented to elevate the quality and effectiveness of our Compliance function.

Supply chain management

(incl. working conditions, equal opportunities, other work-related rights)

Negative impacts along the value chain



Positive impacts along the value chain



Chapter:

- [Supply chain management](#)
- [Mica supply chain](#)

Due to the nature of our business, we believe the potential negative impact regarding sustainable supply chain management to be significant. We have guidelines and measures in place to improve working conditions in the supply chain, in addition to careful monitoring through regular assessments and audits. These measures reduce the potential for negative impacts within our supply chain. At the same time, the possibility for us to influence external organizations is more limited than within our own company.

We actively contribute to a moderately positive impact in our supply chain by implementing measures beyond compliance.

Human rights

Negative impacts along the value chain



Positive impacts along the value chain

Chapter:

- [Human rights](#)

When it comes to our global supply chains, we pay close attention to human rights risks. We expect our suppliers to exercise the greatest care in dealing with human rights. Unlike in our own business activities, we can often only have an indirect influence along our supply chain to prevent negative impacts. Our principles have been set out in Group-wide policies, which we use to derive measures to avoid negative impacts. We classify our overall negative impacts with regard to human rights as moderate.

We aim to increase the awareness of our employees and suppliers on the topic of human rights and the associated due diligence obligations. To this end, we use various communication formats and offer training. In addition, we are active in various initiatives. Through these efforts, we make a positive contribution to the protection of human rights. Nevertheless, we assess our positive impacts on the protection of human rights outside our company as low.

Clinical studies

Negative impacts along the value chain



Positive impacts along the value chain



Chapter:

- [Clinical studies](#)

Our company is conducting clinical trials of its products. We address the potential risks of non-compliance and non-adherence with international laws through measures such as implementing strict standards, policies, audits and country selections. We therefore assess our potential negative impacts as moderate.

We conduct our clinical studies adhering to the highest ethical and scientific standards, going beyond the minimum legal requirements and implementing patient-focused drug development that more actively involves patients, caregivers, and their advocates. These activities ultimately improve the healthcare people receive and enable the delivery of new treatments for people worldwide. In addition, we make our research studies available to the public and other institutions to enhance the efficiency and effectiveness of medicine and treatments globally. Therefore, we believe the positive impact of our ethical conduct in the field of clinical studies to be significant.

Animal welfare

Negative impacts along the value chain



Positive impacts along the value chain



Chapter:

- [Animal welfare](#)

The use of animals is often a legal and regulatory requirement across many areas of our business to ensure the quality, safety and efficacy of our products and processes. Consequently, our use of animals inevitably creates a negative impact. However, we have implemented the 4Rs for animal-based research (replacement, reduction, refinement, and responsibility) and have set ourselves an ambitious goal of phasing out animal use and replacing animals with better alternatives on a long term basis. Until we achieve this goal, we accept the ethical standards as defined in our quality documents in animal science and welfare. We believe that through our strong mitigation measures, our negative impact on animal welfare is moderate.

We are developing and commercializing various technologies and systems in order to replace the use of animals by alternatives step-by-step, and eventually entirely. We also engage in external partnerships to promote animal welfare beyond our own company and contract research organizations and foster transparency in animal research communication. Additionally, we are involved in developing sustainable technologies, such as cultured meat, which could eventually support a global transition towards more sustainable nutrition systems and reduced meat consumption (and interlinked health and environmental impacts). Furthermore, we are working to replace fetal bovine serum and other animal-derived products in cell culture with animal-free alternatives. Therefore, we believe our positive impacts on animal welfare to be moderate.

Bioethics

Negative impacts along the value chain

Positive impacts along the value chain



Chapter:

- [Bioethics](#)

Our company is committed to ethical research. When we advise on innovations from a bioethical perspective, questions may well arise that go far beyond the applicable legislation. Such issues often only come to light after an in-depth ethical analysis. Therefore, there is a risk that we may not always behave in a bioethically correct manner along our value chain. Our goal is to minimize these potential negative impacts by developing clear guidelines and establishing regulations for bioethical issues. Thus, we consider the company-specific negative impacts on society to be low.

The Merck Ethics Advisory Panel for Science and Technology enables our various business units to adequately address (bio)ethical issues that arise in connection with our scientific and technological innovations. Through our work, we demonstrate how bioethical principles and guidelines can be considered and integrated in scientific and technological progress in a corporate context. The MEAP provides ethically sound guidance – especially for cases of scientific and technological progress that are not yet covered by existing guidelines. With guidelines such as the Genome Editing Principle or the Stem Cell Principle, we help to establish ethical positions

beyond the boundaries of our company and thus assess our positive impacts on responsible research as moderate.

