



Sustainability Report

2021

Contents

Editorial	3
About this Report	4
Sustainability Strategy.....	5
Performance Report	
1. The Company	18
1.1 Corporate Profile	18
1.2 Corporate Structure.....	18
1.3 Value Added.....	19
1.4 COVID-19	19
2. Corporate Governance.....	20
2.1 Corporate Governance Practices and Principles	20
2.2 Behavioral Principles (BASE)	20
2.3 Transparency.....	20
2.4 Bioethics	21
2.5 Steering and Management Systems	21
2.6 Compliance.....	22
2.7 Tax.....	26
2.8 Risk Management.....	26
2.9 Sustainability Management	27
2.10 Stakeholder Dialogue.....	29
Focus on: Agriculture	32
Challenges and Approaches	32
Plant Breeding.....	33
Plant Biotechnology.....	34
Enabling a Climate-Smart Agriculture	35

Crop Protection Environmental Impact Reduction (CP EIR)	36
3. Product Stewardship	39
3.1 Management Approach	39
3.2 Regulatory Conditions	39
3.3 Assessments and Testing	40
3.4 Animal Welfare	41
3.5 Protection against Product Counterfeiting	42
3.6 Crop Science.....	45
3.7 Biodiversity	53
3.8 Pharmaceuticals and Consumer Health	55
Focus on: Access to Healthcare	60
4. Procurement.....	64
4.1 Management Approach	64
4.2 Sustainability in the Supply Chain	65
5. Human Rights.....	69
5.1 Management Approach	69
5.2 Implementation Measures.....	70
5.3 Engagement	72
6. Employees.....	73
6.1 Management Approach	73
6.2 Employee Data	75
6.3 Inclusion and Diversity.....	77
6.4 Fair Compensation.....	78
6.5 Learning and Training	79
6.6 Employee Development and Integration	80
6.7 Work-Life Integration.....	82
6.8 Health Provision	83
6.9 Employee Rights	83

7. Climate Protection	84
7.1 Management Approach	84
7.2 Climate Strategy.....	84
7.3 Risk and Opportunity Analysis.....	87
7.4 Greenhouse Gas Emissions	90
7.5 Energy	91
8. Environmental Protection and Safety	93
8.1 Management Approach	93
8.2 Air Emissions	95
8.3 Water and Wastewater	95
8.4 Waste and Recycling	98
8.5 Environmental Incidents.....	99
8.6 Occupational Health and Safety	99
8.7 Biosafety.....	102
8.8 Plant Safety	102
8.9 Transportation and Storage Safety	104
8.10 Emergency and Crisis Management	106
9. Charitable Giving and Foundations.....	107
9.1 Management Approach	107
9.2 Our Giving in 2021	107
9.3 Bayer Foundations	109

Further Information

Selected Benefits for Employees (by Country)	113
Independent Auditor's Report	114
GRI Content Index.....	116
Glossary	125

We Are Resolutely Driving Sustainable Transformation

Dear Bayer stakeholders,

Time is running out. We have entered the decisive decade for achieving the Sustainable Development Goals (SDGs) of the United Nations by 2030. If 2021 has shown us one thing, it is the urgency of the transition toward a sustainable economy and society.

The economy grew again last year in many parts of the world. This is encouraging, and is creating the basis for sustainable development, particularly in low- and middle-income countries (LMICs). At the same time, global emissions have also increased once more, revealing the central dilemma in which we find ourselves. At Bayer, we experienced dynamic growth in 2021 and at the same time reduced emissions. That is an important signal.

The past year also again demonstrated the effects of the climate crisis: extreme heat waves in regions such as California and southern Europe, and destructive rainfall in China, Australia and Germany. The pressure to act has therefore further increased. This is confirmed by in-depth analyses undertaken last year, including a judgment by the Federal Constitutional Court of Germany. Against this backdrop, the climate summit in Glasgow delivered encouraging resolutions – but also showed that we still have a long way to go.

That is true for Bayer as well. We regard sustainability not as an additional activity, but rather as a core element of our strategic and normative alignment. We continued to resolutely push developments in this regard in 2021, and achieved significant progress:

- // We set ourselves an internal carbon price of €100 per metric ton, which is taken into account in our capital expenditure projects.
- // We have signed contracts for more than 600,000 MWh of electricity from renewable energies and thus increased their share of the electricity mix to about one quarter.
- // We reduced our greenhouse gas emissions by 11.5% and are on track to become climate-neutral in our own operations by 2030.
- // Across the divisions, we reached an additional 7.5 million people in the context of our sustainability targets.
- // In 2022, the Supervisory Board established a committee to systematically assess our contribution to the SDGs.

We are also making progress as regards the sustainable development of our businesses: at Crop Science we are advancing carbon farming as a field of business in which farmers capture carbon in the soil, for which they are financially rewarded. We have entered into partnerships with Microsoft and others that are geared toward further developing the sustainable agriculture model. More and more smallholder farmers are benefiting from our programs in developing countries.

At Pharmaceuticals, we enable access to modern contraceptives for millions of women, as a crucial prerequisite for a self-determined life. We are also investing more than €400 million in the construction and expansion of facilities in Costa Rica and Finland for the production of long-acting contraceptives.

At Consumer Health, we are investing €100 million to make our products more sustainable. We will make the packaging for all of our customer products recyclable or reusable by 2030. And we are also advancing the goal of enabling more people to gain access to everyday health care, for example through our collaboration with the NGO Vitamin Angels.



Bayer CEO Werner Baumann

Partnerships generally play a key role in generating impact. A prime example of that is the LEAF Coalition, in which as a founding member together with governments, NGOs and other companies we were able to mobilize more than US\$1 billion to protect rainforests in Asia, Africa and Latin America in 2021. In this way, we are helping to reach the goal resolved by the world community of stopping global deforestation.

Bayer is committed to transparency and reliability. And like almost no other company, we continuously invest in research, and thus in tomorrow's innovations. That has always been the secret of Bayer's success, and it is also the key to transitioning to a sustainable economy. We want to make an important contribution to the SDGs with our businesses – guided by the principles of the U.N. Global Compact and in keeping with our vision "Health for all, hunger for none."

And we want to be judged on that objective.

Sincerely,

Werner Baumann
CEO Bayer AG
Chief Sustainability Officer

About this Report

With this Sustainability Report, Bayer aims to provide transparent and in-depth insights into both its sustainability strategy and its sustainability performance. The report supplements the nonfinancial statement pursuant to the CSR Directive Implementation Act (CSR-RUG) that is published in the combined management report of the [2021 Annual Report](#).

The reporting period is the 2021 fiscal year. The closing date for all data and facts was December 31, 2021.

The Bayer Group's sustainability reporting has been aligned to the guidelines of the [Global Reporting Initiative](#) (GRI) and the 10 principles of the U.N. Global Compact (UNGC) since 2000. This report has been prepared in accordance with the GRI Standards: Core option. This report also serves as a Communication on Progress in line with the U.N. Global Compact. We also take into account the relevant requirements of the Sustainability Accounting Standards Board (SASB). A [summarized index](#) according to the three SASB Industry Standards relevant to us – "Biotechnology & Pharmaceuticals," "Chemicals" and "Agricultural Products" – can be found on our website. In our climate reporting we follow the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) and publish a [separate index](#) in PDF format also on our website.

We also use, for example, the international recommendations and guidelines of the OECD and ISO 26000 as a guide when defining and selecting nonfinancial indicators and in our reporting. In selecting and measuring our key data, we take into account the recommendations of the Greenhouse Gas

Protocol with respect to greenhouse gas emissions and those of the European Federation of Financial Analysts Societies, the World Business Council for Sustainable Development, the European Chemical Industry Council (CEFIC) and the International Council of Chemical Associations (ICCA) with respect to other nonfinancial indicators.

Data collection and reporting thresholds

The selection of reported content is based on the results of our materiality analysis and the requirements of the GRI Standards.

Reporting of the Group's HSE data includes all fully consolidated companies in which we hold at least a 50% interest. Data on occupational injuries is collected at all sites worldwide. Environmental indicators are measured at all environmentally relevant production, research and administration sites. We consider all sites to be environmentally relevant whose annual energy consumption is greater than 1.5 terajoules.

Several indicators (particularly related to employees and procurement) are reported only for our significant locations of operation in line with the requirements of the corresponding GRI disclosures. In 2021, this covered 16 countries that accounted for more than 80% of total Bayer Group sales.

Where information is only relevant for parts of the Bayer Group, we refer to this. In addition, deviations are indicated in the footnotes of the relevant tables and graphs.

External verification

The auditing company Deloitte GmbH Wirtschaftsprüfungsgesellschaft (Deloitte), Munich, Germany, subjected this Sustainability Report of Bayer AG, Leverkusen, for the fiscal year from January 1, 2021, to December 31, 2021, to an audit with limited assurance.

Additional information

- // As the indicators in this report are stated in accordance with commercial rounding principles, totals and percentages may not always be exact.
- // References to websites are indicated by an underlined word.
- // This report is issued in German and English.

The Sustainability Report is published in PDF format together with the [2021 Annual Report](#), the SASB Index and the TCFD Index on Bayer AG's website.

The next Sustainability Report is due to be published in February 2023.

Sustainability – Part of Our Corporate Strategy

A growing and aging world population and the increasing burden on ecosystems are among the biggest challenges humanity is facing. As the world's leading healthcare and nutrition company, Bayer can contribute more than any other enterprise to solving these global challenges through its businesses: with our activities and our products, we help to sustainably improve farming and access to nutrition and healthcare – and thus people's lives. At the same time, we are reducing our own ecological footprint and that of the agricultural industry.

Basis of our strategic and normative compass

For us, sustainability means more than just corporate responsibility – it safeguards Bayer's future growth. Sustainability is therefore an essential component of our corporate strategy, our business activities, our corporate values and the way in which we operate our businesses. Sustainability is at the center of our corporate vision "Health for all, hunger for none" and comprises the following three core elements for all divisions:

- // Inclusive growth and value added for society
- // Reduction of our ecological footprint
- // Responsible business practices along our value chain

We deploy our innovation power to develop sustainable solutions for the pressing problems of our time. For example, we have established sustainability criteria in our own research and development. Furthermore, we invest in disruptive life science technologies with our [Leaps by Bayer](#) unit and promote social innovations with our foundations.

Contribution to the Sustainable Development Goals

Our strategy is aligned to the global Sustainable Development Goals (SDGs) of the United Nations, the attainment of which is targeted for 2030.

The global community lags behind the goals in many areas, which is why the contributions of corporations are all the more important. We can have a significant impact owing to our portfolio, our global reach and our innovation power. In this context, we support particularly those Sustainable Development Goals where there is a pressing need to act and where we can make the greatest contributions through our businesses and their sustainable transformation.

Agriculture

In the area of agriculture and nutrition, our innovative products and services help to better feed a growing world population and end hunger (→ SDG 2). We are targeting inclusive growth in low- and middle-income countries (LMICs). As farming is often the only source of income in LMICs, we also help fight poverty through our engagement with smallholder farmers (→ SDG 1).

Through innovative solutions that promote sustainable, low-emission and resilient farming, we help to protect the climate, the environment and biodiversity (SDGs 13, 15). We also want to reduce the consumption of water resources (→ SDG 6) in agriculture in the future.

Healthcare

In healthcare, we help to prevent and treat diseases through the businesses of our Pharmaceuticals and Consumer Health divisions. We reach people all over the world with our products and solutions. We align ourselves here also to the needs of people in LMICs, for whom we make existing products and services accessible and affordable. We systematically advance innovations and increase the resilience of our production and supply chains. In this way, we help to improve people's health and well-being (→ SDG 3).

Climate protection and improved resilience

Our decarbonization goals are in line with the Paris Climate Agreement. To achieve them, we implement extensive measures to fight climate change and its effects (→ SDG 13). For example, we are reducing our own greenhouse gas emissions (Scope 1 & 2) and greenhouse gas emissions along our value chain (Scope 3). Our reduction goals were confirmed by the Science Based Targets initiative (SBTi). Furthermore, we endeavor to achieve a net zero greenhouse gas emissions target throughout our value chain by 2050. Our climate strategy comprises far-reaching measures. For more information, please see Chapter 7. Climate Protection.

We also help to increase Bayer's own resilience and that of our customers against the effects of climate change. In addition, we develop transformative solutions that enable agriculture to emit fewer greenhouse gases and instead help to capture CO₂. This makes agriculture an important enabler in the fight against climate change. For more information, please see the Focus on: Agriculture chapter.

Gender equality

We promote inclusion and diversity throughout Bayer, including gender equality (→ SDG 5). We achieve the greatest impact through our business, particularly through our products to promote women’s health and family planning or through our targeted support for female smallholder farmers as entrepreneurs in LMICs. We also promote equality in our own company and aim to achieve gender parity at all management levels by 2030.

Respect for human rights

We fully respect human rights. Our human rights strategy will address human rights risks and effects. Furthermore, it will cover our commitment to achieving our corporate vision and the SDGs. For more details, please see Chapter 5. Human Rights.

Anchoring Group targets in the compensation system

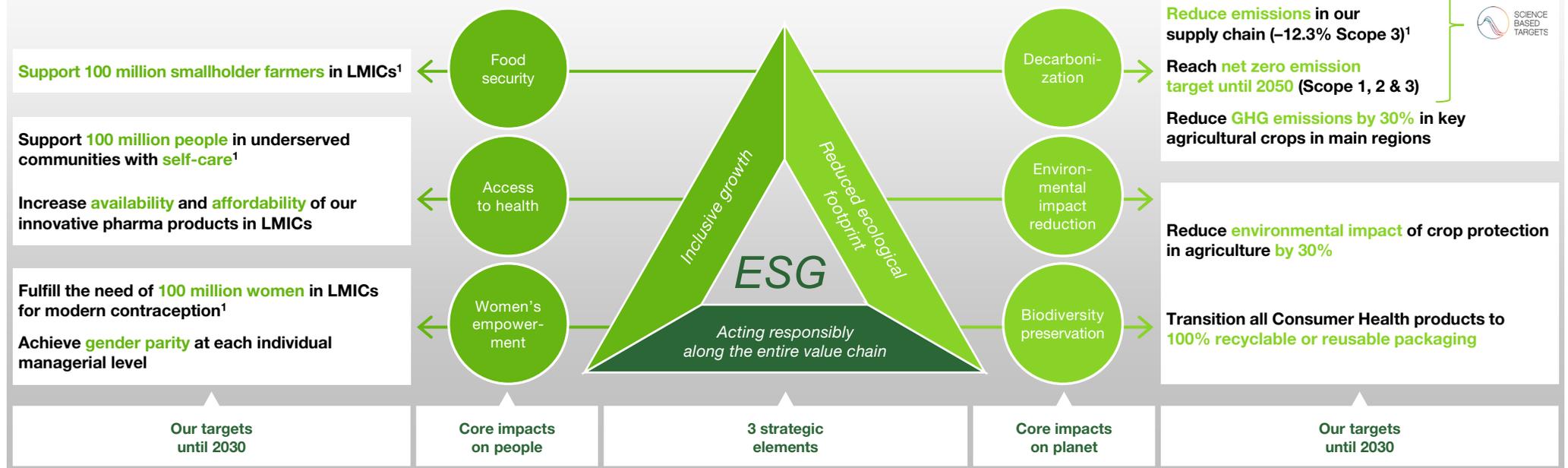
We have set ourselves ambitious targets and regularly evaluate our progress. Group-wide goals for inclusive growth and decarbonization are accounted for in the long-term variable compensation of our Board of Management and our managerial employees. For more information, please see the Compensation Report in the [2021 Annual Report](#).

Sustainability: Strategic Elements, Impacts and 2030 Targets

SDGs on which we have the greatest impact through our businesses



Our vision: Health for all, hunger for none



LMICs: low- and middle-income countries; ¹ These targets are accounted for in the long-term variable compensation of the Board of Management and the managerial employees.

Transformation toward sustainable agriculture

Global agriculture and food systems are confronted with major challenges, such as climate change, water scarcity and biodiversity loss. At the same time, the world population continues to grow and millions of people suffer from hunger and poverty.

We work toward achieving sustainable agriculture that addresses the biggest challenges with innovation – an agriculture that is capable of feeding a growing world population while conserving natural resources (→ SDG 2); an agriculture that emits fewer greenhouse gases and instead contributes to binding CO₂; and an agriculture that protects biodiversity and helps farmers worldwide to deal with the effects of climate change and become more resilient. The focus here is on increasing yields through innovative seeds, products and services, as well as on disseminating agricultural practices and cultivation forms with ever-reduced environmental impact.

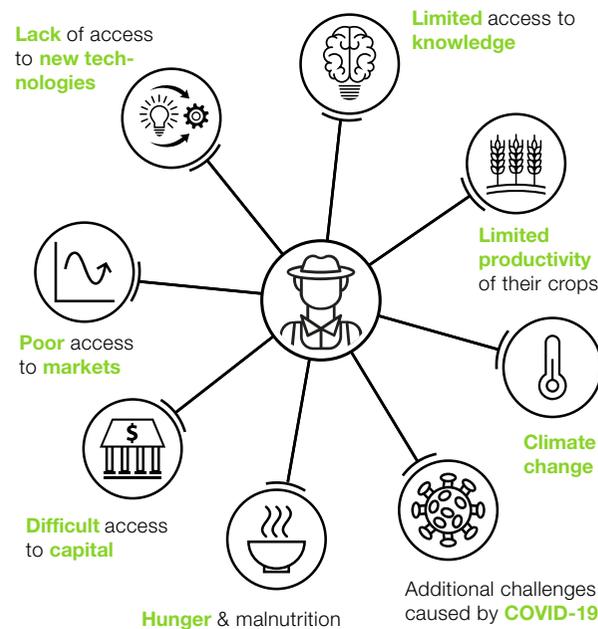
Smallholder farmers

The 550 million or so smallholder farmers worldwide play a central role in improving the quality of life in LMICs and thus implementing our vision “Health for all, hunger for none.” They form the backbone of food security in many rural regions of the world.

Many of these smallholder farmers are facing significant challenges, however. Their yields are often low because they do not have access to high-quality crops and practical knowledge about more productive and environmentally friendly cultivation methods. Often they do not have affordable financing opportunities and access to markets on which they can sell their products at appropriate prices. At the same time, smallholder farmers are also highly exposed to

the impacts of climate change and increasingly to harvest losses. For all of these reasons, they are often not able to achieve a stable income through farming.

Typical Challenges Smallholder Farmers Are Facing



As the world’s leading company in the field of crop science, we will support a total of 100 million smallholder farmers in LMICs by 2030 by improving their access to agricultural products and

services – also together with our partners. To achieve this, we are increasing the range of our commercial efforts and strategic initiatives tailored to the needs of smallholder farmers. Our strategy to strengthen smallholder farmers is embedded in our regional commercial strategies.



Target 2030:

Support 100 million smallholder farmers in LMICs

// 2019 reference year: 42 million

// 2020 status: 45 million

// 2021 status: 49 million

In 2021, together with our partners, we supported 49 million smallholder farmers in LMICs with our products and services – four million more than in the previous year. We achieved this – despite the various waves of the ongoing pandemic – by significantly expanding business activities, especially in Asia/Pacific.

We are successively expanding our product and service portfolio for smallholder farmers, including innovative business models and digital solutions across the entire crop system. This includes solutions from the areas of digital farming and market access, a differentiated product portfolio, biotechnological solutions and the formation of partnerships along the value chain.

We aim to create market models that generate benefit and reduce business risks for all partners in the value chain, including smallholder farmers. This is implemented by helping

smallholder farmers gain access to the agricultural value chain and increase productivity and income, as well as by creating resilience to ensure the long-term food security of smallholder farmers, their families and rural regions in the LMICs.

Bayer does not plan to assert its intellectual property rights against smallholder farmers who save seeds on their farms for private and noncommercial use in order to avoid extreme poverty. Instead, we want to work together with these smallholder farmers to introduce them to the world of commercial farming and enable them to improve their livelihoods.

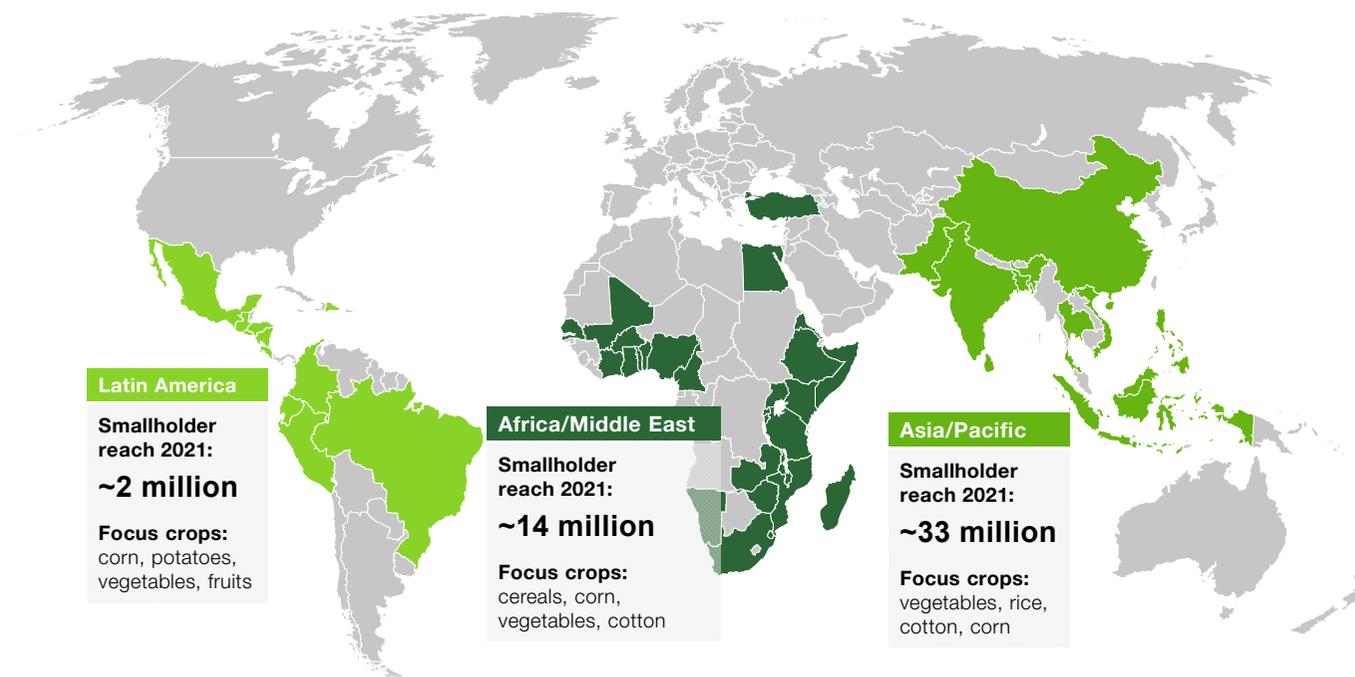
Leading position on the Access to Seeds Index

The Access to Seeds Index of the World Benchmarking Alliance (WBA) compares seed producers' efforts to help smallholder farmers in LMICs. The 2021 index compared 67 seed companies in three regions. Bayer took the top spot in the Western and Central Africa and Eastern and Southern Africa regions and placed third in the South and Southeast Asia region, in part for our establishment of support programs to strengthen smallholder farmers.

Value chain partnerships

As no one can overcome every challenge alone, we establish crop value chain partnerships to provide smallholder farmers with high-quality inputs, agronomic knowledge, cost-effective financing and risk mitigation solutions, as well as market access to sell their products. These include collaborations with government research institutes, nongovernmental organizations (NGOs) and international financial institutions. We have already forged a number of key partnerships:

Smallholder Reach 2021



Better Life Farming

Better Life Farming is a long-term partnership between Bayer, the International Finance Corporation (IFC, part of the World Bank), Netafim and more than 20 local public and private partners as well as NGOs. This partnership helps smallholder farmers make their farms commercially profitable and sustainable.

Within the partners' network, the Better Life Farming centers improve access to agricultural products in remote rural regions through the so-called last-mile delivery model. They also offer access to agricultural education and consulting, adapted farming solutions, financing, market access and fair prices. We are also rolling out

special approaches for the advancement of women such as the targeted development of women as agricultural entrepreneurs.

In 2021, we tripled the number of Better Life Farming centers in India, Indonesia and Bangladesh to more than 1,600. We are planning further growth in these regions and also intend to expand them to Africa and Latin America.

Better Life Farming was honored for its exemplary stakeholder engagement by the International Public Private Partnership Forum of the United Nations Economic Commission for Europe (UNECE) at its Build Back Better Infrastructure Awards 2021.

Noncommercial partnerships

The Bayer Foundation funds the Digital Farmer II program of our partner Mercy Corps AgriFin together with the Bill & Melinda Gates Foundation. This leverages the spread of digital technologies to develop more efficient digital information and financial products and services for smallholder farmers. The goal is for the program to serve up to five million farmers in Nigeria, Kenya and Ethiopia by 2025. In 2021, we reached some 360,000 smallholder farmers via noncommercial partnerships.

Agriculture and climate change

Climate change is presenting major challenges for farmers worldwide. Crop losses not only threaten the farmers' future and that of their families, but also pose a risk to the global food supply. At the same time, the cultivation of food produces greenhouse gas emissions. Farming therefore plays a key role on the road to a climate-neutral global economy (→ SDG 13).

Through innovations in the areas of seeds, crop protection, agricultural practices and digital solutions, we are helping to make farming both climate-neutral and climate-resilient. Also here, we work together with farmers and partners throughout the value chain.

Decarbonization

We aim to reduce greenhouse gas emissions from our highest-emitting crops by 30% in our sales regions by 2030. Key levers in this endeavor include climate-friendly cultivation practices such as plowless soil tillage or the sowing of cover crops. These enable CO₂ to be captured in the soil, making the agricultural industry a key player in the fight against climate change. The dry seeding method of rice cultivation also offers tremendous potential to reduce the greenhouse gas emissions associated with this crop.

We work to ensure that farmers also benefit financially from such solutions, as that is the only way to enable their rapid implementation. Our Carbon Farming Initiative launched in 2020 already offers farmers in Brazil, the United States, Europe and Asia financial incentives to apply climate-friendly methods and capture greenhouse gases in the soil. For more information, please see the Focus on: Agriculture chapter.

New technologies

We help farmers to increase their resilience against the effects of climate change, for example through our innovative seeds for plants that can better withstand extreme weather conditions, as well as through improved agricultural practices. For more information, please see the Focus on: Agriculture chapter.

We also invest in new technologies and conduct research into questions such as how plants could use nitrogen from the air for their growth with the help of soil microorganisms. This would enable the use of nitrogen fertilizer to be greatly reduced in the future. Currently, this substance is essential for plant growth, yet its production and use produces significant greenhouse gas emissions.

Through our joint venture Unfold, we continue to invest in the development of seeds to fulfill the requirements of so-called vertical farming. Vertical farms are particularly interesting for urban areas, where fresh vegetables can be grown in a space-saving and resource-efficient way. Such vertical farms are also supported by digital solutions. At the same time, through our Leaps by Bayer participation in Fork & Goode, we are investing in research into animal protein produced from cell cultures to cover the growing demand for protein without stockbreeding.

Further reducing the ecological footprint

By 2030, we want to reduce the environmental impact from the use of crop protection products by 30%. Changes in agricultural practices and the application of crop protection products, as well as the use of digital solutions, help to apply the required crop protection products as precisely and sparingly as possible to the area requiring treatment. For more information, please see the Focus on: Agriculture chapter.

We promote the sustainable intensification of farming through innovative, ever more productive crops. This allows farmers to produce more food from the same amount of farmland with a smaller impact on the environment. In this way, we play an important role in reducing deforestation and the conversion of forests into farmland. At the same time, this can reduce the consumption of natural resources and the use of crop protection products and fertilizer. For more information, please see the Focus on: Agriculture chapter.

In 2022, we will work on a new water strategy that will reflect the special challenges of creating value through farming.

Access to healthcare as an element of sustainability

The ongoing COVID-19 pandemic and the tangible effects of climate change are highlighting the importance of social issues – and particularly healthcare. People in many parts of the world still do not have access to basic medical care. Regional and global crises are further driving inequality in global society.

As part of our vision “Health for all, hunger for none” and the business strategy based on it, we are addressing important medical needs and expanding access to our products and services, in both the prescription and the over-the-counter sector. We are thus helping to improve access to healthcare for a growing world population (→ SDG 3).

Our programs specifically focus on the health of women and children, thus also supporting gender equality (→ SDG 5).

Access to prescription medicines

With our prescription medicines, we make a valuable contribution to individual health and well-being, as well as sustainable development in general; this applies particularly to our globally leading products in women’s healthcare, including family planning, and in areas such as cardiovascular disease, eye diseases and cancer (→ SDG 3).

Modern contraception – a key factor

In many parts of the world, self-determination for girls and women depends largely on whether and when they start a family. Young women’s desire to participate in education

can only be fulfilled if the advantages and opportunities of family planning are recognized and suitable healthcare services and contraceptives are available.

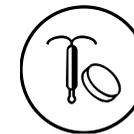
Thus it is not just a question of self-determined health, but also a human right to give women and girls the opportunity to choose the number, timing and intervals of their pregnancies. Data also shows that women who have access to contraceptives can strengthen their societal role, with a corresponding positive overall impact on their families, communities and society at large.

For many women, a lack of social acceptance for contraception – along with incomplete information or limited choices as pertains to the method of contraception – is the biggest obstacle to deciding on their own reproductive life planning. According to the United Nations, more than 200 million women in LMICs would like to prevent pregnancy but do not have access to safe and effective family planning methods.

As a component of family planning, modern contraception plays a key role in improving the health, rights and economic situation of women around the world. Thus it provides the foundation for more equality and affluence, and plays a crucial role in enabling participation in better education and improving health (→ SDG 3) and reducing poverty (→ SDG 1) and hunger (→ SDG 2). Family planning also strengthens gender equality (→ SDG 5), which in turn promotes economic and social development. According to the United States Agency for International Development (USAID), investment in family planning is thus a “best buy” for development.

Access to modern contraception

As a leading global pharmaceutical producer of contraceptives, we have been active in this field for many years. We aim to enable 100 million women in LMICs to have their need for modern contraception fulfilled by 2030. In 2021, we already reached 41 million women in LMICs.



Target 2030:

Enable 100 million women in LMICs to have their need for modern contraception fulfilled

// 2019 reference year: 38 million

// 2020 status: 40 million

// 2021 status: 41 million

To attain our target, we focus on the accessibility of our products and on measures for sustainable structure and capacity building. This also takes place through partnerships that we plan to further expand in the coming years.

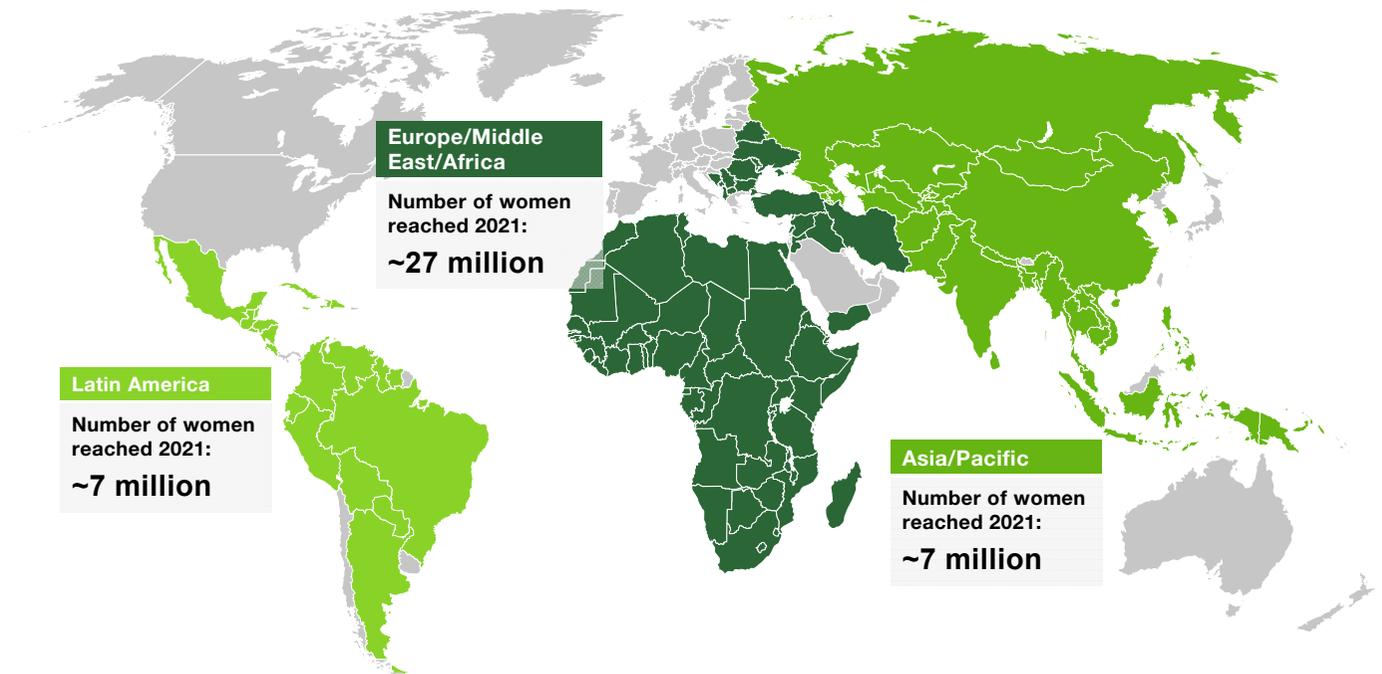
Product accessibility

When choosing a method of contraception, a woman's personal circumstances can play an important role, as can personal preference and medical indications. Long-acting methods such as contraceptive implants or intrauterine systems are among the most effective reversible birth control methods, particularly in regions where there are gaps in medical care. These methods generally do not require any further effort for lasting, effective use following their insertion. We expect the demand for long-acting methods to increase substantially in the coming years.

In LMICs with a local pharmaceutical market where women have to pay for contraceptives themselves, we aim to apply a fair pricing approach to enable more women to access these products.

We also cooperate with international family planning programs and aid organizations to enable women to freely access contraceptives. With this goal in mind, we provide our partner organizations with a broad range of contraceptives at low cost. An important role is played here by long-term contraceptives (implants, hormonal intrauterine systems) that can be found in the product catalogues of the United Nations Population Fund (UNFPA) and the United States Agency for International Development (USAID). For more information, please see Chapter 9. Charitable Giving and Foundations.

Access to Modern Contraception 2021



Expansion of production capacities

In 2021, we approved capital expenditures of more than €400 million to expand the contraceptive production facility at our site in Finland and build a new plant in Costa Rica. This will enable us to expand our offering of long-acting products that are in especially high demand in international development projects, such as the Jadelle™ implant and the Mirena™ hormonal intrauterine system.

Capacity building

We understand capacity building to mean the development of knowledge, skills, engagement, structures and systems to strengthen the autonomy and resilience of the local healthcare systems. To this end, we are active in numerous initiatives and collaborations worldwide. In addition to cooperating with our partners in education programs and campaigns like World Contraception Day, we focus our capacity-building efforts on three main areas:

1. Urban areas

We support The Challenge Initiative (TCI) together with the Bill & Melinda Gates Foundation. TCI is a global platform that supports the sexual and reproductive health needs of women and girls who live in low-income urban areas in Africa and Asia. We support this initiative irrespective of whether Bayer products are used or not.

2. Rural areas

TCI's work has already shown that positive impact beyond urban areas can also be generated in the connected rural regions. We will also continue to seek ways to further strengthen family planning options in rural areas in combination with our smallholder farmer program.

3. Humanitarian crisis situations

We want to cooperate more intensively with partners with a strong presence and experience in humanitarian crisis situations. At the interface between family planning and humanitarian aid, we want to support partners with Bayer's technological, logistical and medical expertise and meet the demand for information pertaining to family planning and sexual and reproductive health. Together with the German Red Cross (DRK), we are developing a family planning module for deployments of the DRK in immediate and emergency humanitarian aid and in ongoing crisis situations.

Differentiated pricing strategy

Our updated approach to pricing and access to our prescription medicines is geared toward making these products available in LMICs as well, and making sure they are affordable based on the local purchasing power. We also work together with patients, charitable organizations and governmental authorities to improve access to our products through affordable pricing.

For some of our most important products (Adempas™, Eylea™, Mirena™, Kerendia™, Kyleena™, Nexavar™, Stivarga™, Verquuvo™ and Xarelto™), we have already redefined the framework conditions for more equitable pricing.

Further engagement

For more information on our additional activities in connection with neglected tropical diseases (NTDs), malaria or noncommunicable diseases, please see the Focus on: Access to Healthcare chapter.

Access to self-care

Self-care empowers people to help themselves in many health matters. This includes preventing diseases, maintaining health and treating illnesses with or without the support of medical personnel. Be it due to insufficient income or a lack of access to pharmacies or options for treatment by medical personnel or in hospitals, more than half of the world's population have no access to basic health services. This particularly impacts women and children in underserved regions.

As a leading provider of self-care products, we will reach 100 million people in economically or medically underserved communities by 2030. We are already present in many of these countries and regions, where we reached 46 million people in 2021.



Target 2030:

Support 100 million people in economically or medically underserved communities with self-care

// 2019 reference year: 41 million

// 2020 status: 43 million

// 2021 status: 46 million (+ 13 million in India)

In 2021, we incorporated the India business with our Consumer Health products, previously operated by a third party, into our own organization. In India, 13 million people were thus additionally reached in 2021. Due to the previously set Group targets for 2024, the figures for India will be reported separately in the coming years.

To achieve our target, we are relying on our core brands and adapting them to local needs. We are developing and expanding our self-care education offerings in order to provide people with the information and tools that they need to make well-founded decisions about their own health and that of their families. Partnerships help us to improve access to our self-care products and the corresponding education offerings. We work to enable access to and affordability of self-care products in the regions where they are most urgently needed, namely in LMICs in Latin America, Africa and Asia/Pacific, as well as in underserved regions of the United States.

Nutrient Gap Initiative

Vitamin and mineral deficiency, often described as "hidden hunger," is one of the most significant problems in underserved regions and affects primarily women and children. Nearly 50% of young women and adolescent girls in LMICs do not consume sufficient vitamins and minerals; at least

half of the world's children under five suffer from nutrient deficiency. The effects worsen over time, leading to long-term health problems and further accelerating the poverty cycle.

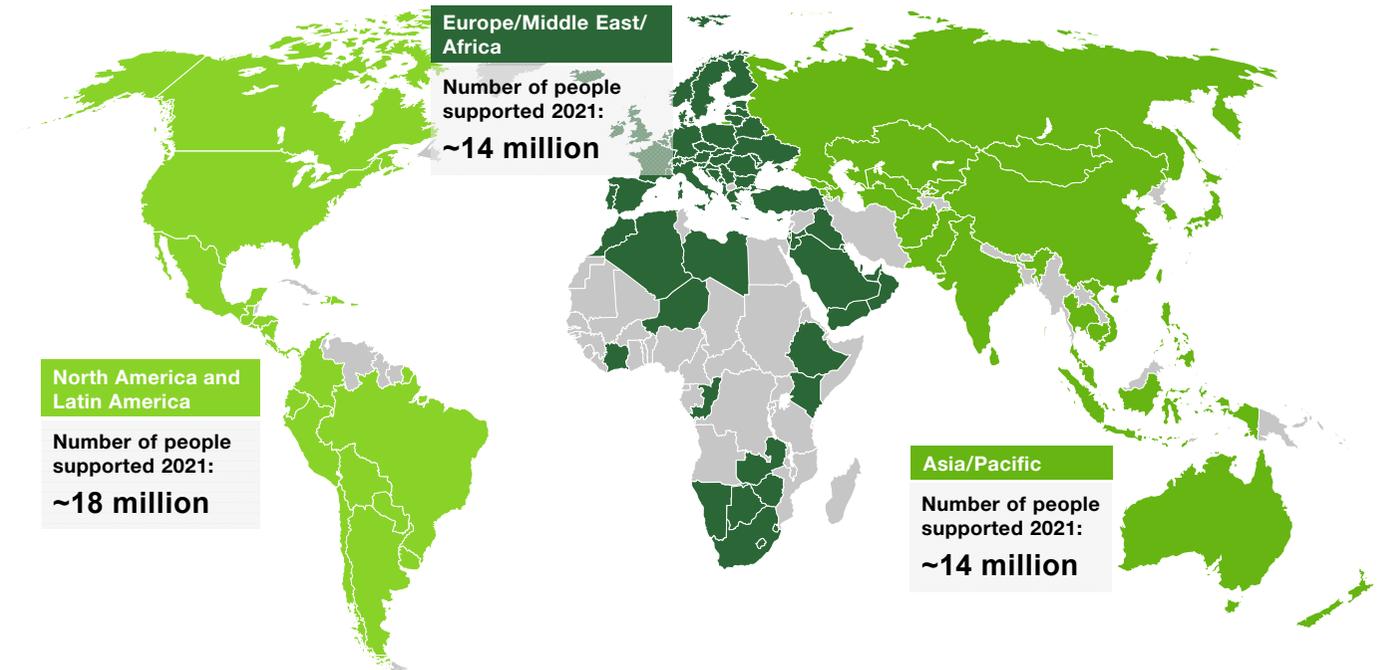
In 2021, we launched the [Nutrient Gap Initiative](#) to enable access to vital minerals and vitamins for 50 million people a year in underserved regions by 2030 through direct interventions and in partnership with NGOs. The Nutrient Gap Initiative addresses the main barriers to accessing micronutrients through interventions with affordable nutrients, education about nutrition and advocacy for improved nutrition.

Partnership with Vitamin Angels

The first 1,000 days (during pregnancy through age two) are critical for a child's growth and development. Proper nutrition, including the intake of multiple micronutrient supplements (MMS), is a powerful way to support healthy pregnancies, improve birth outcomes, and reduce infant mortality. The World Health Organization (WHO) recognized MMS as an evidence-based intervention by adding it to the Essential Medicines List in 2021.

To support the adoption of MMS as a key component of antenatal care, [we partnered with Vitamin Angels](#), a nonprofit organization dedicated to improving nutrition around the world. Vitamin Angels works with local organizations, including governments, to reach the most nutritionally vulnerable populations – pregnant women, infants and children – who are underserved by existing systems. In 2021, our partnership reached over four million underserved pregnant women and their babies across 13 priority countries, including Indonesia, Vietnam, Mexico and the United States.

Access to Self-Care



We have launched additional partnerships within the scope of the Nutrient Gap Initiative, e.g. with [reach52](#) in Kenya, [Mercy Corps](#) Indonesia, [FEBRASGO](#) in Brazil and the Sichuan Women & Children Foundation in China.

Further engagement

As part of our chairmanship of the Global Self-Care Federation, we supported the development of the Self-Care Readiness Index, supported by the WHO. The index is designed to draw political decision-makers' attention to gaps in national healthcare systems that can be closed through more and better use of self-care solutions. In this way, we want to help make health systems more efficient, while enabling more people to access science-based self-care.

Sustainability at the core of our brands

With our global brands, we can improve sustainability in self-care. We are placing sustainability at the center of our product strategies, while at the same time minimizing environmental impact throughout the entire value chain. For this reason, we have also included sustainability in our product innovation process (“sustainability by design”).

This comprises environmental aspects as well as social aspects, including education – because education is the key to better understanding and taking charge of one’s own health. For example, our antifungals brand Canesten™ advances education on vaginal health and tackles body shame at scale via its digital platform Vagina Academy, initially rolled out in Brazil with over 44 million video views, 210,000 Brazilian participants enrolled and 17,000 classrooms filled. The brand’s campaign achieved the world-first decensorship of the word “vagina” on TikTok in Brazil, changing the perception of science-based and easily accessible self-care in vaginal health. The educational program has since been rolled out in Italy, Australia and the Netherlands, and further launches will follow.

Elevit™, our prenatals brand, has launched its purpose platform “Every Beginning” in Australia, Mexico and Japan to give every baby the best start in life, amplifying access to essential prenatal vitamins to women and their babies.

More environmentally friendly products

We will invest €100 million in the coming years to enable sustainable innovation, production and consumption of our Consumer Health products. By 2030, we will make 100% of our Consumer Health products’ packaging reusable or recyclable. Furthermore, the packaging will include an average of 50% recycled content.

We are signatories to the [Environmental Charter](#) of the Global Self-Care Federation to achieve industry-wide environmental progress focused on delivering carbon emission reductions and more sustainable packaging.

Group targets at a glance

We use these indicators to measure the implementation of our Group targets through 2030. They also serve as a basis

for determining the variable compensation component of the Board of Management and managerial employees.



Target: Support 100 million smallholder farmers in LMICs

Key figure:

- // Number of smallholder farmers in LMICs¹ supported by products, services and partnerships
- // Partnership: Mercy Corps AgriFin

Reference year 2019:
42 million

Status 2020:
45 million

Status 2021:
49 million



Target: Fulfill the need of 100 million women in LMICs for modern contraception

Key figure:

- // Number of women reached in LMICs¹ who have their need for modern contraception fulfilled due to interventions supported by Bayer
- // Partnerships: The Challenge Initiative (TCI), UNFPA Egypt

Reference year 2019:
38 million

Status 2020:
40 million

Status 2021:
41 million



Target: Support 100 million people in economically or medically underserved communities with self-care

Key figure:

- // Number of people in economically or medically underserved communities whose self-care is supported by interventions from Bayer
- // Partnership: Vitamin Angels

Reference year 2019:
41 million

Status 2020:
43 million

Status 2021:
46 million



Target: Climate neutrality at own sites² and achievement of Science Based Targets

Key figure:

- // Reduction of Scope 1 and 2³ greenhouse gas emissions by 42 percent
- // Reduction of Scope 3 emissions⁴ by 12.3 percent
- // Offsetting of remaining Scope 1 and 2 greenhouse gas emissions

Supporting figures:

- // 100 percent electricity procurement from renewable sources

Reference year 2019:

Scope 1 and 2³: 3.76 million metric tons CO₂e
Scope 3⁴: 8.82 million metric tons CO₂e

Status 2021:

Scope 1 and 2³: 3.17 million metric tons CO₂e
Scope 3⁴: 8.16 million metric tons CO₂e

A more detailed description of the calculation methodologies is published on our website www.bayer.com/en/sustainability.

¹ LMICs: low- and middle-income countries

² In accordance with the Paris Agreement and the objective of limiting global warming to 1.5°C relative to the pre-industrial level

³ Comprises direct emissions (Scope 1) and indirect emissions (Scope 2, market-based) from Bayer sites whose annual energy consumption exceeds 1.5 terajoules

⁴ In accordance with the criteria set out by the Science-Based Targets initiative (SBTI), the following Scope 3 categories of the Greenhouse Gas Protocol "Corporate Value Chain (Scope 3) Accounting & Reporting Standard" are relevant for Bayer: (1) purchased goods and services, (2) capital goods, (3) fuel- and energy-related activities, (4) upstream transportation and distribution, (6) business travel

Interview with Matthias Berninger

“There’s no getting around innovation”

Sustainability has become a business issue. Critics talk about a “green fig leaf.” What is your response to this?

For Bayer, sustainability isn’t a hygiene factor, but rather a clear business driver – and it is thus at the core of our corporate strategy. The measurability of our sustainability targets and their anchoring in the incentivization of the Board of Management and managerial employees show that we take this issue seriously. Further proof is offered by our external Sustainability Council, which objectively assesses the implementation of our sustainability strategy. In April 2021, it gave its first assessment, which we published on our website. Of course, we still have some homework to do, but overall the Council believes we are on the right track. It is also in our own best interests for us to perform well in this area. We see numerous growth opportunities here and know that investors also pay close attention to whether we have our risks under control as regards environmental, social and governance (ESG) issues.

Industry is not yet close to the 1.5 degree path. What is Bayer doing as a member of the Science Based Targets initiative?

Our climate goal shows that we are doing everything possible in this regard. For example, we will focus fully on purchased regenerative electricity and establish climate-neutral production by 2030. Yet our lever in agriculture is many times larger. About 25% of climate-damaging emissions are generated in this sector. And we, in turn, can influence 25% of the agricultural value chains worldwide.