Digital ethics

Negative impacts along the value chain

Positive impacts along the value chain



Chapter:

- [Digital ethics](#)

Non-compliance with digital-ethical standards poses risks for people and the environment. We use various initiatives to support digital ethics and assess negative impacts attributable to our company as low.

Through our CoDE and the Digital Ethics Advisory Panel (DEAP), we address ethical issues resulting in the area of data & digital. We thus have a positive cross-border impact, which sets an example for the further development of ethical standards beyond the border of our company. Overall, we classify our positive impacts as moderate.

Sustainable products

(incl. product design, packaging, innovation and R&D)

Negative impacts along the value chain



Positive impacts along the value chain



Chapter:

- [Sustainable innovation & technology](#)
- [Products & packaging](#)

Manufacturing our products creates a negative environmental footprint owing to the use of a large variety of resources. We reduce this impact through internal measures, such as utilizing more sustainable raw materials and packaging and by researching innovative and sustainable materials. Additionally, we have launched several initiatives to foster sustainable resource use and develop and implement sustainable product alternatives. Therefore, we believe we have only a moderately negative impact on this topic.

We expect to see the largest potential positive impacts from a project that strategically incorporates sustainability criteria into our product development. However, we will only realize the positive impacts of these actions in the future. In the short-term, we aim to create a positive impact by implementing the SMASH packaging strategy, which can directly contribute to more sustainable products and packaging design. We recognize that most of these activities will mitigate negative impacts but will not result in a positive impact overall. However, one particular initiative that generates a positive impact is our DOZN™ tool, which enables our customers to identify toxic or hazardous materials and suggests sustainable alternatives. Additionally, the investment activities of M Ventures may contribute to more sustainable production processes and products while supporting innovative business ideas. Partnerships with customers also help to develop more sustainable products and enable other industry players to act more sustainably. Therefore, our current positive impact on the topic of sustainable products can be classified as moderate.

Health for all

(incl. access to health, prices of medicines, health awareness)

Negative impacts along the value chain

Positive impacts along the value chain



Chapter:

- [Global health](#)
- [Innovation sharing](#)
- [Prices of medicines](#)
- [Health capacity & awareness](#)

We strive to make health solutions affordable and accessible and collaboratively work with partners and stakeholders to speed up access to quality health solutions for all – focusing on low- and middle-income countries. As part of these efforts, we have implemented patient access programs and our equitable pricing policy to enable more patients to afford our product portfolio. We have also invested in initiatives to strengthen health systems and improve access to health. Our efforts have been recognized by external assessments and rankings. When taking our measures and projects into account, we believe to have a low negative impact on the topic of health for all.

We address unmet global health challenges. For example, we make substantial investments to eliminate schistosomiasis as a public health problem. Furthermore, we embed initiatives to define new models to ensure equitable and sustainable access to our innovations for neglected tropical diseases. We are also engaged in the fight against malaria, developing and providing access to new drugs and tools supporting its prevention, control and elimination. We also implement capacity and awareness-building initiatives. Therefore, we believe that we have a substantial positive impact on health for all.

Chemical product safety

Negative impacts along the value chain



Positive impacts along the value chain



Chapter:

- [Chemical product safety](#)

To mitigate potential negative impacts of hazardous chemicals, we have strict guidelines and measures in place that ensure safe working conditions. Some uncertainty exists regarding the state of chemical product safety at the supplier level. For users of our products, we provide the necessary information for dealing with hazardous substances safely. Therefore, the potential negative impact is classified as **moderate**.

Our commitment to chemical product safety is one of the cornerstones of our business as we process and handle hundreds of thousands of hazardous chemicals. We continuously improve our activities around product safety, thus benefitting the environment as well as our customers and employees. In addition, we proactively and regularly develop, assess and implement new safety-related data and information and adapt our risk mitigation measures accordingly. Consequently, our positive impact is classified as **substantial**.

Patient safety

**Negative impacts
along the value chain**



**Positive impacts
along the value chain**



Chapter:

- [Patient safety](#)

Patient safety is fundamental to delivering quality health services and therefore has high relevance throughout the Healthcare business sector. Our company follows international guidance, standard procedures and all relevant pharmacovigilance regulations to mitigate the potential negative impacts on patient safety. We believe our negative impact on the topic of patient safety to be moderate.

We collaborate with health authorities in low- and middle-income countries to help improve their pharmacovigilance systems and operating environments. The measures are widely implemented and benefit patients around the world. In 2022, we included the topic of patient safety in the update of our Supplier Code of Conduct, which we will publish in 2023. Therefore, we believe our positive impact on the topic to be substantial.