The role we can play in protecting the climate is enormous. That’s why we are doing everything in our power to fully exhaust decarbonization potential in farming and to make it more efficient and resilient. With the help of new processes, greenhouse gas emissions from farming can not only be

reduced, but can also be captured in the soil. Tremendous, still largely untapped potential exists here. We create the financial incentives that will enable farmers to tap into this potential in the future.

What is the significance of technological innovations for attaining sustainability targets?

There’s no getting around innovations if we are going to safeguard the nutrition of a growing world population within the planetary limits. We will have to deal with more extreme weather conditions such as droughts, heatwaves and storms. At the same time, the available farmland is likely to decline. We therefore need high-yield crops that can deal with the new conditions because they require less water, for example. The key to that is the biorevolution.

Thanks to our collaborations with Pairwise, the Broad Institute and other partners, we can utilize the best genome editing processes in plants and thus optimize harvest yields and the harvesting process. For example, we have developed a corn variety that requires 20% less land. Because the plants are of shorter stature, they require less fertilizer. And because they have deeper roots, they require less water, can capture more CO₂ and are more resistant to storms.

And what if the population rejects technological progress and scientific findings?

The question is indeed whether we will ever be able to fully leverage the benefits of genetic engineering in Europe. And yet, during the pandemic we’ve seen the enormous potential it harbors, because that’s what made the rapid development of effective vaccines possible in the first place. We are focusing on transparency and dialogue to achieve this same technological leap in agriculture as well. We have to show how genetic engineering benefits society and of course also take people’s fears seriously and learn from the mistakes of the 1990s. Much of the rejection resulted from the fact that the industry did not want to properly label genetically engineered products.



// **Matthias Berninger,**
Head of Public Affairs, Science, Sustainability & HSE

Incidentally, we are also focusing on consistent transparency as regards the glyphosate issue and have made all scientific studies related to the reapproval in the EU available on our website, including many new studies. We will continue to show how important this crop protection product is for farming worldwide, even though, unfortunately, we probably will no longer be able to convince certain critics in Europe.

What other issue will occupy your time at Bayer in the coming years?

The enormity of the crisis is such that there won’t be just one single issue: water, biodiversity and deforestation will be key. We will experience the climate crisis first hand in relation to water. Deforestation is worsening the climate crisis, and biodiversity is very closely linked to both. All three areas are narrowly associated with farming, which is why we are targeting integrated solutions that see agriculture as part of the solution. Our Carbon Farming Initiative in Brazil already includes a biodiversity component. Another really important issue will be adjusting to the effects of climate change. Even if we manage to limit global warming to 1.5 degrees, this will still have serious consequences. We must adapt agriculture and healthcare accordingly.

Performance Report

// **Climate protection targets**

in harmony with the Paris Agreement and net zero emissions by 2050

// **Proportion of women in top management**

*33% by 2025 and
50% by 2030*

// **Sustainability targets**

as part of the variable compensation of the Board of Management

1. The Company

The Bayer Group comprises 375 companies in 83 countries throughout the world and employs 99,637 people. Its headquarters is in Leverkusen, Germany. Sales at the Bayer Group in 2021 amounted to €44.1 billion.

1.1 Corporate Profile

We are a life science company and a global leader in healthcare and nutrition. Our innovative products support efforts to overcome the major challenges presented by a growing and aging global population. We help prevent, alleviate and treat diseases. We also aim to ensure the world has a reliable supply of high-quality food, feed and plant-based raw materials. As part of this endeavor, the responsible use of natural resources is always a top priority. In line with our vision “Health for all, hunger for none,” we aim to put an end to hunger and help everyone lead a healthy life, while at the same time protecting ecosystems. That is what we aspire to achieve, guided by our purpose “Science for a better life.”

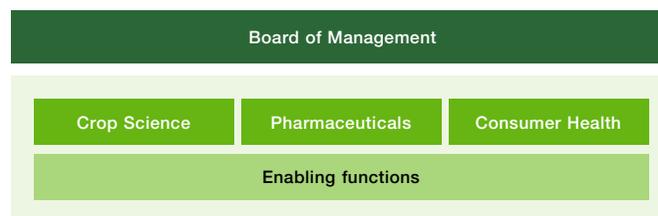
We aim to continuously enhance our company’s earning power and create value for customers, patients, shareholders, employees and society. Growth and sustainability are integral parts of our strategy, while our corporate values of Leadership, Integrity, Flexibility and Efficiency, or **LIFE** for short, lay the foundation for the way we operate. These values shape our culture and ensure a common identity throughout the Bayer Group. Based on this, our Bayer Societal Engagement (BASE) principles provide clear orientation for communicating with social interest groups.

1.2 Corporate Structure

Corporate structure as of December 31, 2021

As the parent company of the Bayer Group, Bayer AG – represented by its Board of Management – performs the principal management functions for the entire enterprise. This mainly comprises the Group’s strategic alignment, resource allocation, and the management of financial affairs and managerial staff, along with the management of the Group-wide operational business of the Crop Science, Pharmaceuticals and Consumer Health divisions. The enabling functions support the operational business.

Structure of the Bayer Group 2021



The following structural changes occurred within our organization in 2021:

Effective February 1, 2021, Sarena Lin became Chief Transformation and Talent Officer, assuming responsibility for Human Resources, Strategy and Business Consulting. Lin also took on the role of Labor Director on the same date.

Liam Condon stepped down from the Board of Management on December 31, 2021. He was succeeded by Rodrigo Santos, who was appointed to the Board of Management effective January 1, 2022, and became head of the Crop Science Division.

Our divisions are active in the following areas:

Crop Science

Crop Science is the world’s leading agriculture enterprise, with businesses in crop protection, seeds and traits, and digital farming. We offer a broad portfolio of high-value seeds, improved plant traits, innovative chemical and biological crop protection products, digital solutions and extensive customer service for sustainable agriculture. We market these products primarily via wholesalers and retailers or directly to farmers. In addition, we market pest and weed control products and services to professional users outside the agriculture industry. Most of our crop protection products are manufactured at the division’s own production sites. Numerous decentralized formulation and filling sites enable the company to respond quickly to the needs of local markets. The breeding, propagation, production and/or processing of seeds, including seed dressing, takes place at locations close to our customers, either at our own facilities or under contract.

Pharmaceuticals

Pharmaceuticals concentrates on prescription products, especially for cardiology and women’s healthcare, and on specialty therapeutics focused on the areas of oncology, hematology, ophthalmology and, in the medium term, cell and gene therapy. We have established a strategic unit for cell and gene therapy spanning the entire value creation chain – from research and development to marketing and patients.

The division also comprises the radiology business, which markets diagnostic imaging equipment and digital solutions together with the necessary contrast agents. Our portfolio includes a range of key products that are among the world's leading pharmaceuticals for their indications. The prescription products of our Pharmaceuticals Division are primarily distributed through wholesalers, pharmacies and hospitals.

Consumer Health

Consumer Health is a leading supplier of nonprescription (OTC = over-the-counter) medicines, nutritional supplements, medicated skincare products and other self-care solutions in the categories of pain, cardiovascular risk prevention, dermatology, digestive health, allergy, and cough & cold. The products are generally sold by pharmacies and pharmacy chains, supermarkets, online and other retailers and wholesalers.

Enabling functions

The enabling functions, such as Public Affairs, Science, Sustainability & HSE; Group Finance; Information Technology; and Human Resources, serve as Group-wide competence centers and bundle business support processes and services. Our [Leaps by Bayer](#) unit, which invests in disruptive innovations, also forms part of the enabling functions.

For more information on the divisions' products and activities and the distribution of sales across the divisions and our global sites, please see our [2021 Annual Report](#).

1.3 Value Added

By delivering innovative products and solutions, Bayer creates value for its stakeholders at all stages of the value chain. We operate production sites worldwide, invest in research and development, work with international and local suppliers and contribute to the economic development of our target markets. As an employer, we provide jobs in industrialized, emerging and developing economies and therefore create purchasing power through the salaries we pay. We contribute to public finances and thus support public infrastructure through the payment of taxes and other levies.

The value added calculation shows the direct financial value we generate for our stakeholders with our commercial operations. We define value added as the company's total operating performance in the previous fiscal year (net sales + other operating income + financial income + net income/loss from investments accounted for using the equity method) less the costs of procured and consumed goods and services, depreciation, amortization, impairment losses and impairment loss reversals.

Our total operating performance amounted to €46.2 billion in 2021. The cost of materials and other expenses totaled €27.8 billion. We recorded depreciation, amortization, impairment losses and impairment loss reversals of €3.1 billion. We posted a value added of €15.3 billion in 2021.

In 2021, the value added we generated enabled us to make the following financial contributions to our stakeholders: employees €11.8 billion, taxes €1.8 billion, providers of equity and debt €1.3 billion and stockholders €2 billion (Bayer AG dividend proposal for 2021).

1.4 COVID-19

Our business continued to be affected by the COVID-19 pandemic in 2021. The health and safety of our employees and the provision of patients, farmers and consumers with our products and medicines have – as always – top priority.

Our business activities were affected in various ways by the protective measures taken worldwide and by the uncertainty associated with the pandemic. For more information, please see the [2021 Annual Report](#). Owing to the COVID-19 pandemic, most of our conferences, workshops, training courses, audits and meetings again took place virtually in 2021.

To prevent the health crisis that arose for farmers owing to the pandemic also causing a hunger crisis for the population, we continued our Better Farms, Better Lives initiative in China, Ecuador, Bangladesh and Nigeria in 2021, supporting some 230,000 smallholder farmers with seed and crop protection products. [We also help smallholder farmers](#) in regions threatened particularly by food shortages with agricultural know-how and market access for agricultural produce, thus encouraging an increase in food production in these regions. Our measures to combat the consequences of COVID-19 supplement our strategy for supporting smallholder farmers in order to strengthen the agricultural sector in low- and middle-income countries ([LMICs](#)) in the long term.

For more details of our measures in connection with the COVID-19 pandemic, please see chapters 6. Employees, 8.6 Occupational Health and Safety, 8.10 Emergency and Crisis Management and 9. Charitable Giving and Foundations.

2. Corporate Governance

Bayer is committed to responsible corporate governance. By adhering to laws, safeguarding values and strengthening our reputation, we aim to secure our company's long-term success and to foster a high level of trust among all stakeholders. Our endeavors in this regard are further supported by our increased focus on sustainability aspects in all processes and at all levels of the company.

2.1 Corporate Governance Practices and Principles

Bayer AG is subject to German stock corporation law and therefore has a dual governance system consisting of the Board of Management and the Supervisory Board. The Board of Management manages the company based on a strategy that is geared toward its long-term success. The Supervisory Board oversees and monitors the Board of Management. Since 2022, the Supervisory Board has deployed a separate ESG Committee comprising the Chairman of the Supervisory Board and seven further members of the Supervisory Board. This focuses on Bayer's sustainable governance and business activities in the areas of environmental protection, social affairs and good corporate governance (ESG) within the scope of responsibility of the Supervisory Board.

Corporate governance practices that go beyond the legal requirements are derived from our vision and our common values, which form the basis for the respectful working relationship among our employees and with our external partners. Compliance with responsible practices at every stage of the value chain is crucial in corporate governance. The main

guidelines are summarized primarily in our Group regulations on compliance, human rights, and fairness and respect at work, as well as in our Supplier Code of Conduct and the Bayer Societal Engagement (BASE) principles. In addition, Bayer has established compliance management and risk management systems.

In our [Annual Report](#), we report in detail on the main elements of the Bayer Group's corporate governance structures and conformity with the recommendations of the German Corporate Governance Code, relevant corporate governance practices, the composition and procedures of the Board of Management, the Supervisory Board and their committees, and also on compensation in the Compensation Report along with the objectives to be defined and the underlying concepts.

2.2 Behavioral Principles (BASE)

As a leading healthcare and agriculture company, we bear a great responsibility. To ensure that we meet current societal expectations, we introduced the Bayer Societal Engagement (BASE) principles in 2019. Set out in a publicly available Group regulation, these principles establish how we interact worldwide not just with our employees, but also with patients, customers, consumers, business partners, political stakeholders, scientists, critics and our stockholders. In this way, we want to live up to our social responsibility as a sustainably acting and transparent company that is respected for its contribution to progress in healthcare and agriculture. We want to listen, understand, take concerns seriously and engage in respectful dialogue – especially where this is difficult or uncomfortable.

The BASE principles are grounded in our purpose "Science for a better life," our vision "Health for all, hunger for none" and the Bayer LIFE values of leadership, integrity, flexibility and efficiency. The principles describe our actions in eight areas:

- // Our engagement with society
- // Our guiding principles and core values
- // How we drive innovation
- // How we act in the workplace
- // How we conduct our business
- // How we interact with our customers, patients and the consumers of our products
- // How we interact with media, legislators, regulators and civil society organizations
- // How we interact with stockholders

2.3 Transparency

As our activities concern the sensitive areas of health and nutrition, they lead to inquiries and the desire to understand even better what we do. Against this background, we endeavor to strengthen trust further – for which transparent conduct is essential. For example, we disclose information from various areas of our work and openly communicate how the safety of our products is rated.

We supply information about our transparency efforts in the following areas, for instance:

- // We make detailed disclosures on, for example, material and project expenses and headcount of the essential political liaison offices in the transparency registers of the European institutions and the U.S. Congress, for instance. We also report data for countries in which there is no legal disclosure obligation. For more information, please see Chapter 2.6 Compliance and our [website](#).
- // Through our [website](#), we grant public access to safety-relevant studies that regulatory authorities use to approve crop protection product registrations.
- // We publish information on planned and ongoing clinical patient trials on our Clinical Trials [website](#).
- // For many years, Bayer has shared patient-based clinical trial data with qualified researchers. In 2021, we received the annual Data Pioneer Award from the NGO C-Path (Critical Path Institute) for a package of data containing valuable lab results that we made available in record time. This project was supported by the U.S. Food and Drug Administration (FDA). In relations between the pharmaceutical industry and physicians, other healing professions and healthcare organizations, Bayer ensures compliance with the EFPIA (European Federation of Pharmaceutical Industries and Associations) Disclosure Code, and for example in the United States, the U.S. Physician Payments Sunshine Act.
- // In a bid to generate more transparency around our scientific collaborations, we launched the [Bayer Science Collaboration Explorer](#) in 2021. In this publicly accessible database, we disclose information on new contract-based scientific collaborations with universities, public institutions and individuals. After introduction in Germany, we shall also include the data on collaborations in the United States in the Bayer Science Collaboration Explorer in 2022. Further countries will follow.

For more information on our transparency initiative, please see our [website](#).

We transparently shape our corporate governance in accordance with the German Corporate Governance Code. For more information, please see the [2021 Annual Report](#).

2.4 Bioethics

Innovation is at the core of our purpose “Science for a better life.” Emerging life science technologies are advancing rapidly and deliver the opportunity for significant positive impact on society, people and the environment. We are committed to using emerging technologies in an ethically responsible way within our business and R&D activities across all our divisions.

We seek to actively take part in the development of bioethical standards, to engage with society and relevant stakeholders, and to address potential concerns.

We are therefore establishing an external advisory body – the Bioethics Council – to ensure a broad independent perspective and guidance on complex ethical questions related to emerging life science technologies. The Bioethics Council will consist of a diverse group of leading experts in the field of bioethics who will engage in regular dialogue with Bayer executives.

2.5 Steering and Management Systems

Planning and steering

The Board of Management uses defined, primarily nonfinancial targets and key performance indicators to steer the company’s alignment toward increased sustainability. These are integrated into the Bayer Group’s planning and steering process as management and key performance indicators.

Our Group-wide sustainability targets are integrated into the compensation system for the Board of Management. In so doing, we aim to continuously increase value for stockholders and other stakeholders and ensure the continuity of our company for the long term. Quantitative targets derived from the sustainability strategy are integrated into the long-term variable compensation of the Board of Management and management with a weighting of 20%. For more information, please see the Compensation Report (Chapter C 2) in the 2021 Annual Report. For details of the financial indicators we employ to plan, steer and monitor the development of our business, please see Chapter 1.2.3 Management Systems of the [2021 Annual Report](#).

Integrated management system

Bayer maintains an integrated management system (IMS) based on the overarching Plan-Do-Check-Act (PDCA) principle.

The IMS provides the framework for all management systems at Bayer, ensuring compliance with laws and internal and external requirements while also ensuring efficient ways of working. Group-wide requirements for the management of internal regulations and processes, regular effectiveness evaluation and continuous improvement are core elements of the IMS, which thus plays a key role in safeguarding our license to operate. All IMS requirements are specified in a

Group regulation. Additional information on the IMS is provided through internal communication channels.

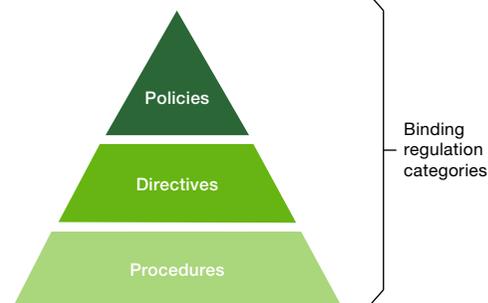
At the global level, each division and enabling function – such as Corporate Quality, Human Resources, Compliance, Risk Management, Procurement, or Public Affairs, Science, Sustainability & HSE – is responsible for its own management system in accordance with business requirements and the applicable legal and regulatory requirements.

As part of the IMS, Bayer has established a clearly defined structure of binding internal regulations for the Group that describe fundamental principles and framework conditions, standards of conduct, proceedings and methods, as well as the related roles and responsibilities. Moreover, these are binding requirements that include legal and regulatory regulations.

Group regulations serve as key management instruments that, like the country-specific regulations, are classified in three categories:

- // Policies (highest importance with global interdisciplinary content, and relevant for all employees)
- // Directives
- // Procedures

Group Regulations



A selection of Group regulations representing the respective areas is presented in more detail in chapters 2.6 Compliance, 6. Employees and 8. Environmental Protection and Safety.

2.6 Compliance

Bayer manages its businesses responsibly and in compliance with the statutory requirements and regulations of the countries in which it operates. We define compliance as legally and ethically impeccable conduct by all employees in their daily work, because the way they each carry out their duties affects our company's reputation. We do not tolerate any violation of applicable laws, codes of conduct or internal regulations. Compliance is essential for our long-term commercial success.

Bayer compliance management

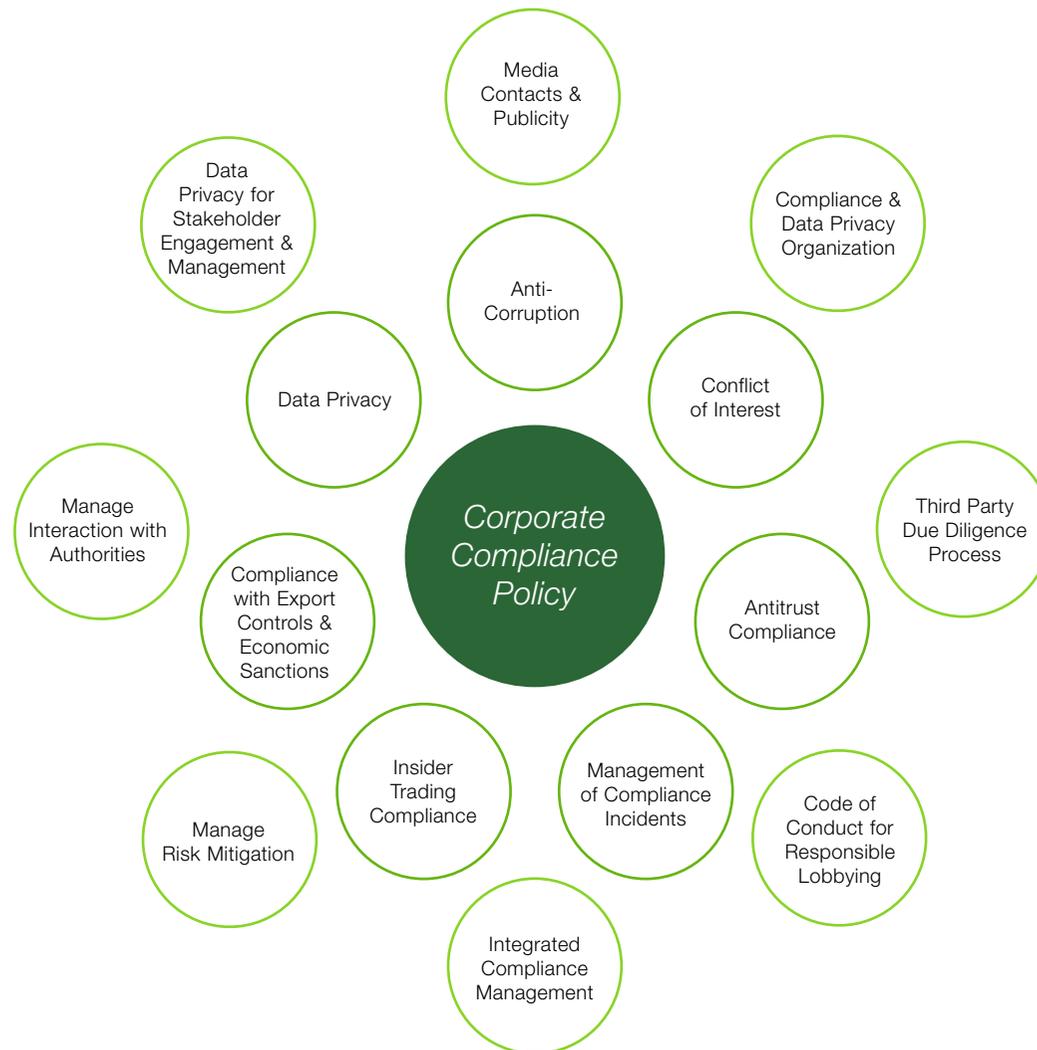
The Board of Management is unreservedly committed to compliance, and Bayer will forgo any business transaction that would violate any of the 10 principles in our [Corporate Compliance Policy](#) observed throughout the Bayer Group. These principles are as follows:

- // We compete fairly in every market.
- // We act with integrity in all our business dealings.
- // We balance economic growth with ecological and social responsibility.
- // We observe all trade controls that regulate our global business.
- // We safeguard equal opportunity in securities trading.
- // We keep accurate books and records.
- // We treat each other with fairness and respect.
- // We protect and respect intellectual property rights.
- // We act in Bayer's best interest.
- // We protect and secure personal data.

All employees are required to observe the compliance principles and immediately report any violation of the Corporate Compliance Policy. Infringements are sanctioned. This applies in particular to managerial employees, who, as role models, may, for example, lose their entitlement to variable compensation components and be subject to further disciplinary measures if violations that they could have prevented have occurred in their sphere of responsibility. Compliant and lawful conduct is also factored into the performance evaluations of all managerial employees.

Details of compliance-related topics are specified in further binding Group regulations, as the following graphic shows:

Binding Group Regulations



The global compliance management system is steered by a central compliance organization within the Bayer Group. This organization is headed by the Group Compliance Officer, who, in this capacity, reports directly to the Chief Financial Officer (CFO) and to the Audit Committee of the Supervisory Board. The CFO is responsible for the compliance organization, while the Audit Committee of the Supervisory Board oversees the effectiveness and further development of compliance within the Group. Within the compliance organization, specialized compliance managers are responsible for establishing business-, industry- and country-specific standards.

Potential compliance risks (such as corruption) are identified together with the operational units to ensure the systematic and preventive detection and assessment of risks. Potential risks are then entered into global databases that we use to develop suitable measures for specific processes, business activities or countries, for example. In addition, we assess our business partners according to risk criteria as we look to identify potential compliance risks.

Adherence to the corporate compliance principles is among the subjects covered in audits conducted by Bayer's Internal Audit and in the analyses and investigations by the legal and compliance organization. The heads of these organizations provide regular reports on the findings of the audits and analyses to the Audit Committee of the Supervisory Board, while summary reports are presented at least once a year.

The planning of these audits by Internal Audit follows a function- and risk-based approach that also takes the [Corruption Perceptions Index](#) of Transparency International into account. Function-specific audits are conducted worldwide across all important corporate units, such as for marketing and distribution. The larger businesses and units are audited at shorter intervals, and the smaller units at longer intervals.