Product-related crime

**Negative impacts
along the value chain**



**Positive impacts
along the value chain**



Chapter:

- [Product-related crime](#)

Illegal, counterfeit and substandard medicines pose a significant risk to public health, and chemicals may be misused for criminal purposes such as manufacturing illicit drugs. Therefore, we have enacted various measures to mitigate the risk of product-related crime, reducing the potential negative impact to moderate.

In addition, our actions and initiatives to reduce the risks associated with product-related crime often exceed the minimum legal requirements. For example, we support authorities in detecting and resolving cases of product-related crime. We also provide training for employees and business partners to strengthen their competencies in detecting product-related crime. Overall, we assess our positive impacts as significant.

Attractive employer

(incl. attracting employees, recruiting and retaining employees)

Negative impacts along the value chain

Positive impacts along the value chain



Chapter:

- [Career with us](#)
- [Corporate culture](#)

A negative working environment can negatively impact quality and productivity and poor work-life balance may be detrimental to employees' physical, mental and emotional well-being. For this reason, we have implemented several charters, policies and standards to create an attractive and healthy working environment for all employees. We believe the negative impact on the topic of attractive employer to be low.

In addition, we are enhancing our attractiveness as an employer, for instance by creating flexible working environments and taking beneficial measures for our employees extending well beyond compliance with national laws worldwide. Therefore, we believe our positive impact on the topic of attractive employer to be significant.

Employee development

(incl. employee training and education, good leadership)

Negative impacts along the value chain

Positive impacts along the value chain



Chapter:

- [Career with us](#)
- [Corporate culture](#)

Employee development and vocational training play a crucial role in enabling us to improve our employees' skills. We have a variety of leadership measures in place to mitigate potential monetary and non-monetary consequences that could be caused by deviant behaviors, stress, anxiety, turnover intentions, or poor organizational performance. Therefore, we believe the potential negative impact on the topic employee development to be low.

In many cases, we go beyond compliance with our employee development and vocational training approaches. We believe we have a significantly positive impact on the topic of employee development as a result of building social capital through our employee training and personal development opportunities.

Diversity and inclusion

(incl. equal opportunity, non-discrimination, inclusive culture)

Negative impacts along the value chain

Positive impacts along the value chain



Chapter:

- [Diversity, equity & inclusion](#)

Disrespecting equal opportunities and non-discrimination can lead to human rights violations in the workplace and therefore have potential negative impacts on humans and society. Our efforts to promote and support diversity, equity, inclusion, non-discrimination, and LGBTQI+ rights are extensive, which is why we believe our negative impact on diversity, equity and inclusion to be low.

Our aspiration to build an inclusive culture in which employees feel welcome and valued extends well beyond compliance with existing laws and regulations. For example, we have more than 60 internal DE&I employee groups and networks worldwide that actively contribute to our DE&I strategy. Therefore, we believe our positive impact on DE&I is significant.

Occupational health and safety

Negative impacts along the value chain

Positive impacts along the value chain



Chapter:

- [Health & safety](#)

Health and safety aspects play a major role in the manufacture of chemical and pharmaceutical products – especially for employees working in research and production. To reduce health and safety risks for our employees globally, we have introduced Group-wide standards, initiatives and training programs. We therefore estimate negative impacts on health and safety to be low.

Our activities aim to ensure the safety of the people who work for us since we continuously assess and reduce safety risks. Through training measures, we are also raising awareness both of occupational hazards and behaviors that promote health and safety. By taking various measures, we encourage our employees to live a healthy lifestyle. These measures go beyond compliance with regulations and mitigating negative impacts. Thus, we believe our positive impacts to be moderate.

Non-GHG emissions

Negative impacts along the value chain



Positive impacts along the value chain

Chapter:

- [Environmental protection](#)

Manufacturing processes can release emissions into the air, water or soil. Where needed, we install exhaust air purification systems or wastewater treatment plants to reduce or avoid emissions. Despite these measures such emissions can still be unintentionally released. Additionally, our customers may incorrectly dispose of our products. This could potentially lead, for example, to a build-up of pharmaceuticals or other chemicals in the environment and leave traces of active pharmaceutical ingredients in water. In response, we have taken various measures to mitigate these risks so that we believe our negative impacts of our non-GHG emissions to be moderate.

In the area of non-GHG emissions, we have various mitigating measures in place. Beyond this, we could not identify any additional positive impacts on society or the environment.