A total of 89 audit reports were compiled in 2021, of which 12 concerned preventive compliance system audits or incident-related investigations. As audit activities in 2021 were once again impacted by travel restrictions attributable to the COVID-19 pandemic, remote audits and digital audit concepts were applied and further developed.

Handling of suspected and actual compliance violations

Suspected compliance violations can be reported – anonymously if desired and if permitted by respective national law – to a worldwide compliance hotline operated by an independent service provider. Suspected violations can be reported either via the internet or through a phone call made in the caller’s preferred language and answered by independent specialists. The hotline is also accessible to the general public. In 2021, the compliance organization received a total of 299 compliance reports in this way (including 208 anonymous reports), with 27 reports coming from Germany and 272 from other countries.

In addition, an internal mailbox – the so-called “Speak-Up Inbox” – was introduced in 2020 for the submission of suspected compliance violations. Alternatively, suspected violations may also be reported to the respective compliance functions or to Internal Audit. Since 2021, furthermore, it has been possible to report suspected compliance violations through a newly implemented platform in the form of an incident request.

Compliance violations include all possible types of infringements of internal and external requirements and are systematically sanctioned. The action taken depends on factors including the gravity of the violation and applicable law. All cases are recorded according to uniform criteria throughout the Bayer Group and dealt with under the rules set forth in Bayer’s Group Regulation on Management of Compliance Incidents. Where an investigation confirms that a compliance violation has occurred, the company has a graduated

set of measures at its disposal. These include a verbal warning or written reprimand, transfer to a different unit, cancellation of a planned promotion, a reduction in the short-term incentive payment, downgrading to a lower collectively agreed pay rate or managerial contract level, and ordinary or extraordinary termination. Bayer also reserves the right to assert further claims against the employee for cost reimbursement or damages and/or to initiate criminal proceedings.

Compliance training and communications activities

We support all employees in acting with integrity and proactively avoiding potential violations by implementing Bayer-wide training measures and communication campaigns that are tailored to target groups and based on identified needs. The Corporate Compliance Policy forms the basis of our compliance communication and training activities. Both supervisors and compliance managers are available to answer employees’ questions about lawful and ethical behavior.

Each year, the company publishes a new, obligatory training course for all Bayer employees.

In 2021, around 95.0% (39,853) of Bayer’s managerial employees worldwide completed at least one compliance training program. We launched a new web-based training program in 94 countries dealing with the topic of data privacy, which is also addressed in our Corporate Compliance Policy. The web-based training program is available in 20 languages and had been completed by around 90.2% (92,597) of our employees as of December 31, 2021.

Our annual, company-wide “Speak Up” campaign to foster an open reporting culture communicates the various options for reporting compliance violations. This is designed to create an environment in which compliance violations can be addressed without reservations.

Data privacy

Data is very important in today’s world – it is often accessible worldwide and its financial value is growing. As a result, people have an increasing interest in their data remaining secure. Bayer is committed to protecting the personal data of all its stakeholders, be they employees, business partners, stockholders, suppliers or customers. Fulfilling this commitment is an important business principle and a central condition for the company’s success.

Since there is no globally binding data privacy law, legislation varies widely from country to country. To establish a standard for all countries in which Bayer operates, a Group-wide approach is required. This is the only way to ensure personal data is afforded sufficient protection while at the same time facilitating efficient business processes.

The Group Regulation on Data Privacy sets out minimum requirements for the way personal data is processed throughout the Bayer Group. Bayer strives to protect people’s privacy and prevent their data from being misused. We are aware of the potential harm caused by unlawful data processing and have therefore established a standard to minimize this risk.

The data privacy management system addresses risk situations that are relevant to the company’s business. The system covers the entire data life cycle: from collection, transfer, analysis and storage to deletion. The core elements of the data privacy management system – the maintenance of a processing registry, the management of data leaks, inquiries from affected individuals and risk mitigation – are mandatory. Training and guidance along with system-based monitoring ensure the regulations are adhered to.

Marketing compliance and the validity of recognized standards

We do not tolerate any improper exertion of influence on our business partners. As part of our compliance management system, we record and investigate any suspected violation of our responsible marketing principles, irrespective of whether the complaints come from internal or external sources.

The most important Bayer Group regulation in this context is our Group Regulation on Anti-Corruption, which is supplemented by the rules of conduct for responsible marketing. Furthermore, we are committed to ethical advertising and communication for all our products and services.

Directives and Group regulations are also in place at Bayer to prevent price fixing and ensure data privacy. Where several regulations are applicable, we fundamentally comply with the more stringent standards. The respective Group regulations and training programs are implemented in the divisions and enabling functions.

Industry codes for pharmaceutical products and medical devices that have been adopted by major national and international associations and organizations also apply to marketing and distribution at Bayer. In many countries, these standards are further underpinned by local codes – all of which apply to prescription pharmaceuticals and some of which also apply to nonprescription medicines, dietary supplements, medical devices and medicated skincare products.

All codes of the International Federation of Pharmaceutical Manufacturers & Associations (IFPMA) serve as a binding minimum global standard for all of Bayer's human pharmaceutical products in their area of application. In addition,

Bayer observes the codes of the [European Federation of Pharmaceutical Industries and Associations](#) (EFPIA) in its interaction with healthcare professionals and patient organizations. Regarding the advertising of human pharmaceutical products, Bayer complies with the regulations set out in the IFPMA Code of Practice as the minimum global standard along with those set forth in regional and national codes.

The aforementioned codes contain provisions governing, among other matters, advertising materials, the distribution of samples, cooperation with members of specialist groups in connection with speaker and consultancy contracts, and scientific studies. Pharmaceuticals observes the applicable transparency rules (e.g. the Physician Payments Sunshine Act in the United States) and participates in voluntary programs such as the EFPIA Disclosure Code.

In line with the principles of sustainable development and the responsible use of crop protection products and seeds, Crop Science follows the guidelines of its [Product Stewardship Commitment, Principles and Key Requirements](#). This regulation, which also fulfills our rules of conduct for responsible marketing, is based on the International Code of Conduct on Pesticide Management issued by the Food and Agriculture Organization (FAO) of the United Nations and the International Code of Conduct on Plant Biotechnology issued by CropLife International.

Relevant training measures on product-related communication, antitrust law, data protection and anti-corruption are fundamental elements of our compliance management system. Principles communicated in these training courses provide an overview of globally applicable minimum requirements for cooperation with key stakeholders, including in particular those in the healthcare industry, such as

physicians, hospitals or patient organizations. In addition to explaining general compliance principles, the anti-corruption courses provide specific advice on approaches to nonreciprocal benefits and the exchange of services with healthcare professionals.

Lobbying

Bayer's commitment to ensuring transparent lobbying forms part of our BASE principles. In line with this, our [Code of Conduct for Responsible Lobbying](#) sets out binding rules for our involvement in political matters, covers compliance-relevant risks and creates transparency in our interactions with the representatives of political institutions.

As set out in this Group regulation, Bayer as a company does not make any donations to political parties, politicians or candidates for political office. An exception to this rule existed in the United States until the end of 2021. Direct and indirect donations by companies to political candidates and parties are prohibited at the federal level. Against this background, employees of numerous companies support individual candidates for parliamentary office by making private donations through political action committees, or PACs. These voluntary donations are made only by employees, not the company. PACs are separate, segregated funds governed by employees and further regulated by the U.S. Federal Election Commission (FEC) and some state governments.

Decisions on how these contributions are allocated are made by an independent committee composed of employees. At BAYERPAC, the name of the corresponding committee at Bayer, new allocation criteria were introduced in 2020 to reflect societal challenges, among other factors. For example, candidates' positions on issues such as climate change and the protection of biodiversity play an important role here. BAYERPAC also undertakes to support candidates from both parties. These donations are subject to stringent conditions and mandatory transparency measures. The BAYERPAC contributions are regularly reported to the [U.S. Federal Election Commission \(FEC\)](#). Full details can be viewed on the FEC website. BAYERPAC does not support presidential candidates. A total of US\$159,498 was donated to political candidates at all levels through BAYERPAC in 2021.

Bayer made corporate donations at the state level in the United States until the end of 2021. These amounted to a total of US\$20,500 in 2021. Since the beginning of 2022, a new Group regulation has applied at Bayer, according to which the company will not make any political donations in any country in the world.

In other countries, industry associations of which we are a member (such as the German Chemical Industry Association) sometimes make donations on their own responsibility in observation of the respective statutory regulations, and particularly laws concerning political parties.

For Bayer, national liaison offices are key touchpoints between the company and political stakeholders. We publish details of material costs, project expenses, employee numbers and any of the other statistics required in each country, for example in the transparency registers of the [European institutions](#) and the [U.S. Congress](#). In doing so, we go beyond the statutory requirements. For instance, we also publish

data for countries such as Germany where – as yet – there is no legal disclosure requirement. In 2021, the costs incurred at the liaison offices totaled approximately €3.0 million in Berlin, Germany; €1.9 million in Brussels, Belgium; €13.0 million in Washington, D.C., United States; €1.0 million in Brasília, Brazil; and €2.1 million in Beijing, China.

2.7 Tax

[Bayer's tax concept](#), which we refer to as our Approach to Tax, sets out our management approach and tax strategy and is based on the following guidelines:

- // We place great importance on transparency and verifiable compliance and reporting standards.
- // Our tax considerations are driven by business needs.
- // The taxation of our earnings takes into account global value chains.

For global companies like Bayer, it is in their own vital interest that they pay adequate taxes in countries in which they operate, as this is the only way to ensure public funding is available for necessary investments in education, infrastructure and social standards, as well as for promoting innovation.

Bayer's Approach to Tax, which can be viewed on our [website](#), summarizes the main aspects and principles of our internal tax policy. Updates to the tax policy are reviewed and approved by the head of Group Finance and the Group CFO.

Bayer observes the applicable regulations and the associated disclosure obligations. These efforts may include the involvement of external experts or consultation with the respective tax authorities, for example. These principles additionally apply whenever service providers are commissioned.

As the continuous further development of tax legislation is also in our interests, we participate in the political discourse while observing the stipulations of the Code of Conduct for Responsible Lobbying and our BASE principles (please see Chapter 2.2 Behavioral Principles (BASE)).

Tax risks are accounted for in the Bayer Group's global risk management system (please see also Chapter 2.8 Risk Management), responsibility for which lies with the Board of Management of Bayer AG. As an element of financial reporting, it is also subject to regular review by the external auditor. In this connection and in observation of the legal requirements, Bayer separates corporate auditing from tax consulting so as to rule out conflicts of interest in advance.

2.8 Risk Management

As a global life science enterprise, we are exposed to a wide range of internal and external developments and events that could significantly impact the achievement of our financial and nonfinancial targets. Opportunity and risk management is therefore an integral part of corporate management at Bayer. We regard opportunities as positive deviations, and risks as negative deviations, from projected or target values for potential future developments. We also take into account risks that could occur as a result of our business operations, such as those impacting social and environmental matters.

We have implemented a holistic and integrated risk management system designed to ensure the continued existence and future target attainment of the Group through the early identification, assessment and treatment of risks. Our risk management system is aligned to internationally recognized standards and principles such as the ISO 31000 standard of the International Organization for Standardization.

The Board of Management of Bayer AG holds overall responsibility for an effective risk management system. The Audit Committee of the Supervisory Board oversees the appropriateness and effectiveness of the risk management system at least once a year, after which a report is made to the entire Supervisory Board.

The Bayer Assurance Committee, which is chaired by the CFO, is a committee of the Board of Management. As well as ensuring that appropriate action is taken to control any substantial risks, the Bayer Assurance Committee regularly discusses and reviews the risk portfolio and the status of the risk control measures.

Responsibility for the identification, assessment, treatment and reporting of risks lies with the operational business units in the divisions and enabling functions. The risk managers are responsible for identifying risks.

Where possible, the identified risks are evaluated with regard to their potential impact and likelihood of occurrence, while taking into account established risk control measures. To help ensure we identify risks as comprehensively as possible, we maintain a risk universe that reflects the company's potential risk categories. The Bayer Risk Universe, which is regularly updated, also expressly accounts for risks of a nonfinancial nature that are linked to our business activity or to our business relationships, products and services.

Risks are assessed on a net basis, taking into account the risk control measures in place to mitigate the potential impact and likelihood of occurrence. Examples of such risk control measures can also be found in this Sustainability Report in the descriptions of how various sustainability issues are managed. The extent of the impact is rated in quantitative and/or qualitative terms. The quantitative assessment reflects a potentially negative effect on cash flows. A qualitative assessment of the impact is based on criteria such as

the effect on our strategy or reputation, the potential loss of stakeholder confidence, and potential incomplete compliance with sustainability principles (e.g. in the area of safety, environmental protection or human rights). The higher rating – qualitative or quantitative – determines the overall assessment.

Included are risks pursuant to the Corporate Social Responsibility (CSR) Directive Implementation Act that relate to environmental, employee and social issues, human rights, corruption and bribery (compliance).

For detailed information on the basic elements of the risk management system, including the risk management process, and details on our risk status, please see Chapter 3.2 Opportunity and Risk Report of the [2021 Annual Report](#).

Material legal risks are described in the [2021 Annual Report](#) under Note [30] to B Consolidated Financial Statements (Legal Risks).

2.9 Sustainability Management

Sustainability is one of our strategic focuses, manifesting itself in the consistent alignment of our business activities to positive contributions for people and the environment. Clearly defined roles and responsibilities ensure effective sustainability management throughout the organization. The top level of responsibility is held by the Chairman of the Board of Management in his role as Chief Sustainability Officer (CSO) together with the entire Board of Management. An external Sustainability Council provides the Board of Management with constructive criticism in all sustainability matters.

At the beginning of 2022, the Supervisory Board deployed a separate ESG Committee. Within the responsibility of the Supervisory Board, this focuses on Bayer's sustainable governance and business activities in the areas of environmental protection, social affairs and good corporate governance (ESG).

The Public Affairs, Science, Sustainability & HSE Enabling Function helps the CSO and the Board of Management to identify risks and opportunities, develop strategies and define targets and guidelines for sustainability management, and also ensures the governance of all sustainability issues. Sustainability management is embedded in the existing management and governance structures as well as the core processes of the organization.

Operational implementation takes place in the divisions and along the value chain. Each of our divisions has an established sustainability organization, with sustainability aspects also being integrated into the processes of the enabling functions.

Our Group Regulation on Sustainability will be updated and published in 2022. Also in 2022, our new Sustainability Decision Committee, composed of managerial employees from the divisions and enabling functions, will come together for the first time to coordinate sustainability measures throughout the Group.

The attainment of sustainability targets is also integrated as an additional parameter into the long-term variable compensation (LTI) of upper management, similar to the compensation of the Board of Management.

Our commitment to the U.N. Global Compact and the Responsible Care™ initiative of the chemical industry and our involvement in the World Business Council for Sustainable Development (WBCSD) underline our mission as a company that acts sustainably.

Sustainability Council

A major element of our intensified sustainability efforts is the independent Sustainability Council that we have established. This currently comprises nine internationally recognized experts from the areas of healthcare, nutrition, agriculture and the environment, representing a broad range of views, differing geographical origin and different genders. The Sustainability Council advises the Board of Management on the further development of its business strategy as regards sustainability and with respect to what contribution research and development can make to sustainability. The contributions of the Sustainability Council inform our strategic planning. Another task for the nine experts is to promote cooperation with networks in society, education, industry and politics. The Sustainability Council convenes twice a year for deliberations and reports annually on the progress of its work. The Chairman and other members of the Board of Management also attend these meetings. The Sustainability Council also handles specific topics together with Bayer's experts.

Employee involvement

We actively involve our employees in the achievement of our sustainability targets and aim to enhance their awareness about this issue.

The newly introduced Advancing Sustainability@Bayer platform offers a wealth of information on sustainability issues for all employees to promote knowledge and open dialogue on various sustainability-related topics.

A network of 160 Sustainability Champions from various countries, divisions and enabling functions was established in 2021. Our Sustainability Champions act as role models and multipliers: for example, they conduct local workshops or initiate campaigns and discussion rounds to enable the exchange of best practices.

As our managerial employees also act as multipliers to promote and embrace sustainable behavior on an everyday basis, we have integrated sustainability issues into all global management development programs offered through the Bayer Leadership Academy. The topic of sustainability is also addressed in our employee survey, which was conducted twice in 2021.

Materiality analysis

We determine the expectations and requirements of the various stakeholders using a materiality analysis that surveys global representatives of important stakeholder groups and managerial staff from various areas of the company. The results thereof reveal relevant issues and the latest developments, along with sustainability-related opportunities and risks, and help us to assess these accordingly. The survey of external stakeholders also reflects how our sustainability performance is perceived, which enables us to identify weaknesses and areas for improvement.

At the next stage, Bayer managers supplement the assessment of issues of relevance from an external perspective with an estimation of the impact the company has on the environment, employees and health in each respective topic area. Finally, the issues prioritized on this basis are approved by the Board of Management.

Results of the Materiality Analysis

Stakeholder Relevance (external perspective)	Very high			// Climate Protection // Protection of the Environment // Innovation // Business Ethics // Product Stewardship // Sustainable Food Security // Access to Healthcare
	High		// Human Rights // Safety	// Employees // Supplier Management
	Moderate	// Stakeholder and Community Involvement		
		Moderate	High	Very high

Bayer Relevance (internal perspective)

The following stakeholder groups were included in the stakeholder survey:

Surveyed Stakeholder Groups	
Residents near Bayer sites	Politicians and public authorities
Banks	Rating agencies
Bayer management	Nongovernmental organizations (NGOs)
Consultants/corporate auditors	Associations
Investors	Representatives/distribution partners
Customers	Competitors
Suppliers	Scientists/universities/schools
Media	Other

The materiality analysis serves to meet external requirements in accordance with the CSR Directive Implementation Act (CSR-RUG), the German Commercial Code (Sections 289b to e) and the GRI Standards.

In accordance with the GRI Standards, the following two dimensions were among the factors applied for the identification and prioritization of key issues:

- // Impact of Bayer's business operations on economic, social or environmental matters
- // Impact on decisions by Bayer stakeholders

The results of the internal and external viewpoint survey were combined in a materiality matrix.

The areas of activity in the current materiality analysis are accounted for in our sustainability strategy and determine the focal points of our sustainability management approach and our nonfinancial Group targets. For detailed information on innovation, please see the [2021 Annual Report](#).

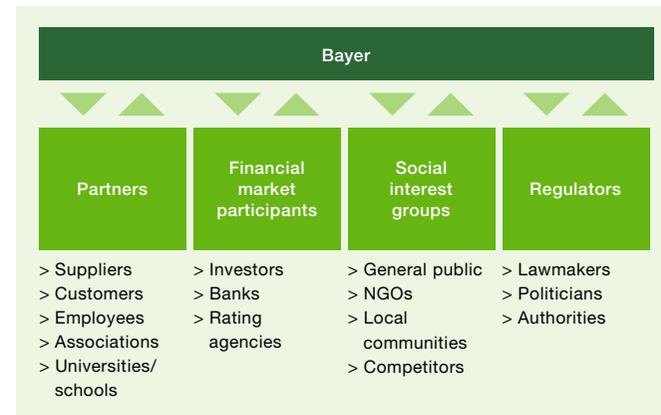
The further validity of the materiality analysis was reviewed internally in 2021 and confirmed. In 2022, we will carry out a new materiality analysis.

2.10 Stakeholder Dialogue

As a company, Bayer is a part of society and public life. Ongoing dialogue with our stakeholders is therefore particularly important to us. After all, their expectations and viewpoints affect our public acceptance and thus our commercial success.

We fundamentally distinguish between four stakeholder groups with which we engage in discussions on different issues.

Stakeholder Groups



Stakeholder dialogue helps us to recognize important trends and developments in society and our markets at an early stage and take this information into account when shaping our business. Our BASE principles (please see also Chapter 2.2 Behavioral Principles (BASE)) serve as the foundation for all dialogue.

In strategic decision-making processes, regarding investment projects and product launches for example, Bayer proactively approaches key social and political players right from the start of a new project. Such open dialogue enables us to identify opportunities and risks early on. This process is in line with our Stakeholder Engagement Guideline and is supplemented by an internal information platform.

Focus on a variety of stakeholders

Our regular stakeholder activities range from dialogues at the local, national and international level, and active involvement in committees and specialist workshops all the way through to comprehensive information programs, issue-related multi-stakeholder events, and participation in international initiatives and collaborations.

The selected topics described below provide insight into our engagement with our most important stakeholder groups.

Last year, we engaged in intensive discussions with stakeholder groups (see graphic) that focused on topics such as sustainable agriculture, healthcare, nutrition, climate change, biodiversity and water, as well as poverty alleviation and family planning.

Examples include our virtual event series “Future of Farming Dialogue,” our stewardship role in the Council for Inclusive Capitalism and our participation in Ecosperity Week 2021, Economist Sustainability Week, the United Nations Food System Summit and the Politico Agriculture & Food Summit.

At the U.N. Climate Change Conference (COP26) in Glasgow, we intensively discussed solutions for addressing climate change. Other examples included dialogues on food security at the Munich Security Conference and on innovation at the annual meeting of the World Economic Forum, as well as stakeholder dialogues on sustainability during the U.N. General Assembly.

To facilitate global access to medicines, we cooperated intensively with various organizations and other stakeholders. In addition to neglected tropical diseases (please see the

Focus on: Access to Healthcare chapter), we collaborated with various pharmaceutical companies – within the Access Accelerated initiative – on solutions for access to medicines for treating noncommunicable diseases in less affluent countries.

Through a multi-stakeholder dialogue and the coalition Bayer formed in 2021 with organizations such as the World Bank, the Global Economic Forum and Grow Asia, we significantly raised awareness about the challenges faced by smallholder farmers. For example, we conveyed to governmental organizations the need to enable access by these smallholder farmers to technology and innovations to improve their living conditions.

Various live discussions on socially relevant issues were held on LinkedIn – including in areas where Bayer is viewed critically. These discussions focused on themes such as climate change, biodiversity, water and sustainable economic activity.

Bayer is committed to being a reliable partner that is aware of its societal responsibility toward the communities adjacent to our sites. Hence, we maintain an open dialogue between local management and community members at our production sites, which is supported by each site's respective country organization. This dialogue involves personal discussions with residents, citizens' initiatives, representatives of religious communities and the regional press. It also includes the Product Supply Community Outreach program, which focuses on making a direct positive impact in the communities where our employees live and work. At more than 140 sites worldwide, we want to create significant impact and value added with the program.

We engage in everyday dialogue with our customers. Our divisions navigate very different regulatory frameworks. For example, direct contact between Pharmaceuticals or

Consumer Health and the respective customer environment, and especially patients, is regulated in different ways for each division. With regard to the collection of customer satisfaction data, different legal requirements apply to prescription medicines from Pharmaceuticals than to nonprescription medicines, for example. Any primary market research and data research that must be conducted, including systematic internet analysis, strictly adheres to the legal requirements, which can vary significantly depending on the market.

One way in which Crop Science achieves customer centricity is through our Food Chain Partnership, which includes several hundred initiatives throughout the entire value chain. These strategic alliances and cooperation models are aimed at driving improvements in food security, sustainability and economic opportunities for farmers. The programs center on innovative crop solutions and services for sustainable agriculture.

In our Bayer Forward Farming programs, we work together directly with a network of independent farmers who demonstrate sustainable agricultural practices in various crops and countries around the world. Our goal is to create ecosystems that reduce business risks for our customers. With this goal in mind, we form partnerships with NGOs, value chain partners and the public sector, and jointly develop new solutions such as the Global Alliance Against TR4 to prevent the spread of pathogens such as TR4 (Tropical Race 4) in banana plants; the MidWest Row Crop Collaborative Platform; the Living Soils for Americas Initiative to improve soil health and food security; and Better Life Farming (BLF), IFC (International Finance Corporation, part of the World Bank), Netafim and other local partners to empower smallholder farmers.

For more information on dialogue with stakeholders, please see the chapters 2.9 Sustainability Management, 3. Product Stewardship (Commitment), 4. Procurement (Developing suppliers), 5. Human Rights (Engagement) and 6. Employees (Dialogue and exchange) and our [website](#).

Dialogue with investors and ESG rating agencies

The capital markets' increasing interest in sustainability and ESG (environment, social, governance) issues is reflected in our dialogue with institutional investors. Inquiries in 2021 focused particularly on the sustainability strategy and targets, climate protection and goals including the Bayer Carbon Initiative, product stewardship, biodiversity, ESG performance ratings and controversies, and sustainability governance mechanisms, including nonfinancial targets in compensation.

Highlights included numerous bilateral investor conversations about ESG issues as well as regular discourse with the investor initiative Climate Action 100+ with regard to the company's climate strategy. One result of this dialogue was the [Industry Association Climate Review 2021](#) published for the first time in October 2021 (please see also Chapter 7. Climate Protection), in which we compare our own climate position with those of our industry associations. This publication, therefore, provides an important basis for our further activities in these associations.

We engage in regular dialogue with important ESG rating agencies, partly to support the objective assessment of our company and also to help us to better identify improvement opportunities and weaknesses in our own business. That includes conversations with the ESG rating agency MSCI ESG Research, which critically assesses Bayer with a "red flag" in the "Biodiversity & Land Use" section of its controversy report. The allegations pertain to the possible negative

environmental impacts of genetically modified crops. We pursue open, science-based discourse with MSCI ESG Research to refute the allegations and achieve a fair assessment of this technology and our company. For more information on breeding methods and genetic engineering, please see the Focus on: Agriculture chapter.

In April 2021, we published a report in which we presented our measures for the safe application of the neonicotinoids class of insecticides, which have been the subject of criticism in some cases. The report focused on the systematically improved mechanisms to mitigate risks related to the various individual applications for crop protection products and on the implications for the further development of our product portfolio. In conjunction with our continuous dialogue with the ISS ESG rating agency, [this publication](#) achieved a significant improvement in the agency's standards-based assessment of Bayer through the lifting of a "red flag."

Already at the beginning of 2021, we improved by three places to 13th position in the Access to Medicine Index (ATM Index) of the ATM Foundation, partly due to our ambitious sustainability targets and our efforts in the areas of family planning and neglected tropical diseases.

In the three regional rankings of the Access to Seeds Index, we achieved an outstanding result in 2021 with first-place finishes (of 31 companies in each case) in the Western and Central Africa and Eastern and Southern Africa regions and a third-place finish (of 32 companies) in the South and Southeast Asia region. The ranking published by [the World Benchmarking Alliance](#) assesses and compares measures undertaken by seed companies to increase smallholder farmers' productivity and thus improve food security.

In 2021, CDP (formerly the Carbon Disclosure Project) once again gave the highest rating (A) to our company's climate strategy. We also achieved good results again in the areas "Water Security" (A-) and "Forests" (B).

Bayer is one of only a few German companies to have been included in the [Bloomberg Gender Equality Index](#) since 2020.

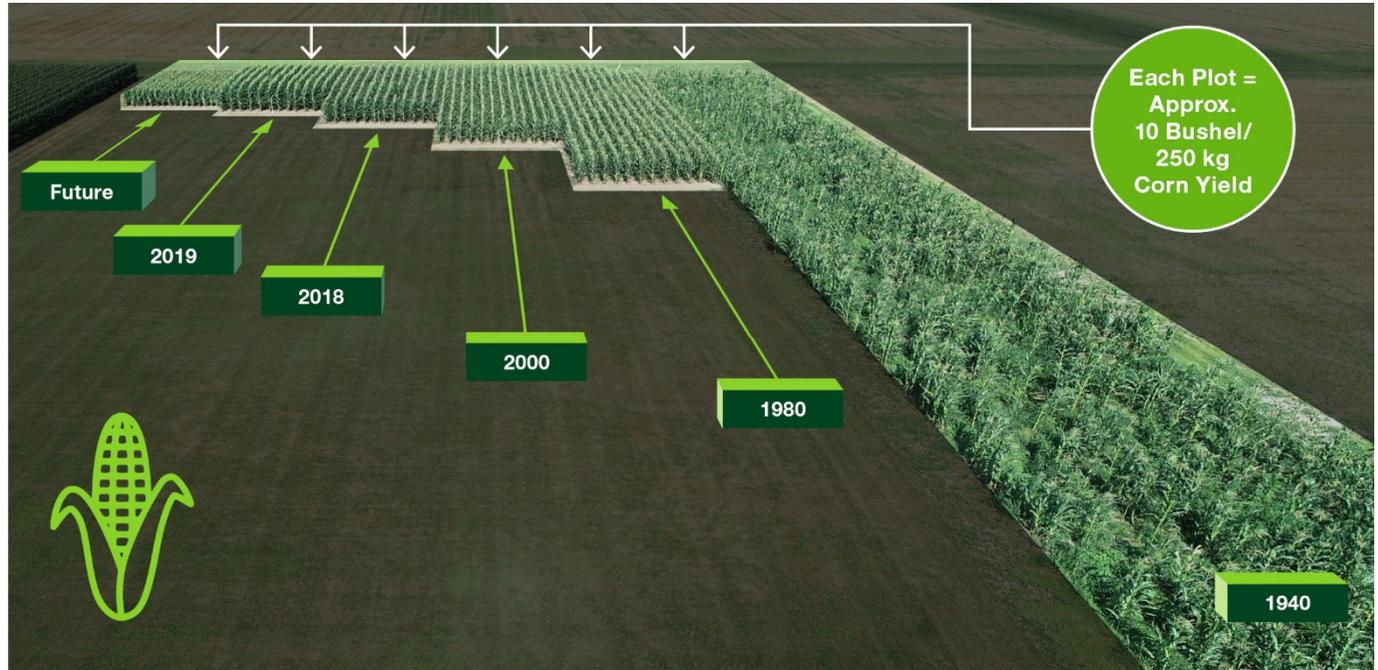
Focus on: Agriculture

Challenges and Approaches

Global agriculture and food systems are confronted with major challenges, such as climate change, water scarcity and population growth. Scientists and U.N. organizations expect the world population to grow to around 10 billion people by 2050 – an increase of around two billion people relative to 2020. In addition, both the Food and Agriculture Organization (FAO) of the United Nations and the World Resources Institute (WRI) envisage a 50% increase in the demand for food and animal feed by 2050. The demand for animal-based protein and thus also for animal feed is expected to increase further, especially in the emerging markets. At the same time, the already limited farmland will decline due to climate change, water problems, soil erosion and other factors. The agricultural sector therefore has to meet the needs of a growing population, while at the same time promoting sustainability and protecting our ecosystems.

Sustainable intensification

Intensive agriculture with high yields per hectare of farmland is a crucial factor for ensuring the continued availability of high-quality and affordable food. Agricultural intensification leads to less land being required for the same amount of food produced. While agricultural yields have grown by 60% over the past 40 years, the amount of agricultural land has increased by only 5%. This productivity increase was substantially enabled by technological developments in the areas of plant breeding and – since the 1990s – plant biotechnology as well as fertilization, irrigation and crop protection. Insecticides and fungicides have played a crucial part in



minimizing harvest losses. Crops compete with weeds for water, nutrients and light; herbicides help to reduce this competition.

Bayer helps farmers cultivate more food for a growing population while at the same time reducing the environmental impact of agriculture. Digital technologies play an important role here, as do improved seed and good agricultural practices. To reduce harvest losses caused by insect pests,

competitors for nutrients or fungal infestation, we combine our high-performance seeds with the targeted use of crop protection products. We can therefore offer farmers a selection of these innovations and recommend optimal combinations that enable the use of agricultural production factors at the correct time and in the correct place. For more information on the responsible use of crop protection products and the application of digital farming technologies, please see Chapter 3.6 Crop Science.

Our innovations in the areas of plant breeding and crop protection are designed to further improve both the quality and the quantity of harvests, while providing highest safety standards, and to enhance plants' resilience against insect pests, diseases and a changing climate. For more information on our innovations, please see Chapter 1.3 Focus on Innovation of the [2021 Annual Report](#).

Intensified agriculture certainly has also led to a local decline in species and in some [ecosystem services](#) – in other words, the beneficial effects people derive from ecological systems – due, for example, to the removal of structural landscape elements, the narrowing of crop rotation systems or certain agricultural practices such as excessive use of crop protection products or fertilizers. We invest in research and development so as to attain an improved balance between productivity and conserving biodiversity and ecosystem services. For more information on our activities to conserve biodiversity, including pollinator insects, please see chapters 3.6 Crop Science and 3.7 Biodiversity.

Plant Breeding

[Plant breeding](#) (including of hybrid cultures) plays a key role in achieving high agricultural yields. Bayer supports the responsible use of different breeding techniques.

In selective plant breeding, existing species of a crop (e.g. corn) are crossed to transfer the desired traits to the next generation of plants. Our scientists combine large volumes of genomic, phenotypic and environmental data for selective breeding in plants to develop some of the highest-performance seed products in the world. We use greenhouse- and field-based product testing over multiple years to determine whether the desired traits have been transferred to the following generations.

Our greenhouse- and field-based product testing and our scalable data analysis and automation functions provide additional insight into the unique characteristics of our products, such as plants' ability to thrive against diseases and during water scarcity. This enables us to give our customers tailored recommendations that take into account factors such as the climatic circumstances of a region.

Supporting USDA-GEM

Bayer donated 1,990 lines to the USDA-GEM (United States Department of Agriculture – Germplasm Enhancement of Maize) program in 2020. These contained a combination of Bayer genetics and a genetic diversity of 31 maize landraces from across the Americas, bred to flower in the U.S. Central Corn Belt.

In 2021, the USDA-GEM program started evaluating this material. USDA-GEM observed different plant characteristics related to plant stature, unique traits such as dwarfism or multi-ears, and noted resistance levels to several diseases such as gray leaf spot, rust and Fusarium stalk rot.

Improved breeding stocks that USDA-GEM develops from such diverse germplasm are made available to a global network of private and public collaborators, and eventually to the entire maize research community. These collaborators are free to use them directly for making new hybrid corn varieties, or as breeding parents in their own breeding programs.

Innovations in plant breeding: genome editing

Bayer employs new breeding methods that contribute to the development of modern varieties better suited to their environments, making it possible to farm more sustainably.

One targeted breeding approach is a molecular biology process known as genome editing, which is largely based on improving plants' characteristics by leveraging their existing genetics, for example by deactivating unfavorable traits (such as disease vulnerability) or supporting beneficial traits (such as drought tolerance or improved nutrition). The use of breeding innovations, including [CRISPR-Cas](#), can improve the efficiency and precision of plant breeding and contribute to the development of new crop varieties needed to sustainably secure the supply of safe, affordable and healthy food.

Short-stature corn

One example of the possibilities offered by plant breeding innovations is our [short-stature corn](#), which we intend to commercialize in the coming years. Through breeding, plant biotechnology and genome editing, we have succeeded in developing seed varieties that enable the growth of shorter corn plants that have the potential to not bend or break as easily as corn plants of regular height in the presence of strong winds or heavy rain. Losses in the United States due to bent plants amount to between 5 and 25% a year depending on the severity of weather events. Short-stature corn also has the potential to enable an optimized uptake of water and nutrients such as nitrogen.

Accessing modern plant breeding

Facilitating access and enhancing plant genetic diversity is essential for plant breeders to enable sustainable, higher yielding and healthy crops amid continued climate challenges. In order to make these improvements accessible to smallholder farmers, we engage in various collaborations and public-private partnerships to share knowledge and resources:

- // The Modern Breeding Project is a cooperation with the International Institute for Tropical Agriculture ([IITA](#)), providing know-how in technology advancements to plant breeders so they can increase genetic gain in local crops grown in countries like Mali and Nigeria.
- // We participate in the International Maize Improvement Consortium for Africa ([IMIC-Africa](#)) to enhance African farmers' access to high-quality, affordable, high-yielding and locally adapted maize seed.
- // We are a member of the International Rice Informatics Consortium ([IRIC](#)) with germplasm diversity in rice as a focal point for engaging communities in Asia.
- // We participate in the [TELA project](#) (previously Water-Efficient Maize for Africa, WEMA) to improve sub-Saharan farmers' yields, food quality and profitability through improved drought-tolerant hybrids.

TR4-resistant varieties of banana

Bananas, a key crop for global food security and the livelihoods of millions of smallholder farmers, are facing the most serious threat in decades – the Tropical Race 4 (TR4) strain of the *Fusarium* fungus, which has triggered a pandemic on banana plantations and is devastating the crop across banana-cultivating regions. At present, control of the disease by fungicides is impossible. The only way to protect bananas is to prevent the fungus from spreading, which is extremely difficult, or to develop resistant varieties. Joining forces with partners from the private and academic sectors, civil society organizations and state entities within the Global Alliance for Cooperation to Fight against *Fusarium* TR4, Bayer supports the establishment of breeding programs, capacity building for high-throughput screening, and the development of new editing techniques to mass-produce new varieties of banana that are resistant to TR4.

Plant Biotechnology

Plant breeders use the genetic diversity of plants to generate new and unique plant varieties and hybrids for farmers.

Plant biotechnology can then be employed to transfer genes and their associated beneficial traits from one organism to another. Genetically modified crops provide substantial agronomic, economic and ecological benefits. They can help farmers to increase productivity despite difficult growing conditions by protecting harvests from pests and weeds while consuming fewer natural resources. Farmers in large

and small enterprises from industrialized and developing countries alike can benefit from genetically modified crops, especially corn, soybeans, cotton and oilseed rape/canola. According to information from the nonprofit organization ISAAA (International Service for the Acquisition of Agri-biotech Applications), crops that are the product of modern biotechnology are grown on more than 190 million hectares in over 29 countries.

Bayer specializes in high-quality seeds with groundbreaking traits that offer not just higher yields, but also improved weed control and more effective defense against insects. Our genetically modified plants containing [Bacillus thuringiensis](#) (Bt) control specific insect pests that feed directly on the plant. Other insects such as bees and additional pollinators are not harmed by Bt plants. The deployment of these plants can considerably reduce the use of broad-spectrum insecticides.

Our [herbicide-tolerant plants](#) are tolerant to certain herbicides such as glyphosate or dicamba. This enables weeds in fields to be eliminated using herbicides without damaging the crops. Using these plants enables farmers to reduce or completely forgo tillage as a method of weed control and instead use techniques such as plowless soil tillage, which is applied in particular in North and South America. In combination with good practice such as the cultivation of cover crops, no-till has a positive impact on soil health. It reduces erosion in the long term, facilitates the development of humus and thereby ensures increased storage of carbon in the soil. This in turn reduces the release from the soil of greenhouse gases that can contribute to climate change. Furthermore, farmers need less fuel for tillage when there is no plowing and cultivation requirement.

The development and approval of genetically modified seeds are subject to comprehensive international guidelines and stringent national laws and regulations. For more information, see our [website](#). The safety of genetically modified crops has been confirmed by numerous studies, which have been evaluated by regulatory authorities in 70 countries. Some believe that genetically modified plants could spread throughout the environment and thus negatively impact plant biodiversity. However, cross-pollination between a genetically modified plant and a wild one would require the plants to be very closely related. Various studies demonstrate that the introduction of genetically modified crops has not negatively affected crop biodiversity.

Preserving plants' integrity

Breeding for conventional and ecological farming requires measures to preserve the plants' integrity and thus maintain seed quality. This means that the uncontrolled pollination or cross-breeding of plants must be prevented.

Pollen flow plays a key role here, including for genetically modified plants. For example, in our breeding of corn, an open pollinated crop, it is essential to be aware of and limit the possible pollen flow under different conditions.

Detailed agricultural practice requirements are in place for our own sites and those of our seed producers to prevent inadvertent pollination. These rules are spelled out in our publicly accessible [Technology Use Guide](#) for corn, soybeans, oilseed rape/canola and other row crops. Among other information, it contains provisions for planting at a prescribed distance to other fields of the same crop type or planting at different times to prevent simultaneous pollination in two fields.

There is no evidence that local or native plants are reduced in the unlikely event of inadvertent cross-pollination between genetically modified and nongenetically modified

plants from the same species. There is also no evidence that seed diversity has decreased because of the introduction of genetically modified crops. After reviewing more than 900 studies, the U.S. Academies of Science published a report in 2016 stating that it did not see any indication that the genetic diversity of major seed varieties in countries such as the United States had declined due to the introduction of genetically modified seeds. The number of available seed varieties had instead declined already during the 20th century due to strong demand for high-yielding seeds.

Enabling a Climate-Smart Agriculture

According to a [report of the Intergovernmental Panel on Climate Change \(IPCC\)](#), agriculture, forestry and other land use account for about 25% of all greenhouse gas (GHG) emissions worldwide. Climate change places significant pressures on agriculture in the form of reduced yields, land degradation and increased threats from pathogens and diseases. At Bayer, we have a responsibility to advance a carbon-zero future for agriculture in close collaboration with farmers, and global and local players. This requires the development of new technologies, digital enablement and the transformation of agricultural practices. In addition to our commitments to carbon neutrality for our own operations (please see Chapter 7. Climate Protection), we aim to enable our farming customers to reduce their greenhouse gas emissions per kilogram of crop produced by 30% through 2030. This applies for the highest greenhouse gas emitting crop systems and in the regions Bayer serves with its products. Therefore, our focus lies on soy and corn in the United States, Brazil and Argentina, paddy rice in India, and wheat, cotton and oilseed rape/canola in various geographies.

The scope of our efforts is focused on emissions of major greenhouse gases: carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O) from field operations. The sources of greenhouse gas emissions include cultivation, decomposition of applied fertilizers and organic matter, and irrigation.

To measure progress against our target, we will use representative samples of field-level data from a third-party market research data provider (Kynetec UK Ltd.) obtained in interviews with randomly selected farmers.

We calculated a baseline based on our customers' carbon footprint in most important crop-country combinations with data on 2020 and will complement it with the data from additional geographies next year. We define our customers as farmers whose share-of-wallet for our products at least equals our market share in a particular market, farmers using our seed varieties or our digital platform Climate FieldView™ or farmers participating in our [Bayer Carbon Initiative](#).

To achieve our target, we foster the adoption of climate-smart practices and technologies by our farming customers. These include high-yielding crop genetics, crop protection products, precision irrigation systems, soil management tactics through no-till and cover crops, crop rotation, root health, fertilization management, microorganisms and inoculants, a switch to dry-seeded rice, and digital and precision farming tools. Combining different levers can lead to customized profitable tailored solutions for our farming customers.

Currently, we are integrating environmental metrics, including a greenhouse gas footprint, into our development field trials to develop innovative, profitable and tailored solutions that combine higher yield with co-benefits, such as a reduced environmental footprint.

To learn how to scale the adoption of climate-smart practices and solutions, create new value streams for our farming customers and business opportunities for ourselves, and at the same time benefit the environment, Bayer is driving the implementation of carbon farming initiatives in every region we serve:

North America

In the United States, the [Bayer Carbon Program](#) rewards farmers for adopting climate-smart practices, such as planting cover crops and practicing no-till or strip till in their fields, with the ambition to generate high-quality certified carbon assets in the future. Growers can receive guaranteed payments based on the adoption of these practices and the number of acres enrolled per year.

Latin America

As part of the Bayer Carbon Program, farmers in Brazil who fulfill the requirements, such as social and environmental compliance, and adopt climate-smart practices (e.g. no-till, cover crops), are eligible for soil collection and analyses with our partner, [Embrapa](#). The effort was launched in 2021 with approximately 1,800 farmers from 16 different states (over 200,000 acres).

Europe

In Europe, Bayer launched its decarbonization program for agriculture in 2021. We are engaging in open discussions with key regional, local and global food chain partners as we work to develop a carbon pilot with farmers in several countries across Europe. These projects are partly supported by the Bayer Forward Farming network.

Asia/Pacific

Flooded paddy rice has been identified as a significant contributor to emissions of methane, a potent greenhouse gas. As part of the India Sustainable Rice project started in 2021, Bayer is evaluating greenhouse gas emissions reduction as well as water-saving potential in the cultivation of rice.

Bayer launched an initiative to train farmers in sustainable practices related to greenhouse gas emissions reduction, water efficiency and integrated weed management to improve the environmental footprint and productivity.

Partnerships

In our partnerships and scientific coalitions, we support the science of soil management, decarbonizing food systems and technical, digital and financial solutions that help farmers to implement climate-smart practices.

- // [Global Soil Health Programme](#) (University of Glasgow)
- // [World Economic Forum Lighthouse project](#) – Decarbonization of the EU Food System – European Carbon+ Farming Coalition
- // [Inter-American Institute for Cooperation on Agriculture](#) (IICA), [Living Soils in the America's Initiative](#)
- // [Coalition of Action 4 Soil Health](#) (CA4SH)

Crop Protection Environmental Impact Reduction (CP EIR)

Agricultural activities always have an impact on the environment. Each tool that a farmer applies has benefits and can often also have drawbacks, and this is generally true for crop protection. Farmers must strike a balance between the need for tools like crop protection – which enables them to keep meeting the need for food of the growing world population while using less land and resources – and potential trade-offs posed by increasing the use of such tools.

The prerequisite for placing crop protection products on the market is clear proof of efficacy, while ensuring no effects on human health and only minimal, acceptable impact on the environment. Crop protection products are highly regulated by governmental authorities. Bayer consistently seeks to develop and offer crop protection products that have the same or better benefits for farmers, while having less impact on the environment.

To this end, Bayer adopted a methodology for crop protection environmental impact reduction (CP EIR) and made a commitment to reduce the environmental impact of our crop

protection products. In detail, we will reduce Bayer’s global treated area weighted crop protection environmental impact per hectare by 30% by 2030 against a 2014–2018 average baseline.

Scientific models used

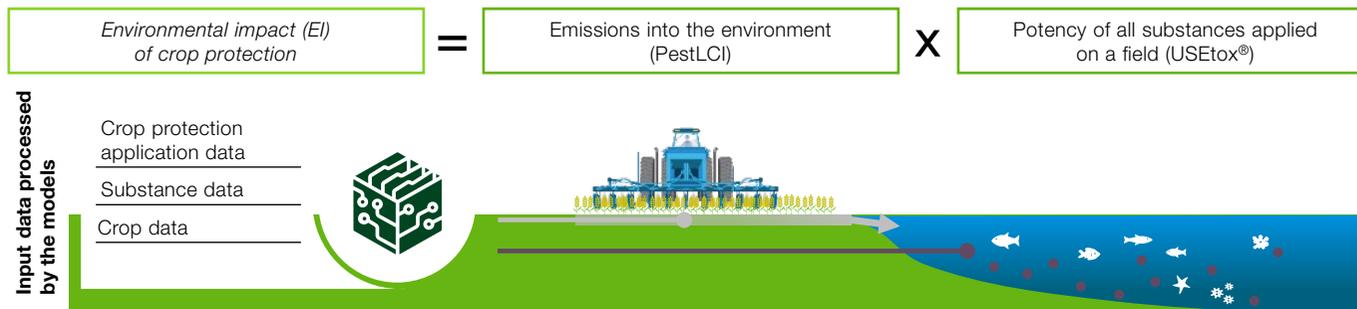
The methodology we adopted relies on two leading externally developed scientific consensus models to enable a quantifiable environmental impact assessment of crop protection.

// PestLCI has been developed and established by the Technical University of Denmark (DTU) in cooperation with other institutes and organizations since 2006. PestLCI estimates the quantity of an active ingredient emitted into the surrounding environment with the application of a crop protection product in the field, taking into account all contributing processes.

// USEtox® has been developed under the auspices of UNEP-SETAC in cooperation with various universities and institutions since 2008. USEtox® determines concentrations in the surrounding environment and the potential impact the crop protection products could have on the aquatic ecosystems. USEtox® is also recommended by the European Commission as a model for the analysis of products’ life cycles and environmental footprint.

Bayer provided an extensive inventory of detailed historic market data on crop protection applications globally to the DTU. The DTU combined the crop protection inventory data with PestLCI and USEtox® to calculate a global crop protection impact assessment. An external panel of experts is independently performing an assessment of how Bayer and the DTU apply the models to assess its crop protection environmental impact, and how Bayer measures performance against its commitment and other methodological considerations.

Crop Protection Environmental Impact Reduction



Bayer’s CP EIR assessment compares the impact of crop protection products. The calculation results in a numerical Environmental Impact Score per application scenario. The score depends mainly on the environmental profile of the active ingredient applied on the field, the amount applied and other factors influencing the emissions into the environment such as application method and timing.

The CP EIR assessment does not account for the environmental effects of other tools applied within farming and integrated crop management, such as plowing, seed bed preparation, fertilizers or harvesting.