Biodiversity

Negative impacts along the value chain



Positive impacts along the value chain

Chapter:

- [Environmental protection](#)

Our production sites are predominantly located in industrial areas with low biodiversity value. Nevertheless, unintentional chemical leakages can contaminate soil or water resources and damage ecosystems. Therefore, we have technical and organizational measures in place to prevent the release of substances into the environment. For example, we are sealing relevant surfaces at our sites to protect soil, groundwater and the associated ecosystems from chemical spillages. These efforts may impact habitats and animals that potentially live in unsealed surfaces. Water use and the release of greenhouse gases are also linked to biodiversity loss. In addition, as a manufacturer, we use various raw materials and understand that their extraction and processing can negatively impact biodiversity. Overall, due to our technical and organizational measures that are in place, we classify our negative impact on biodiversity as moderate.

Some of our sites are biodiversity-certified and assessed annually. These assessments show that biodiversity at these sites is increasing. In addition, various other sites are making efforts to foster biodiversity. Therefore, we believe to have a low positive impact on biodiversity.

Climate action

(incl. GHG-emissions, energy efficiency, renewable energies)

**Negative impacts
along the value chain**



**Positive impacts
along the value chain**

Chapter:

- [Climate action](#)

Company-specific GHG emissions (Scope 1 and 2) contribute to global environmental degradation. Overall, the GHG emissions associated with our purchased goods and services (part of Scope 3) represent the largest share of our total carbon footprint. We believe our negative impact on the topic of climate change to be significant.

We are in the early stages of a long carbon-reduction journey. Therefore, we are investigating and implementing a variety of mitigation measures to significantly reduce our carbon footprint. We also aim to generate value for the environment via initiatives such as signing Virtual Power Purchase Agreements (VPPAs) that bring additional renewable electricity to the grid. Overall, we classify our positive impact regarding GHG emissions as low.

Water management

**Negative impacts
along the value chain**



**Positive impacts
along the value chain**

Chapter:

- [Water management](#)

As a manufacturer of chemical and pharmaceutical products, we require significant volumes of water. The extraction of water reduces its availability in the natural environment and for other water users. Additionally, there is always a risk of negatively impacting the health and viability of ecosystems due to wastewater discharge and the potential pollution of water and soil. We have many initiatives in place to reduce our impact on water quality and availability. For example, we have implemented strict global standards and requirements at all of our manufacturing sites for wastewater treatment. Some of these requirements also exceed our own business, such as the Responsible Minerals Sourcing Charter, which requires suppliers to have wastewater management systems and processes in place. These activities mitigate our negative impacts; therefore, we believe our overall negative impacts on water to be moderate.

With respect to our water management activities, we have strong mitigating measures in place. These are primarily aimed at complying with regulations. Beyond this, we could not identify any additional positive impacts on society or the environment.

Waste & recycling

Negative impacts along the value chain



Positive impacts along the value chain

Chapter:

- [Waste & recycling](#)

The use of chemical and pharmaceutical products is characterized with a high risk of improper use, wrong disposal and particularly in developing countries with weak waste management systems. For waste generated within our own operations, we mitigate negative impacts by adhering to regulations as well as fostering education, waste reduction and recycling initiatives. We classify our overall negative impacts to be moderate.

Regarding waste and recycling, we have strong mitigating measures in place. As these activities concentrate on compliance and the mitigation of negative impacts and do not specifically aim at generating value for environment or society beyond our own scope, we did not identify positive impacts.

Plant, process and transport safety

Negative impacts along the value chain



Positive impacts along the value chain

Chapter:

- [Plant, process & transport safety](#)

The pharmaceutical and chemical sector is associated with a particular risk of pollutions to air, soil, and water through chemical spills. We have implemented strong standards and safe manufacturing practices at all sites worldwide to significantly reduce the risk of a leakage into the environment at manufacturing locations, during storage and transportation. Therefore, we believe the potential negative impact of our company is moderate.

Our regulations and measures do not only fulfill local legal requirements but go beyond these. We believe our positive impact on the topic plant, process and transport safety to be low.

The set of topics covered by the materiality analysis did not change in comparison with 2021. In the analysis, "Tax Governance" once again fell below the materiality threshold. Nevertheless, we have included the relevant information in this report as we expect that tax matters will become increasingly important to our stakeholders in the future. In addition, we report on the topic of "Community Engagement" as we have been supporting and running a wide range of activities and campaigns for many years now. We would like to continue to play an active role in the community and to continue reporting on our outreach efforts.

Section 289c (3) of the German Commercial Code requires us to report on topics of double materiality in a combined **non-financial statement**. Pursuant to section 289c (3) of the German Commercial Code, the principle of double materiality requires companies to disclose non-financial information when the following two criteria are met: First, the information makes it possible to understand how the company's business activities affect non-financial aspects. And second, the information is necessary to understand the company's course of business, results of operations and economic position.