As the science of impact assessment evolves, we work with the scientific consortium developing these models as well as with other experts in the field to expand the capabilities of the current models. Currently, we are focusing on the potential impact on aquatic ecosystems, and we plan to enhance

the model on soil organisms and pollinators in the future. And because these models and the underlying methodology are publicly available, we invite the scientific community to check our progress and verify where we stand on our commitments.

Scope of the sustainability target

All Bayer crop protection product applications in the field globally, as reported in the AgroWin system, are in the scope of our commitment to reduce the environmental impact of crop protection. The baseline for our commitment is built on an average of all Bayer crop protection products applied in the field globally between 2014 and 2018 and their respective environmental impact. Using an average as the baseline accounts for the specifics of agriculture such as seasonality or dependence on climatic conditions. To ensure the transparency and credibility of the baseline, performance tracking and calculation of CP EIR, all required data is third-party data – including crop protection application data or substance characteristic data.

Outcomes

Applying CP EIR allows Bayer to identify hotspots of environmental impact and develop improvement levers.

Based on the analysis of the environmental impact of crop protection products, we will be able to recommend a range of tools to help farmers protect their crops and lessen their environmental impact. This can help to produce higher-yielding crops with less impact in and around the field.

In terms of levers to achieve the commitment, they can be categorized as follows:

- // Optimization of crop protection volumes required per hectare through tools such as:
 - // Precision application: data-driven tools that ensure the right amount of crop protection product is applied by farmers in the right place and at the right time
 - // Seed treatment: seed-applied crop protection tools that can significantly reduce the volume of chemicals used and therefore the potential exposure to wildlife and the environment
 - // Seeds and traits: crops bred and designed to better fight pests and diseases that attack them, ensuring that less chemical crop protection is needed
 - // Biologics: complementing chemical crop protection with biologics to enhance integrated management practices and reduce pest resistance

- // Reduction of the environmental impact of the crop protection product itself
 - // Better environmental profile of an active ingredient (lower effect on nontarget plants and species) compared to other products
- // Reduction of the emissions into the environment
 - // Mitigation measures such as drift reduction and buffer strips
 - // Digitally enabled precision application

In 2021, an initial assessment was performed on the environmental impact of Bayer's crop protection products as well as all other globally applied crop protection products in 2018 in the market. One of the conclusions of the analysis was that the impact of Bayer's crop protection products represents around 2% of the global environmental impact of all crop protection products, despite Bayer's market share in terms of sales being significantly higher (around 18% of the global crop protection market). For more information, please see our [website](#).

3. Product Stewardship

Assuming responsibility for our products, from medicines to complex solutions for agriculture, is always at the core of what we do. They should be of the highest quality and contribute to a better life. This means that neither their development and manufacture nor their disposal should cause damage to people and the environment. For this reason, we conform strictly to regulations and laws all over the world.

3.1 Management Approach

For us, product stewardship means that our products meet the highest quality standards and are safe for people and the environment when properly used. Not only do the desired properties of substances and products need to be taken into consideration but so do the possible risks for people and the environment. We respect legal requirements, and our voluntary commitment and internal standards go beyond these in a variety of areas. Bayer has put in place suitable directives and management systems to implement regulatory and voluntary product stewardship requirements. These are steered by our Public Affairs, Science, Sustainability & HSE Enabling Function and the quality functions of the divisions.

3.2 Regulatory Conditions

Bayer's finished products, such as pharmaceuticals, crop protection products, seeds and biocides, are subject to very stringent regulations prescribing specific and detailed approval and authorization procedures.

As a result, our products cannot be sold on the market until they have been approved by a competent authority or an official registration has been granted. The prescribed efficacy

and safety of the individual products must always be demonstrated as proven as a condition of their approval. An approval therefore only applies for a particular product with the formulation registered in the marketing authorization. Changes in the product composition (such as new formulations for crop protection products) require an additional authorization or registration.

Wherever there is no dedicated crop protection legislation in a given country, Bayer has made a voluntary commitment to distribute there only those crop protection products whose active ingredients are approved or registered in at least one OECD country to ensure that their safety has been adequately verified. For more information, please see Chapter 3.6 Crop Science.

Chemical regulations

In addition to the regulation of finished products, extensive statutory regulations also apply to the chemical substances handled by Bayer during product manufacture. Chemical substances are subject to the respective regional chemical regulations. These include REACH in the European Union, the Lautenberg Chemical Safety Act (formerly TSCA) in the United States and the Measures for Environmental Management of New Chemical Substances (Order No. 7) of the Ministry of Environmental Protection (MEP) in China. To fulfill these requirements, we have approved Group-wide and division-specific regulations.

Authorities, in the European Union for example, review the implementation of obligations resulting from chemicals legislation through regular inspections. To meet these obligations, we require our suppliers to acknowledge conformity with REACH for all substances they supply to us.

Besides the regular registration obligation, REACH can also entail an additional authorization procedure that can lead to the replacement of, or a ban on the use of, particularly hazardous substances (Substances of Very High Concern, SVHC). Already registered substances are also regularly evaluated by the authorities. For Bayer substances this can result in additional testing requirements, new risk management measures or inclusion in the REACH authorization procedure. To date, only one Bayer substance has been affected, for which authorization has already been granted.

Under certain conditions, existing dossiers also have to be updated under REACH. In 2019, as part of the voluntary action plan of the European Chemical Industry Council (CEFIC), we also committed to reviewing and updating all REACH registration dossiers by 2026 to comply with the newest requirements. We had reviewed and updated 23 dossiers by the end of 2021.

The requirements of MEP Order No. 7 in China are similar to those of REACH in the European Union, although MEP No. 7 in China provides for greater grandfathering of products that are already on the market.

In the United States, all substances must be approved in accordance with the Lautenberg Chemical Safety Act and accompanied by information required pursuant to the standard Hazard Communication (29 CFR 1910.1200) of the U.S. Occupational Safety and Health Administration.

The classification and labeling of chemicals enables users to become informed about the risks associated with chemicals. Bayer implements the Globally Harmonized System (GHS) for the classification and labeling of chemicals worldwide.

Voluntary assessment of substances handled

We voluntarily apply comparable standards around the world, independent of the respective national legislation. For all handled substances with an annual volume of more than one metric ton that are not subject to the REACH regulation, we have (voluntarily) undertaken to successively provide comparable minimum data sets on ecotoxicology and toxicology. This data enables the hazard potential of all substances (> 99%) we use in quantities exceeding one metric ton per year to be assessed. By the end of 2021, we had already assessed 95.3% (2020: 95.2%) of these substances.

3.3 Assessments and Testing

Our substances and finished products undergo extensive assessment and testing to ensure product efficacy and safety. We examine possible health and environmental risks along the entire value chain and use this to derive appropriate measures to mitigate risks.

The safety of our products is the top priority. As early as the research and development stage, we assess the properties of our active ingredients and all other substances that are contained in a product and could thus impact the properties of a finished product (e.g. additives that support the actual active ingredients). We discontinue the development of active ingredients with undesirable properties in application of the precautionary principle as defined in Principle 15 of the

Rio Declaration of the United Nations and Communication COM (2000) 1 of the European Commission. There should not be a unilateral focus on hazard potential, but rather on a balanced benefit–risk evaluation.

All active ingredients emerging from research are subjected to further extensive testing and assessments at the development stage that include (legally prescribed) animal studies. For more information, please see Chapter 3.4 Animal Welfare. We also conduct environmental risk assessments or implement risk management measures for our active ingredients subsequent to their registration. Moreover, we help to raise questions about the impact of active ingredients in the environment and to have them addressed through sound risk assessments and analyses.

We carry out the risk assessments for our substances according to recognized scientific methods such as those described in the Guidance on Information Requirements and Chemical Safety Assessment of the European Chemicals Agency (ECHA). Should the analysis reveal that the use of a certain substance is not safe, we take steps to mitigate risk. These can vary from revised application recommendations to substitution of a substance. In this case, a replacement that is economically and technically viable needs to be sought. The substitution of chemicals is basically a continuous task for the chemical and pharmaceutical industry in order to generate new or substantially improved products and processes. This is integral to our commitment to [Responsible Care](#)[™]. The applicable assessment steps are established in a corresponding Group regulation.

Strict international and national laws and regulations also control the official approval and therefore development of crop varieties and plant traits and the recognition and commercialization of seeds and planting material. This also encompasses genetically modified seeds. We meet all

regulatory requirements of the countries in which we distribute our crops. Extensive and intensive safety reviews of the environmental and health risks for people and animals are conducted at all stages of the development of genetically modified crops from early development onward. The results of these are incorporated into the approval/authorization procedures. Our Group regulations on the responsible use of genetic engineering and biosafety, together with processes stipulated at Crop Science in the Group Regulation on Product Stewardship Commitment, Principles and Key Requirements, supplement the legal and regulatory requirements.

Processes are established throughout the company to address inquiries about product safety or problems with products of ours that are already available on the market. This feedback is also integrated into our risk assessment. More information about the products of the Pharmaceuticals and Consumer Health divisions can be found under Pharmacovigilance (please see Chapter 3.8 Pharmaceuticals and Consumer Health) and about the (crop protection) products of the Crop Science Division in Chapter 3.6 Crop Science.

Information on substances and products

Bayer compiles safety data sheets for all chemical substances used, regardless of whether or not this is required by law. Safety data sheets are the central tools of communication for safety-relevant information about substances and mixtures in the supply chain. Targeting professional users, they contain information on a substance's properties and on using it safely. In addition, technical information is provided for professional use.

Appropriate packaging information is provided for all end consumer products, an example being package inserts for pharmaceuticals.

In accordance with the respective product safety and information obligations, we compile product information for raw materials, intermediates and end products, and make this information available across the company worldwide.

Commitment

We are actively engaged in product stewardship activities through our work in relevant associations and initiatives. Since 1994, Bayer has supported the Responsible Care™ initiative of the chemical industry and the associated Responsible Care™ Global Charter. We participate in the further development of scientific risk assessment and are involved in several associations – such as the European (CEFIC), U.S. (ACC) and international (ICCA) chemical industry associations and the OECD – and in initiatives such as the European Centre for Ecotoxicology and Toxicology of Chemicals (ECETOC).

3.4 Animal Welfare

Animal studies are legally required and essential from a scientific viewpoint for assessing the safety and efficacy of our products. We aim to minimize the use of study animals and to employ alternative methods whenever possible.

Responsibility for animal welfare at Bayer lies with the Bayer Global Animal Welfare Committee. We respect all legal requirements pertaining to animal welfare, compliance with which is verified both by regulatory authorities and by means of internal audits. In addition, Bayer applies its own principles on animal welfare and animal studies, which are specified in a Group regulation we published in 2020. The Bayer Global Animal Welfare Committee monitors compliance with these principles within the Bayer Group and in external studies. Our principles also apply to the research institutes

(clinical research organizations, CROs) we commission and to our suppliers, whose compliance with our animal welfare requirements we regularly monitor.

In 2021, the Bayer Global Animal Welfare Committee worked with the procurement and product quality functions to develop new audit procedures for the CROs that carry out animal studies on our behalf. In this way, we ensure that both new and longstanding research partners are regularly audited to ensure their compliance with our animal welfare requirements.

Commitment to reducing animal studies

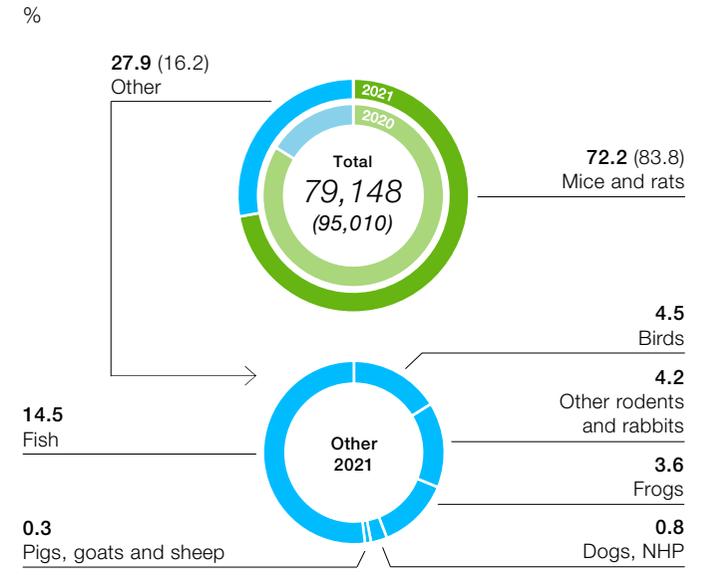
In early active ingredient screening, Bayer continuously establishes different computer-based and in-vitro processes that help reduce the number of animal studies or the impact on animals in subsequent testing. Included in this are our activities in connection with organ-on-a-chip, a biochip method used to simulate organs in a cell culture.

We also actively participate in internationally renowned consortia, projects and validation programs geared toward achieving replacement methods, one example being the IMI-eTRANSafe project, which focuses on examining the extent to which control animals can be replaced in toxicological studies through the simulation of “virtual control groups” using existing data sets. This could reduce the number of animal studies by up to 25% in the medium term.

In addition, a recent breakthrough in the field of three-dimensional bioprinting may have a positive impact on the amount of animal studies conducted. Scientists at Tel Aviv University managed to print a miniature heart using human tissue. In cooperation with Bayer, research is now being conducted to establish the degree to which organs produced with this technology could be used in various medical tests in the future, thus potentially further reducing the need for animal studies.

Applying performance indicators, we analyze the development of animal numbers, the distribution according to species and the impact on our test animals each year, while evaluating studies and discussing possible steps in accordance with the 3Rs principle (replace, reduce, refine). The total number of study animals used in 2021 (including animals in Bayer studies performed by contract research organizations) was 79,148, compared with 95,010 in 2020.

Study Animals by Species 2021 (2020)



3.5 Protection against Product Counterfeiting

Product counterfeiting is an enormous problem worldwide, due particularly to the increase in e-commerce. We endeavor to resolutely and effectively prevent counterfeiting so as to ensure our customers have access to our safe and effective original products, to protect our innovations and intellectual property rights, to reduce potential financial damages for Bayer and to safeguard the company's reputation. The basic principles of our strategic actions against counterfeit or otherwise illegal products and the corresponding organizational implementation for all divisions are defined in a Group regulation.

Product counterfeiting can only be addressed internationally through a joint approach by industry, associations, government agencies and nongovernmental organizations. We advocate the resolute application and, where necessary, the tightening and expansion of existing laws and provisions that serve to enable the identification and confiscation of illegal products. We support these efforts through extensive measures of our own in the areas of production and packaging development that are designed to also enable our customers to distinguish original products from counterfeits.

Crop Science

The production, sale and distribution of counterfeit crop protection products and illegal seeds take place within globally organized criminal networks, and the negative effects are amplified by numerous opaque internet offers. The use of counterfeit crop protection products poses an increased risk for human health and the environment because their contents do not correspond with the products formulated by Bayer and approved by the regulatory authorities and may not even contain approved active ingredients. Counterfeit seeds often do not possess the traits chosen by farmers upon purchase.

Innovative packaging technology: CapSeal and BagSeal

It is becoming increasingly difficult for those who use crop protection products to distinguish between an original and a counterfeit product. Bayer is thus the first producer of crop protection products to enable farmers to clearly identify original products through CapSeal technology. The closure seal has optical security features and a QR code that users can scan with an interactive smartphone app to obtain a reliable statement about the product's authenticity. CapSeal is found on the packaging of all Bayer crop protection products that are filled in containers and sold in the Europe/Middle East/Africa and Latin America regions, as well as parts of Asia/Pacific. In 2021, we introduced CapSeal technology in the solids packaging of crop protection products for the Egyptian market.

To apply the technology to seed packaging, we developed BagSeal and launched a new project for corn and oilseed rape/canola in the European market.

We support association initiatives and work closely with crop protection and law enforcement authorities to prevent the introduction of counterfeit products to the market by criminal networks. Our activities in the area of crop protection products are currently focused particularly on cooperation with the Chinese authorities to identify counterfeit products already in the counterfeiter's production facilities and confiscate them prior to their export from China. In 2021, we identified patent and trademark infringements in China, India and Brazil, and successfully asserted our legal rights.

We further expanded our internal action network in the seeds business in 2021. We are increasingly confronted with cases of illegal or counterfeit seed from all parts of the world, including Brazil, Mexico, Pakistan, the Philippines and Ukraine.

Counterfeit products, and especially counterfeit crop protection products, are transported on a large scale by ocean freight. That's why Bayer has been cooperating for a number of years now with leading shipping companies to jointly identify counterfeit and illegal products, prevent their transport and notify the responsible authorities for further prosecution. In addition, we participate in a cross-industry alliance with companies from various sectors.

In cooperation with the United Nations Office on Drugs and Crime (UNODC) and its Container Control Program (CCP), we offer training measures for customs authorities in the world's biggest seaports. These activities are aimed at enabling customs officers to reliably distinguish genuine Bayer products from counterfeit products based on packaging features, and thus to detect and confiscate counterfeits more easily. Bayer supports the work of the Task Force – Countering Illicit Trade (TF-CIT) of the OECD as regards the issue of misuse of containerized shipments for illicit trade.

We conduct our own inspections in the market worldwide and keep a record of all signs of suspicious and potentially counterfeit or illegal products.

The use of tested and approved inputs such as seed, crop protection products and fertilizer is an essential condition for sustainable agriculture. Bayer therefore offers training events for farmers around the world – including smallholder farmers in **LMICs** – on the issue of product counterfeiting. The training measures convey to farmers what dangers are harbored by counterfeit seed and crop protection products, how to

distinguish between genuine Bayer products and counterfeits, and what general measures protect against the unintended use of counterfeit products. These training courses are combined with our stewardship training measures within the scope of sustainable use (please see Chapter 3.6 Crop Science).

We also provide our customers with extensive information on counterfeit and illegal crop protection products and seed on our [Counterfeits in Agriculture website](#), including on matters such as how to identify counterfeit products, what risks they are associated with and how farmers can protect themselves against unintentional use of counterfeits.

Pharmaceuticals and Consumer Health

Counterfeit products that imitate the medicines of our Pharmaceuticals and Consumer Health divisions harbor considerable risks for patients and consumers. For this reason, Bayer has established binding regulations in its uniform Group-wide quality management system for reporting, registering, investigating and escalating potential pharmaceutical counterfeiting. Together with the responsible pharmaceutical regulatory authorities, we initiate the necessary measures based on investigation results and the severity of each case. These measures range from notifying business partners and medical specialist groups to recalling products impacted by counterfeiting at the appropriate recall level.

In addition to the process established in the quality management system, we have introduced a data management tool for the corporate security and legal functions. This enables assessments and reports to be compiled on activities by law enforcement authorities in connection with pharmaceutical counterfeiting that were triggered by information and analyses we submitted.

Through the [Beware of Counterfeits campaign](#), Bayer is actively addressing the problem of counterfeit pharmaceuticals. The website of the same name contains information on the risks of counterfeit pharmaceuticals and offers tips on how patients can protect themselves against counterfeiting. Maintained in coordination and close cooperation with the responsible pharmaceutical regulatory authorities in Germany and abroad, the website also provides information on actual pharmaceutical counterfeiting incidents and explains how patients can distinguish the counterfeit items from our original products.

Safety features for medicinal products

Bayer protects medicinal products worldwide in accordance with the regulatory and statutory requirements of each country, including those defined by the European Falsified Medicines Directive. This directive specifies requirements and measures for the inspection and verification of original pharmaceuticals. These include mandatory safety features on outer packaging, which Bayer has used for its prescription products since 2019.

Safety features in the EU comprise two elements – an individual 2D data matrix code and a tamper-evident closure. Featuring individual serial numbers, the data matrix codes are stored for coding in country-specific databases across the EU. Wholesalers and pharmacies can verify the products' authenticity by simply scanning the code. Safety features such as codes with individual serial numbers are also used in many other countries. The graphic "Serialization and Coding Requirements worldwide" gives an overview of this. In further countries, such as the United States, these safety features are implemented for pharmaceutical manufacturers, and their mandatory use is being successively expanded to include additional market participants in the distribution chain. A complete track & trace system is planned to be implemented by 2023.

Bayer supports and monitors these measures worldwide with the goal of ensuring standardized protection of patients against pharmaceutical counterfeiting in as many countries as possible. To facilitate maximally uniform global standards against product counterfeiting, we substantially contributed our experiences to the IFPMA position paper "Identification & Traceability of Medicinal Products – A tool towards strengthening health systems" and the ICMRA (International Coalition of Medicine Regulatory Affairs) document "Recommendations on common technical denominators for traceability systems for medicines to allow interoperability," of which the EMA is an advocate.

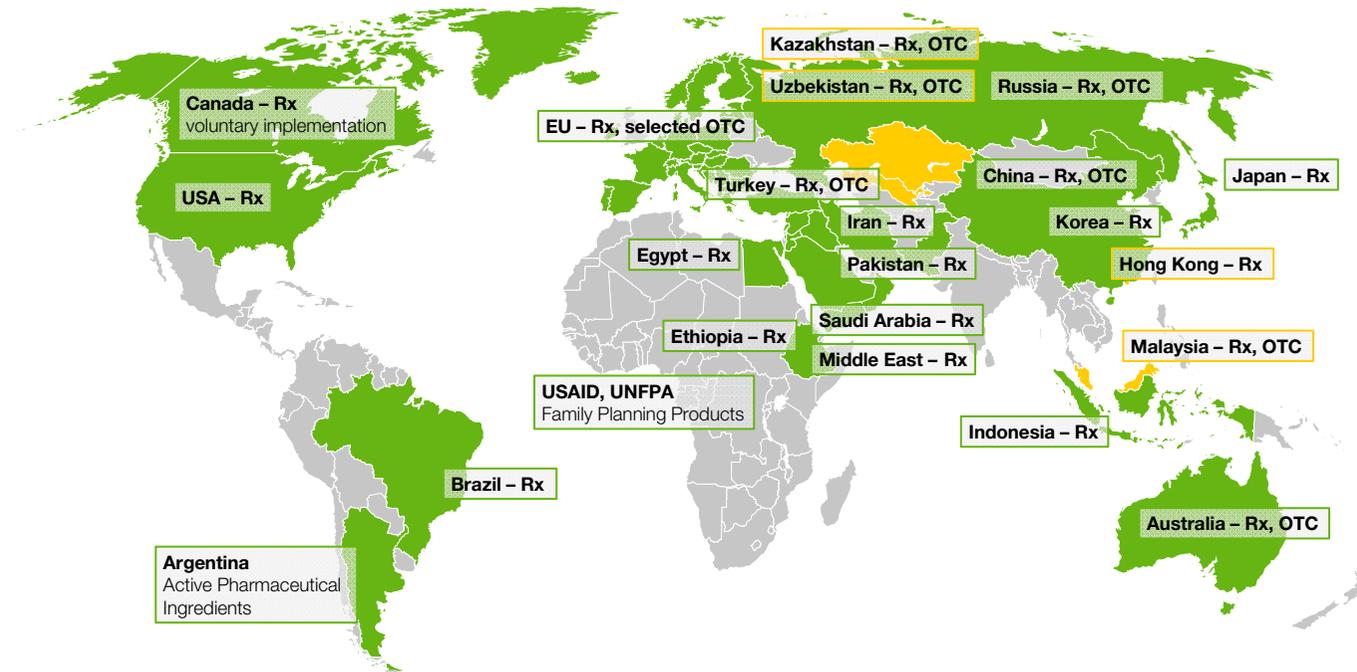
In conjunction with regulatory and statutory requirements, we have voluntarily employed tamper-evident closures for nearly all of our prescription medicines and also many of our nonprescription products for years now to prevent packaging manipulation.

In addition, we deploy a combination of overt and hidden authentication features that to some extent offer the same level of security as the features used in bank notes and identification documents. In this connection, suppliers of packaging materials into which the security features are integrated were additionally and specifically qualified. This also involves an authorization by the licensor of the high-security feature deployed.

Supply chain activities

To make the supply chain for pharmaceutical products safer, Bayer participated in the binational Security for Pharmaceuticals Transportation (s4pt) research program of the German Ministry of Education and Research and the Austrian Ministry of Transport, Innovation and Technology. The project came to a successful conclusion in April 2021 with the presentation of the research report.

Serialization and Coding Requirements Worldwide



■ = implemented / deployment started; ■ = upcoming
 Rx = prescription medicines; OTC = nonprescription (over-the-counter) medicines

Within the [PharmaLedger](#) – Blockchain Enabled Healthcare project of the Innovative Medicines Initiative (IMI), we advocate for the implementation of a blockchain platform in the European Union. This project aims to simplify the exchange of data beyond the pharmaceutical value chain and irrespective of the different systems applied. The goal of this initiative is to improve the products’ full traceability and thus combat pharmaceutical counterfeiting. Bayer has assumed the leadership role in this project in terms of its practical application in the supply chain. We are also involved in the development of another application case – by scanning a

2D data matrix code mandatory in the EU to protect against prescription pharmaceutical counterfeiting, users will be able to receive information that enables them to authenticate pharmaceutical packaging. The definition and design of this anti-counterfeiting use case is such that it should enable the identification of original pharmaceuticals by all market participants, including patients, across platforms and technologies. To demonstrate the possibilities of this technology, a fully functional smartphone app will be available for demonstration purposes from the beginning of 2022.

Defense against illegal products on the internet

To ensure the safety of patients and customers and protect our products, we work together with other companies in the fight against illegal pharmaceutical product offerings on the internet, such as on marketplaces and social media channels. Through a joint project of the [Pharmaceutical Security Institute](#), we succeeded in shutting down about 190 illegal websites and removing more than 3,000 impermissible offers worldwide at marketplaces such as Shopee, Tokopedia, IndiaMart and Lazada in 2021. The success rate here was over 90%. We also effected the removal of more than 1,000 illegal offers on social media platforms such as Facebook, Instagram and Twitter.

Together with other members of the European pharmaceutical manufacturers’ association EFPIA and through the European Alliance for Access to Safe Medicines (EAASM), we advocate for a comprehensive change in the legal foundations and obligations on internet players. Of outstanding importance here is the ongoing amendment of the Digital Service Act (DSA) by the European Commission. We contributed our experiences to the public consultations in this connection through the associations, as well as in the EFPIA position paper. We also support the “Memorandum of Understanding (MoU) on the sale of counterfeit goods on the Internet” initiated by the European Commission.

For many years now, we have served on the Executive Board of the EAASM so as to educate patients about the dangers of purchasing drug products on the internet. We do this through information campaigns, research projects and publications that provide information on the risks and consequences.

We are also actively involved in the [Pharmaceutical Security Institute](#), an alliance in which pharmaceutical companies provide mutual support in detecting and countering product-counterfeiting-related crimes. Through a joint COVID-19 initiative, we combated illegal offers and counterfeiting of Bayer products such as chloroquine.

3.6 Crop Science

Before crop protection products and technologies can be introduced to the market, it must be demonstrated that they can be used without exposing people or the environment to an unjustifiable risk. They therefore require official approval, which is governed by numerous international and national laws and regulations. We test products in compliance with the applicable official regulations and perform extensive risk assessments. We also observe the import regulations for the importing countries and acquire product approvals in countries in which the products are due to be marketed.

Bayer works continuously to improve its products and develop solutions for sustainable agricultural practices. The focus is on optimizing product benefits and safe use for our customers and applying the findings from product monitoring. For us, product stewardship begins at the research and development stage of a new product, continues through its production, marketing and safe use and ends with disposal, for example of product packaging.

We have specified our principles of responsible product management in our Group Regulation on [Product Stewardship Commitment, Principles and Key Requirements](#). This is based on established and internationally recognized standards such as the International [Code of Conduct on Pesticide Management](#) issued by the Food and Agriculture Organization of the United Nations (FAO) and the World Health Organization (WHO), the guidelines of the crop protection association [CropLife International](#), and the guidelines of the industry initiative [Excellence Through Stewardship \(ETS\)](#) for seeds and traits. This initiative promotes, for example, the introduction of product stewardship programs and quality management systems for seeds throughout the entire life cycle and entrusts independent outside experts with the performance of audits to verify that member companies are complying with its guidelines. Our plant biotechnology sites in the United States were recertified for the product stewardship programs in 2021.

Online transparency platform

Transparency is very important to Bayer, especially with respect to the safety of our products. Through transparency, too, we intend to strengthen our customers' and stakeholders' confidence in our products. Bayer was the first company in the agriculture industry to make safety-relevant data on crop protection products and genetically modified crops publicly available. Summaries of scientific studies assessed by the European Food Safety Authority (EFSA) in connection with the registration procedures for 32 of our crop protection active ingredients are available on our [online transparency platform](#), including toxicological and ecotoxicological studies and investigations into degradability. We have also published summaries of scientific studies for 16 biotechnology traits within our seeds business that were previously evaluated by the responsible regulatory authorities in the United States.

Comprehensive reports on the registration studies for the approval of our crop protection products and genetically modified crops are available on specific request. The platform is continuously updated to provide the most recent status of safety-relevant information on crop protection products and genetically modified crops as well as information on plant breeding.

In addition, we are facilitating access to information – including official documents and data – on the procedure to grant emergency authorizations for crop protection products, including why this process is so important for European agriculture.

Furthermore, through the OpenLabs program initiated in 2020, we offer the public the opportunity to observe our scientists during a two-day event as they carry out a safety registration study. Here, the participants learn how we collect data on the safety of our crop protection products by complying with guidelines such as Good Laboratory Practice (GLP). As it currently is not possible to visit our Monheim site due to the COVID-19 pandemic, we have developed a virtual visitor platform that enables our scientists to engage with visitors online in live events, starting in 2022.

We present our principles for responsibly handling our products throughout their life cycle based on our Group Regulation on Product Stewardship Commitment, Principles and Key Requirements in the sections below.

Research and development

We use the latest knowledge and technologies to develop products and services so that we can continuously optimize their efficacy, productivity and safety for people and the environment.

As part of the testing process, chemical and biological crop protection products are examined early in the development phase with regard to their mode of action, their (eco)toxicological properties and the extent of potential residues in plants and the environment to ensure that we only continue to develop those products with the best safety profile. To determine risks more precisely, we perform extensive safety testing as defined by law.

The development of genetically modified seeds is also subject to extensive international guidelines and stringent national laws and regulations. We have specified internal processes in a Group regulation to ensure a responsible approach to biotech-based manufactured products throughout their life cycle. For more information on plant breeding and genetically modified seed, please see the Focus on: Agriculture chapter.

Production, packaging, storage and transport

Health, safety, environmental protection and quality are a top priority for Bayer at all its sites around the world, including the sites where crop protection products or seeds are produced. A health, safety and environmental protection (HSE) management system with uniform standards applies Group-wide. Product manufacture at our sites is performed according to the quality management standard ISO 9001. For more information, please see Chapter 8. Environmental Protection and Safety. As with our suppliers, we expect our third-party producers to conduct their business with Bayer in accordance with the requirements of our Supplier Code of Conduct. For more information, please see Chapter 4. Procurement. We ensure that our products are

adequately packaged and are stored and transported according to the applicable legal and regulatory requirements. For more information, please see Chapter 8.9 Transportation and Storage Safety.

Marketing, sale and distribution

In its distribution of crop protection products and technologies, Bayer observes the [International Code of Conduct on Pesticide Management](#) of the Food and Agriculture Organization (FAO) of the United Nations and the World Health Organization (WHO). Our principles are defined in our Group Regulation on [Product Stewardship Commitment, Principles and Key Requirements](#). In addition, since 2012, we have no longer sold WHO Class 1a or 1b agricultural crop protection products despite continued formal authorization to do so.

Not all our crop protection products are registered in Europe. There are various reasons for this, e.g. different customer needs and agricultural practices outside Europe.

These crop protection products are registered in accordance with national regulations outside Europe. Bayer complies with international regulations, e.g. the U.N. Rotterdam Convention concerning the export of such products that could be produced in Europe but are not registered in Europe, and are registered in the importing country instead. In this context, Bayer committed itself to only selling crop protection products that are registered in at least one OECD (Organisation for Economic Cooperation and Development) country.

We regularly review the products we offer in emerging markets and developing countries with respect to the applicable specifications for ensuring the safety of our products and reducing the risks associated with their use. We voluntarily withdraw such products from the market if identified risks cannot be sufficiently limited. For more information on crop protection products and safety, please see our [website](#).

To ensure the safe use of our crop protection products based on adequate research, we made an important voluntary commitment in 2016: we market only those crop protection products whose active ingredients are registered in at least one OECD country, or, in the case of new active ingredients, for which an [OECD data package](#) has been compiled. OECD data packages require the preparation of complete dossiers for crop protection products and their active ingredients in support of regulatory decisions in OECD countries. This includes the results of all test and study reports and other relevant information submitted by the company and other interested parties. The data needs to be made available to facilitate checking by regulatory authorities as a basis for decision-making with respect to the approval of individual active ingredients, the registration of crop protection products, the establishment of a maximum residue limit, or the determination of an import tolerance, as appropriate. The guidance contained in the OECD package can be used by regulatory authorities, where the evaluation of extensive data submissions is necessary. As part of our internal processes established to comply with this voluntary commitment, quarterly checks on all our crop protection sales are conducted.

Since 2021, we have shared our internal product safety standards on our [website](#) to shed light on how we determine how products can be used safely. These standards reflect the guidelines and standards of international organizations such as FAO, WHO and the OECD, as well as those of reference regulatory authorities around the world. They evolve continuously based on the latest scientific knowledge and help us to contribute to high safety standards also in less regulated markets.

For the marketing of genetically modified seeds, we have established internal processes and defined the requirements for the responsible use of biotechnology in our Group Regulation on [Product Stewardship Commitment, Principles and Key Requirements](#).

We provide our customers with comprehensive, transparent and reliable information about our products and services in accordance with our Group Regulation on Responsible Marketing & Sales. Users of our products can contact us through a range of communication channels should they have complaints or inquiries or wish to report any incidents. These include both direct contact with our sales staff and hotline numbers printed on our product packaging. We follow up any incidents related to our crop protection and seed products reported through local authorities and we process the incidents with the aid of a dedicated management system. If necessary, we undertake measures ranging from labeling changes to product recalls in line with our key requirements.

Counterfeit products harbor substantial risks for users and the environment. For more information on our strategy for preventing product piracy, please see Chapter 3.5 Protection against Product Counterfeiting.

Integrated crop management for pest and resistance management

Bayer supports the implementation of integrated crop management measures that combine various strategies for controlling weeds, pests and plant diseases in farming. This overall concept is tailored to the special challenges facing farmers, and it enables them to unlock their full economic potential while at the same time minimizing the environmental impact of their farming activities. We offer a broad

portfolio of innovative chemical and biological crop protection solutions, high-value seeds and data-driven application solutions and recommendations that help farmers protect their crops safely and responsibly in accordance with the particular requirements of the fields, crops and soils.

Bayer ForwardFarming initiative

Bayer promotes and supports ecological enhancement measures in agriculture and the recovery and protection of natural and semi-natural habitats. Together with farmers and scientific experts, we are working to find solutions to preserve biodiversity, e.g. through the [Bayer ForwardFarming initiative](#). ForwardFarming promotes the implementation of sustainable agriculture in practice across a global network of independent agricultural operations.

On ForwardFarms, we show how sustainable agriculture involving integrated crop management and resistance management can be put into practice. In these representative operations, farmers demonstrate modern cultivation techniques, approaches to applying seeds and crop protection products, and the action they take to handle resources responsibly. The ForwardFarms promote dialogue with users and enable the worldwide exchange of ideas and findings among various stakeholder groups.

There are currently 26 Bayer ForwardFarms spread across Europe (20), Latin America (4) and Asia (2). During the COVID-19 pandemic, in-person visits have been limited, but outreach has continued via virtual events and, besides that, the ForwardFarm in Belgium offers a [360° tour for a virtual visit](#).

Responsible use of crop protection products

Through targeted training courses, we show farmers, seed treatment professionals, distributors and other users how to use our products both effectively and safely to maintain healthy plants and thereby increase the yield and quality of their harvested goods. Our objective is to continuously increase the outreach of our training activities, in part through more widespread use of digital media in the future.

The training courses convey contents such as safe handling of our products during use, transport, storage and disposal, the correct use of protective clothing, and first aid measures in the event of emergencies. The training topics can be adapted for a certain target group, a crop plant being used in cultivation or a particular product according to local requirements. Our training materials are available in various formats – from on-site presentations to brochures, videos, posters, manuals and live chats. In addition to special training measures for farmers and those who use crop protection products, we also combine training activities with events such as product launches or field days to reach a large number of farmers and distributors. Our training videos on the safe handling of crop protection products are also available [online](#).

In 2021, we continued to offer virtual training activities due to the COVID-19 pandemic, but also resumed on-site training wherever possible. The flexible approach and use of digital tools enabled us to reach more than 2.7 million external contacts (i.e. farmers, field workers, distributors, retailers and other stakeholders in the agriculture industry). We focused our training activities on countries where there are no statutory certification requirements for farmers concerning the safe handling of crop protection products. For this reason, training participation was highest in Asia, followed by African countries and Latin America. Our partnerships allow

us to increase the reach of the activities and conduct joint events, for example with universities, information centers or local, regional and international associations.

As part of Bayer's Safe Use Ambassador initiative launched in 2017, we enter into partnerships with universities and offer students annual training in the safe use of crop protection products, with a focus on safety for users and the environment. The goal is for the students to share their new knowledge with farmers during internships on farms. In 2021, Bayer organized four workshops related to the safe handling of crop protection products for more than 1,200 students, faculty members of universities and other relevant stakeholders in 14 countries, especially in Asia and Africa.

Bayer additionally trains farmers in various technical areas regarding the correct use of individual products. This includes training as mandated by the U.S. Environmental Protection Agency (EPA) as a condition of registration for products containing the herbicide dicamba for use in dicamba-tolerant soybean and cotton crops. This training course was developed in cooperation with other dicamba herbicide registrants and governmental certification authorities.

Successful completion of the training enables farmers to purchase and apply any dicamba products registered for use in dicamba-tolerant soybean and cotton crops. More than 46,000 users in the United States completed this certification in 2021, 50% of whom were trained by Bayer.

Product stewardship for glyphosate

The nonselective herbicide glyphosate is used in many countries for effective, simple and cost-effective weed control. The active ingredient was first introduced in 1974 and has since been marketed under a number of different tradenames in hundreds of crop protection products by several dozen different companies worldwide. In Europe, glyphosate-based herbicides are most frequently used according to the label to control weeds in various field crops. According to the label, applications include weed control in gardens and noncultivated areas, such as in industrial complexes and along railway tracks. Glyphosate works in plants by specifically inhibiting an enzyme that is essential to plant growth. This enzyme is not found in cells of humans or animals.

Combining glyphosate with crops that could withstand applications of this herbicide transformed agriculture. Farmers who cultivate glyphosate-tolerant crops tend to adopt conservation tillage, which brings its own benefits in terms of reduced soil erosion, improved water quality and lower carbon dioxide (CO₂) emissions. In agricultural systems where glyphosate-tolerant crops are not available, glyphosate provides benefits for farmers and the environment by simplifying weed management and reducing the need for mechanical tillage and enabling the adoption of cover crops. Outside of agriculture, glyphosate delivers benefits for noxious or invasive weed control.

Glyphosate has a proven track record of more than 40 years of safe use when used according to label directions. This is confirmed by science-based evaluations conducted by European regulatory bodies such as the European Food Safety Authority (EFSA), the European Chemicals Agency (ECHA) and the German Federal Institute for Risk Assessment (BfR) and other leading regulatory authorities such as the U.S. Environmental Protection Agency (EPA) and the Canadian governmental authority for pest control belonging to the Department of Health (Health Canada Pest Management Regulatory Agency [PMRA]). The most extensive agricultural epidemiological study ever with detailed information on glyphosate use, the Agricultural Health Study published in the Journal of the National Cancer Institute in 2018, also found no association between the use of glyphosate-based herbicides and the occurrence of non-Hodgkin lymphoma. The study followed more than 50,000 licensed applicators of crop protection products for more than 20 years.

Glyphosate's favorable environmental safety profile underlies its ability to be used in many diverse settings. Detailed reviews by the EFSA, PMRA and other regulatory authorities have concluded that approved uses of glyphosate-based herbicides are unlikely to cause adverse effects on the environment. In the United States, EPA scientists reached the same conclusion following their primary environmental review and have initiated a final step in the re-registration process to ensure current uses account for potential effects on endangered species.

This is a standard review for all pesticides in the United States and can take several years to complete. Bayer scientists reviewed the draft report on endangered species and engaged in the public comment period.

Extensive information on the public discussion surrounding the safety of glyphosate for users and the environment is available on our website. For information on the lawsuits against Bayer in the United States, please see [2021 Annual Report](#).

It is of central importance for Bayer to offer farmers a broad range of solutions to improve the sustainability and productivity of their operations.

Glyphosate will continue to play an important role in agriculture and in our product range. As one-size-fits-all solutions do not account for nature's needs, however, we plan to invest around €5 billion in the current decade to research additional weed control methods and thus provide farmers with more options in the future.

Glyphosate is currently going through the routine renewal process in the European Union. The designated Member States for the current glyphosate renewal process – known as the Assessment Group on Glyphosate (AGG) – are France, Hungary, the Netherlands and Sweden.

On June 15, 2021, the AGG published the main conclusions of their draft Renewal Assessment Report (dRAR) for glyphosate, concluding that glyphosate does meet the approval criteria. The AGG proposed that classification of glyphosate with regard to carcinogenicity, as for genotoxicity or toxicity for reproduction, is not justified. Furthermore, the AGG concluded that no chronic or acute consumer risk is expected from treatment of crops with glyphosate according to the representative uses for the current renewal process.

On September 23, 2021, the public consultation process on the draft Renewal Assessment Report opened. Sixty-day public consultations are well-established processes through which the European institutions increase the transparency of the evaluation for pesticides. Anyone could go to the [EFSA](#) and [ECHA](#) websites that hosted the public consultations to download either the full assessment report or only the sections of interest. This process ensured that all interested parties could actively participate in the science-based re-evaluation of glyphosate in the European Union.

A significant number of European Member State regulatory bodies, representatives of academia and scientists but also farmers around the world and interested private persons and NGOs submitted comments to the EFSA and the ECHA. All comments are made publicly available for maximum transparency on the [EFSA](#) and [ECHA](#) website.

On December 10, 2021, the Glyphosate Renewal Group, of which we are a member, submitted its response to the comments for consideration and reply to the EFSA. The AGG itself will then respond to the comments and our input and will afterwards forward all the information to the EFSA for evaluation. The next regulatory milestone is the so-called “stop the clock”. This is the last opportunity for the applicant to feed additional data and information requested by the EFSA into the scientific evaluation.

Use of digital technologies

For Bayer, digital farming is an important tool for creating a better balance between productivity and environmental conservation. The goal of digital farming is to use resources such as water, fertilizer and crop protection products more efficiently and sustainably.

The utilization of these new technologies enables a reduction of the resources needed for plant production and also promotes the safe and responsible use of crop protection products. For example, the use of satellite and drone data already allows slight differences in the field to be accounted for and crop protection products to be individually and precisely applied in the required amount only where they are needed (zone/spot spraying plus Variable Rate Application).

In 2021, Bayer continued its strategic partnership with major drone-producing companies. Through our Leaps by Bayer unit, we also invest in two companies with their own drone

application development. The existing guidelines on the safe use of drones were refined further. We worked together with regional CropLife organizations, such as CropLife Asia, to frame guidance documents for the application of crop protection products through unmanned aircraft systems (UAS). In various countries, we carry out corresponding training courses for our employees and those of our research partners, often virtually. In order to raise awareness about safe-use methods in drone application, the latest drone technology and stewardship we shared insights on market development in Asia and Africa in a webinar with participants from 34 countries. Our participants were invited to present their own experiences in the field, such as optimal operating procedures and application times. This was followed by a discussion on the management of spray drift, regulatory standards and the functionality of drones.

Sensors on the latest tractors and harvesters can supply important information on soil conditions and plant health. This and further data is incorporated into the digital applications developed by the digital farming unit of Bayer – [Climate LLC](#) (formerly The Climate Corporation) – to help farmers achieve more efficient and sustainable agricultural operations.

Our digital farming platform Climate FieldView™ enables farmers to use data to optimize their agricultural inputs (costs) used on the field and to improve their output (yields). This takes place through the sensor-based collection and storage of large volumes of machine-generated agronomic data directly on the farmers' accounts. The application of this data not only helps farmers, but also creates substantial advantages for the environment. Thanks to precision agricultural machinery and digital tools, inputs such as seeds, water, fertilizer and crop protection products are only used when and where they are necessary. FieldView™ is currently available in North America, South America, Europe, Turkey, South Africa and Australia.

Water protection

Avoiding discharges of crop protection products into water bodies is an important aspect of sustainable agriculture. Alongside point source discharges into water bodies that can occur during the filling and cleaning of spraying devices, diffuse substance discharges from treated fields can also play a significant role. That is why many of our training measures for farmers also focus on protecting water bodies in the context of the correct use of our products.

To avoid point source discharges, Bayer recommends the use of biological remediation systems such as Phytobac™. This is designed to prevent water contamination with residues of crop protection chemicals generated during the filling and cleaning of spraying devices or the disposal of residual liquids. The system is already used in many EU countries and offered commercially by various third-party manufacturers. More than 5,000 Phytobac™ systems are currently in operation in Europe. Demonstration farms have also been implemented in Australia, Canada, China, Thailand, Argentina, Brazil and Colombia.

In collaboration with external partners, we have developed a digital geoinformation system (GIS) for agriculture in order to protect neighboring water bodies from diffuse substance discharges caused by runoff and erosion. Site-specific runoff risks are visualized by means of high-resolution maps supplemented with risk mitigation proposals. With this initiative, we are offering our agricultural customers a digital decision-making tool that facilitates both compliance with high environmental standards and optimal flexibility in productivity-oriented issues. Scale-up of the digital system is possible up to the country level, with the following countries already being mapped: Germany, the Netherlands and Belgium.

To meet increasing demands for environmental protection and occupational safety more effectively, we further engaged into the development of closed transfer systems. In a move consistent with the CropLife Europe commitment to making closed transfer systems universally available to European farmers and operators by 2030, Bayer has joined the cross-industry group developing the “easyconnect” closed transfer system. The system aims to provide a compelling solution that is fast, safe and convenient for farmers and operators across Europe. At the same time, Bayer will continue to support implementation of closed transfer systems via commercially available solutions such as the jointly developed “easyFlow” system from agrotrop GmbH.

Protecting pollinators and other beneficial insects

Bees and other pollinators are hugely important for sustainable food production, and we also depend on healthy pollinators in our seeds business. Bayer shares the concerns about currently declining insect populations and has published a [position](#) on this issue. As the causes of this decline have not yet been fully clarified, we believe further scientific studies of the causes and the development of corresponding countermeasures are urgently needed. We have therefore established a dedicated working group to address the issue and are involved in researching the factors leading to this decline and developing measures to counter the trend.

Our research supports farmers in food production while at the same time contributing to the health, safety and biodiversity of pollinators. We promote dialogue with all stakeholder groups through our global network. In cooperation projects worldwide, we are looking into some of the major stress factors for pollinators and into new approaches for protecting them and for fostering the pollination of crops. At the same time, we are engaged in the development and implementation of approaches to protect insect biodiversity in the agricultural landscape where the current state of knowledge already allows for the definition of effective measures.

To minimize potential risks posed to pollinators by our crop protection products, initial tests – particularly to measure bee toxicity – are already carried out at an early development stage to ensure that only products with an environmental profile that allows pollinator-safe use are further developed. Crop protection products are stringently regulated and undergo thorough testing to make sure they can be used safely. We perform extensive safety testing and risk assessments, enabling us to recommend specific bee safety measures to farmers.

Meta-studies on plants featuring Bt technology (genetically modified plants that contain genes of the soil bacterium *Bacillus thuringiensis* (Bt)) have not identified any biologically relevant effects on honeybees. For more information, please see the Focus on: Agriculture chapter.

Bayer is one of the founding members of Growing Matters, an initiative that is committed to open and scientific discourse on stewardship, benefits and alternatives to neonicotinoid insecticides in North America. Together with its partners, Growing Matters launched the BeSure! campaign, designed to strengthen awareness and adoption of stewardship practices to protect bees and other wildlife during the handling, planting and disposal of treated seeds and other neonicotinoid applications used throughout the growing season.

Neonicotinoids

The introduction of the neonicotinoid class of insecticides in the 1990s brought new features to improve sustainability and to reduce the environmental impact of insecticides in agriculture. Neonicotinoids replaced older, frequently much more toxic insecticides, reinforced the concept of seed treatment minimizing environmental exposure to agrochemicals, and brought a broad spectrum of efficacy and new mode of action to assist integrated resistance and pest management on many crops.

Some years after introduction, there were some reports of incidents where the use of neonicotinoid products was associated with negative effects on nontarget insects, like bees. The most severe example was when dust from treated seeds was accidentally released during planting in Germany in 2008, which resulted in significant intoxication of bees nearby.

At Bayer, the incidents triggered internal reviews and research into risk mitigation measures or product replacements. It also changed the risk assessment and profiling of existing and new products in R&D. Several initiatives and processes were introduced to minimize further risk through the exposure of bees to neonicotinoid insecticides.

In 2021 we published details on our measures taken in recent years in a [separate report](#). We have also published detailed information as an [appendix](#) to the report.

Mitigating measures taken include:

- // Ongoing label revisions and use reductions – systematic and explicit exclusion of flowering application of imidacloprid products onto bee-attractive crops or close to beehives
- // Tests in Research & Development to characterize the toxicity of novel development compounds to bees at a much earlier stage of the screening process in order to identify and remove unfavorable chemistry from the research phase
- // Bayer's invention of BayStep technology, which enhances the quality of the treated seeds by avoiding abrasion; BayStep is available license-free to advance technology adoption
- // Our development and commercialization, in Sivanto™, of an insecticide that can replace various applications of neonicotinoids

In 18 EU Member States, emergency approvals of neonicotinoid seed treatments have been granted since 2016. In November 2021, the EFSA confirmed that 17 emergency uses for sugar beet, granted in 11 Member States in 2020 and 2021, were all justified due to lack of alternatives and for effective resistance management. This demonstrates that, in specific cases, continued access to these neonicotinoids is beneficial to farmers in the European Union and endorsed by their governments. Bayer only supplies products in cases where local growers identify the agronomic need; the justification is consistent with the terms of the regulation and seed treatment occurs at ESTA-certified sites.

We believe that continuing to manufacture and market neonicotinoids under the conditions authorized by regulatory authorities around the world, including the emergency provisions in Europe, is responsible, beneficial and consistent with the U.N. Global Compact environmental principles.

Monarch butterfly

Populations of the migratory monarch butterfly, which are common in North America, have declined in recent decades due to the loss of milkweed in the United States, habitat loss in the Mexican forests, weather and climate changes, natural enemies, and disease pathogens and parasites. To enhance the habitat for the monarch butterfly and other pollinators, [Bayer is collaborating](#) with conservation groups, academic experts, farmers and government agencies to find meaningful and proactive ways to help these important pollinators thrive. We are working to ensure that the growth of the wild plants (milkweed/Asclepias) that constitute the monarch butterfly's main source of food is supported along its migration routes outside of cultivated areas. This benefits not only monarchs, but also many other insects, birds and mammals.

Through an app called HabiTally, which we developed together with Iowa State University in 2019, farmers and landowners can document the habitats they have created for monarch butterflies and track the gains made in milkweed (Asclepias) stems/acres across the United States. The app allows for better estimates of how much current habitat exists and where, while also better facilitating analysis of gaps and opportunities for further habitat development. The United States Fish and Wildlife Service uses the data to better assess and monitor the population dynamics of the monarch butterfly. For more information, please see our [website](#).

Disposal of containers and old inventories, discontinuation policy

Processes are in place at Bayer to ensure the safe sell-off of products, including the disposal of obsolete inventories or waste. The crop protection product industry has set up voluntary initiatives in various countries for the proper disposal of obsolete stocks. As part of its activities in the international CropLife association, Crop Science is additionally working with the Food and Agriculture Organization (FAO) of the United Nations and the World Bank to support the proper collection and disposal of obsolete crop protection products in Africa.

Empty crop protection product containers must be safely disposed of to ensure that the product residues that possibly remain are not released into the environment and that empty containers are not improperly reused. As the proper disposal of crop protection product containers is handled differently in many countries, the crop protection industry works together with authorities, distributors and farmers to establish or maintain suitable disposal systems.

Bayer supports programs worldwide to ensure the safe recycling and disposal of empty packaging and containers. Users can learn about how to safely dispose of our products through information on their labels.

We support the safe disposal of empty crop protection product containers in many countries together with our CropLife International industry association, enabling the collection of 800,000 metric tons of plastic since 2005. This partnership has also facilitated the development of environmentally friendly packaging design programs, the implementation of training courses for distributors and farmers in the proper handling of crop protection product containers, and the testing of plastic recycling options. Particularly successful disposal programs have been established in Brazil,

Canada, France, Germany and Australia. In Brazil, more than 450,000 metric tons of empty crop protection product containers have been disposed of since 2002 through the InpEV (National Institute for Processing Empty Packages) program.

In Germany, the crop protection industry partnered with agricultural wholesalers to develop the voluntary [PAMIRA](#) system for disposing of agrochemical packaging materials. Crop protection producers cover the costs for collection, logistics and utilization of packaging, while wholesalers provide the collection points. In 2020, around 3,000 metric tons of crop protection product and liquid fertilizer packaging in Germany were returned free of charge and disposed of in an environmentally friendly manner through the PAMIRA system.

3.7 Biodiversity

According to the latest report of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) on biodiversity and ecosystem services, more than one million species of animal and plant face extinction, driven by human activity. The number one threat to biodiversity is the loss, deterioration and fragmentation of habitats. This is why attention is centered on raw material production in the primary sector, and particularly agriculture.

Biodiversity is an interdisciplinary topic that affects several areas of Bayer as well as our entire value chain. Therefore activities at Bayer focus on the responsible use of natural resources to conserve and protect ecosystems, species and genetic biodiversity. Active ingredients for pharmaceutical development and the agriculture sector benefit especially from biodiversity conservation and enhancement. We have spelled out this stance in [our Position on Conservation and Restoration of Biodiversity in Agriculture and Forestry](#).

Bayer is committed to the objectives of the United Nations' Convention on Biological Diversity (CBD), including the fair and equitable sharing of benefits arising from the utilization of genetic resources, as well as the International Treaty on Plant Genetic Resources for Food and Agriculture of the FAO, which prescribes the balanced and fair division of use of genetic resources. Our Group Regulation on the Access and Use of Genetic Resources defines the principles of how to manage access to and the use and transfer of genetic resources and/or traditional knowledge throughout the company.

When planning new production sites, Bayer takes into account that they must not be set up in areas that are statutorily protected with regard to their natural characteristics, biodiversity or other factors. Using the international Integrated Biodiversity Assessment Tool (IBAT), we conducted a comparison of the geographical coordinates of our 553 production sites, breeding stations and research sites in 2020 with those of internationally recognized protected areas (such as ASEAN Heritage Parks, Wetlands of International Importance according to the Ramsar Convention, Specially Protected Areas of Mediterranean Importance according to the Barcelona Convention, UNESCO-MAB Biosphere Reserves and World Heritage Sites). The comparison showed that 30 of our sites are located within six kilometers of such protected areas.

Forest habitats are of central importance for biodiversity and forests play a key role in protecting the climate. With [our Position](#) on Deforestation and Forest Degradation, we aim to address the causes of these within our sphere of influence, as well as in cooperation with our customers in the agriculture and forestry sector and within our supply chains. In our current Report to [CDP Forest](#), we have included a detailed statement on this.

In 2021, biodiversity presented many diverse opportunities despite continued challenges impacting multiple areas of our portfolio, our activities, farmers and our value chain. Bayer has made significant efforts to develop science-based knowledge-sharing projects expanding resilience in cropping systems demonstrated through effective metrics. Coinciding with the United Nations Food Systems summit, we also embraced and promoted the concept of regenerative agriculture.

Agriculture

In agriculture, the most important drivers for the loss of biodiversity are land use change, climate change, crop management practices and pollution. This is of utmost importance, as agriculture relies on biodiversity: many species create and maintain important ecosystem services such as healthy soils, pollination or natural pest control and are thus essential for food, feed and fiber production. Maintaining a diverse range of species allows agricultural systems to be more resilient to stresses, including those caused by climate change. At the same time, the very purpose of agriculture is to provide a safe and secure food supply for humans, which entails the sensible use of measures to protect those crops from organisms that could compromise the harvest. Obtaining the optimal balance is our goal.

We acknowledge that farming, like many other activities, has an impact on biodiversity. To meet the social, environmental and economic needs of a population that is growing in numbers and wealth, we need to further optimize agricultural production systems. We can build on existing technologies and solutions, which have already significantly reduced the impact on the environment, mainly through increases in productivity and efficiency. We believe that only through diversity in farming systems can we equally conserve biodiversity and meet other important needs.

It is our priority to facilitate the adoption of biodiversity conservation measures by farmers and landowners as an integral part of good agricultural practices. Therefore, we invest in the development of innovative tools and services that improve farming and land management practices while balancing production and conservation objectives. Acknowledging the global diversity of cropping systems, regulatory requirements and societal expectation, we collaborate with local experts and associations to develop tailored tools that can address the challenges of each field.

For Bayer, digital farming is another important tool for creating a better balance between productivity and conservation. The goal of digital farming is to use resources such as water, fertilizer and crop protection products more efficiently and sustainably. This also indirectly helps protect biodiversity. For more information, please see Chapter 3.6 Crop Science.

Developing measures for farmers

The IPBES report names land use change as the number one root cause of biodiversity decline. In a collaboration with the International Food Policy Research Institute (IFPRI) and ETH Zurich (ETH), we work together with farmers in Brazil, Germany, France and the United States. The collaboration will leverage a scientific and farmer network and tap into comprehensive research, insights and experiences in the field of biodiversity and agriculture.

In the first phase, we are working together with our partners to identify measures and management options that benefit local/regional biodiversity and also create value for farmers. Among other possible measures that can be taken by farmers are the improvement of soil health to protect it against erosion, the creation of beneficial (micro-)climatic conditions and the provision of habitats for beneficial insects and pollinators. These beneficial ecosystem services also contribute to a higher resilience of the cropping system.

In the second phase, we will identify ways of helping farmers with the implementation of those measures, e.g. by providing customized advice or by assisting farmers to get access to incentives that compensate for additional costs and efforts.

Reduced impact from crop protection products

We understand that crop protection products are often perceived as one of many root causes of biodiversity decline. Potential impacts of pesticides on the environment are diligently assessed, particularly during their development and by approval authorities. Moreover, our researchers successfully work on the discovery of new molecules aimed at minimizing such potential unintended and detrimental environmental effects. For detailed information on our stewardship activities in the development of new crop protection products and our training measures for farmers using our products, please see Chapter 3.6 Crop Science.

We are continuing our efforts to further reduce the environmental impact of our crop protection portfolio. Therefore, we have targeted a reduction in the environmental impact of our crop protection products of 30% by 2030. For more information, please see the Focus on: Agriculture chapter.

Risk mitigation for pollinators

Pollination plays a key role in all terrestrial ecosystems. Pollinators therefore represent a significant part of worldwide biodiversity. Pollination plays an important role in global crop production and in safeguarding nutrition. To minimize risks posed to bees and other pollinators by our crop protection products, we perform extensive safety testing and risk assessments and implement product stewardship measures.

We continuously invest in research activities to better understand the root causes of pollinator and insect decline and we support activities to counteract these trends – such as our engagements around the milkweed habitat creation for monarch butterflies, and our activities with German farmers and conservation institutes to implement ecological enhancement measures in intensive agricultural areas.

For more information on protecting pollinators and on the effects of our products, please see Chapter 3.6 Crop Science. For more information on our measures taken with regard to neonicotinoids, please see our [separate report](#).

Commitment

We support the conservation and sustainable use of genetic resources as well as food security and ecological sustainability – not just through financial contributions and donations, but also through material donations to establish new collections aimed at conserving the genetic diversity of crops. We engage in various projects worldwide in this respect, including especially the building up of capacities particularly in farming communities, and also participate in numerous public-private partnerships.

3.8 Pharmaceuticals and Consumer Health

Quality and safety of pharmaceuticals and medical devices

Extremely stringent safety standards for patients and medical professionals apply to pharmaceuticals and medical devices. That's why both the development and manufacture of pharmaceuticals and medical devices are subject to very strict quality requirements.

The quality management system of the Pharmaceuticals and Consumer Health divisions is based on internationally recognized standards and applicable legal, regulatory and ethical requirements for all stages of the provision of a pharmaceutical or a medical device – from development to registration, production and distribution. These standards particularly include the rules for good working practices (GxP) in the development and manufacture of pharmaceuticals – such as Good Manufacturing Practices (GMP), Good Distribution Practices (GDP) and Good Clinical Practices (GCP), ISO certifications like those for the manufacture of medical devices (e.g. ISO 17025 and 13485) and the guidelines of the ICH (International Conference on Harmonization of Technical Requirements for Registration of Pharmaceuticals for Human Use).

Internal experts and external assessors regularly conduct risk-based audits to verify compliance with the statutory requirements and relevant standards in development and production as well as for registered product specifications. Such audits also cover institutes subcontracted by Bayer, service providers, our suppliers and contract manufacturers. Observations made during these audits are systematically evaluated and compliance with corrective measures verified at regular intervals. The quality requirements derived from regulatory requirements, permits and authorizations, and

from relevant standards are regularly reviewed and integrated into our quality management system.

In addition to the internal quality assurance mechanisms, all our sites are regularly inspected by the health authorities of the respective countries to verify compliance with the various national and international requirements, and certified according to the respective product category (e.g. through GMP certificates or in the form of an official producer permit). All our sites received the targeted certifications in 2021.

The quality, safety and efficacy of pharmaceutical and medical products are always assessed relative to the possible risks associated with their use. Such an assessment results in a benefit–risk profile, which is crucial for the product's approval and is also continuously reviewed thereafter. Accordingly, the Pharmaceuticals and Consumer Health divisions assess the medical benefit–risk profile of their pharmaceuticals and medical devices throughout their entire product life cycle. For medical devices, the initial production and subsequent update of the benefit–risk profile are undertaken within the scope of the quality management system. For pharmaceuticals, this takes place through a corresponding pharmacovigilance system.

Safety in pharmaceutical development and production

Drug development is a complex and time-consuming process and is subject to stringent rules. The first step in developing a pharmaceutical is to find substances that can serve as the starting material for a new active ingredient. The next step is to test the new active ingredient – for example by using computational simulating processes, conducting tests in cell or tissue cultures or with the help of bacteria or animal studies. These tests are prescribed by law and subject to strict guidelines and governmental controls. For more information, please see Chapter 3.4 Animal Welfare.

The active ingredient is then used to produce a safe and easy-to-dose pharmaceutical. The requirements of the active ingredient and the product's acceptance by patients both play a role when developing a suitable delivery form (such as a tablet or ointment). It must also be ensured that patients can safely dose and easily handle the product.

Before the pharmaceutical can then be submitted for approval, its efficacy, safety and tolerability must be examined in various phases (Phases I-III) of preclinical and clinical trials.

Clinical trials

Clinical trials are an essential tool for determining the efficacy and safety of new drugs before they can be used to diagnose or treat diseases. The benefits and risks of new medicinal products must always be scientifically proven and well documented. Yet clinical trials are also necessary to examine already approved products for new indications or to confirm their safety profile.

With respect to clinical trials, we strictly align ourselves to the Declaration of Helsinki, an ethical standard in place since 1964 that regulates research conducted on humans. This commitment is stipulated in our [Bayer Human Rights Policy](#) and also applies to all research institutes (clinical research organizations, CROs) tasked with conducting clinical trials on our behalf. Additional statutory regulations, directives and ethical codes supplementing the Declaration of Helsinki have been further developed and introduced worldwide to ensure that the health and safety of participants of clinical trials are the top priority.

Clinical trial phases

Stringent scientific and ethical principles apply for all clinical trials involving humans. A trial protocol lays out what is to be investigated, how the trial is to be conducted and why it is necessary. It is approved by the pharmaceutical regulatory authorities and an independent ethics commission. The voluntary trial participants are comprehensively informed in advance about the planned trial and the possible risks. Their participation is subject to written consent that can be retracted at any time. Trial subjects receive an expense allowance for participating.

In Phase I, physicians investigate an active ingredient with respect to its safety, tolerability and behavior in the body of healthy trial participants. Blood values and additional parameters are monitored, and it is determined how the ingredient is taken up, distributed, metabolized and excreted by the human body. In further studies, the physicians investigate interactions with other pharmaceuticals or food. If an active ingredient proves to be well tolerated in this phase, it is subsequently tested in trial participants. Active ingredients for the treatment of cancer and other serious diseases (e.g. Parkinson's) are already tested in patients in Phase I.

In Phases II and III, physicians examine how effective the ingredient under investigation is, if at all, what dose is ideal for treatment and how frequently side effects occur. Phase II involves the participation of between 100 and 500 patients, while the drug product is tested in as many as several thousand patients in Phase III. To rule out distorted measurement results as far as possible, the scientists compare the new active ingredient with an established therapy form or a placebo that does not contain any active ingredient. The patients do not know which group they belong to. In what are known as double-blind,

placebo-controlled studies, the attending study team at the trial center doesn't know which patient belongs to which group either.

Physicians participating in a clinical trial keep records of the treatments, measurement values and findings, and forward the data to the drug producer in pseudonymized form. Finally, the data is interpreted to determine whether the results are medically relevant and the prospects for seeking regulatory approval of the active ingredient in the form of a drug product are promising. The trials last for eight years on average. Additional clinical studies (Phase IV, post-authorization safety studies) take place following registration to further assess the benefit-risk profile in the determination of the therapeutic value of the product under practical conditions.

Wherever in the world we conduct clinical trials, they comply with these strict international directives and high quality standards, as well as the respective applicable national laws and standards. We review whether they comply with these by means of risk-based audits, and that includes those trials performed by the institutes we commission (clinical research organizations, CROs). Bayer publishes information on clinical trials in compliance with the respective local laws. Bayer publishes information on its own clinical trials both in the [publicly accessible registers](#) and in its own [Trial Finder database](#).

Summarized results of Phase II, III and IV clinical trials are accessible online through the Trial Finder – irrespective of whether the results of a study for one of our products were positive or negative. Upon request, scientists can receive access to anonymized data from clinical trials at the patient level via the [Clinical Study Data Request](#) portal, provided the studies in question are listed in the portal. In doing so, Bayer

observes the principles of the European Federation of Pharmaceutical Industries and Associations (EFPIA) and the Pharmaceutical Research and Manufacturers of America (PhRMA) on the responsible communication of clinical trial data, which were defined in a joint [position paper](#).

For further information about our globally uniform standards, the monitoring of clinical studies and the role of the ethics committees, please see our [website](#).

In line with our Group Regulation on BASE (Bayer Societal Engagement) principles we communicate transparently about our research and development activities. This needs to be done objectively, precisely and on a timely basis, and must conform with current internal and external legal and ethical standards, including those of Good Publication Practice (GPP). We disclose our participation in scientific studies and publications of third parties and the participation of third parties in the development of our publications. We thereby act transparently and grant access to scientific findings.

Easy-to-understand summaries

Since 2020, we have published clinical trial results on our [Trial Finder website](#) in a way that is easily understandable.

The results of Phases II through IV interventional trials and of Phase I patient trials are generally published within 12 months of the completion of the trial or within 12 months of the conclusion of the trial or development project. They are written in English and eight globally important languages, along with the languages in which the trial was carried out. Bayer thus goes well beyond the requirements of the EU regulation on clinical trials on human pharmaceuticals that entered into force on January 31, 2022.

Reuters Events awarded Bayer the prize for the [Most Valuable Awareness Initiative](#) for our commitment to making scientific research available to patients in a comprehensible form. This honors Bayer's dedication to providing patients and all affected parties with clear and easily understandable concepts, including in scientific publications.

Approval process

The respective documentation submitted to the regulatory authorities contains the research results from the Phase I to III clinical trials and the data generated for a pharmaceutical during its development. It thus includes both the data from the developmental phases, such as chemical-pharmaceutical and toxicological data, and a comprehensive benefit–risk assessment of the pharmaceutical. A new pharmaceutical must comply with all regulatory safety requirements to secure marketing authorization. The same applies to medical devices, dietary supplements and medicated skincare products. Based on these documents, the regulatory authority assesses whether the efficacy, safety and quality of the pharmaceutical have been demonstrated for the intended indication. The product is only approved if its benefit–risk ratio is positively assessed.

As each country has its own strict regulations for drug development, product approval and market launch, we work closely with the respective national regulatory authorities to ensure that we act in a compliant manner at every development stage. The authorities in other countries often take the assessments of the EMA and/or the FDA into consideration in their own evaluations.

The most important regulatory authorities for Bayer are:

- // The U.S. Food and Drug Administration (FDA)
- // The European Medicines Agency (EMA)
- // The Pharmaceuticals and Medical Devices Agency (PMDA) in Japan
- // The National Medical Products Administration (NMPA) in China

Drug safety

The preclinical and clinical studies prescribed for pharmaceutical research investigate drug candidates with regard to their quality, safety and efficacy. At the same time, the genesis and progression of a disease differ from one person to another, and the effect of a drug product can vary accordingly. We continue to observe and evaluate our products following their approval and throughout their entire life cycle. This enables adverse effects to be identified at an early stage and a decision to be taken as regards the necessary risk mitigation measures.

The collection and evaluation of safety-relevant information about our products are the responsibility of the global Patient and Drug Safety (Pharmacovigilance) department, in

which scientific and medical experts from various disciplines work together in safety management teams (SMTs). These teams evaluate internal benefit and safety data, clinical trials, post-marketing studies, external databases and scientific publications to identify potential safety concerns at an early stage and detect possible changes in the benefit–risk profile. All reported side effects are entered into our pharmacovigilance database. The evaluation of information about a benefit–risk profile applies not just to pharmaceuticals and medical devices, but also to dietary supplements and medicated skincare products. This information is regularly evaluated in collaboration with the regulatory and oversight authorities at both national and international level.

As it is particularly important not just to collect data during the clinical development of a medical product, but also to monitor the product after marketing authorization has been granted, we conduct the aforementioned Phase IV studies (post-authorization safety studies) to record rare or very rare side effects, for example. As a pharmaceutical manufacturer, we receive reports on side effects either directly or through the health authorities, as well as through stakeholders such as physicians, pharmacists or patients themselves. We pass on to the regulatory authorities suggestions derived from these reports regarding supplementary safety-relevant information in the package inserts. Such suggestions usually come to the authorities from the respective pharmaceutical manufacturers. The relevant health authorities decide on the steps resulting from the reports and suggestions in close cooperation with us as the producer.

Should risks be identified, we immediately take steps to safeguard the health of patients and consumers in coordination with the authorities. These measures range from updating product information for patients, users, pharmacists and

physicians through patient education brochures and further training measures for medical specialists to direct communication with medical experts (Direct Healthcare Professional Communication, DHPC) and even product withdrawals. Implementation of risk mitigation activities is coordinated by our local safety management teams (SMTs) in the country organizations.

All of these processes are documented, regularly updated and integrated into the quality management system. To maintain the high quality of Bayer's pharmacovigilance system, our medical and scientific experts undergo regular training. Furthermore, in line with our Group Regulation on Product Safety and Quality: Reporting Obligations of Employees, all Bayer employees are required to undergo training as regards their obligation to immediately report safety- and quality-relevant information to the Pharmacovigilance department. We regularly test whether the pharmacovigilance system can cope with emergency situations such as pandemics.

The information that we compile on side effects is reported to the national health authorities in the relevant countries, where it is processed. As processes in the European Union are centralized, European marketing authorization holders such as Bayer are now required to enter all suspected cases of undesirable side effects directly into EudraVigilance, the European Medicines Agency's electronic information system, rather than to report them to the 27 national authorities.

Large data volumes must be analyzed to identify relevant information in the drug safety process. Since 2019, Bayer has employed technologies with artificial intelligence for this task in order to support time-consuming manual workflows. This enables side effects to be discovered at an earlier stage and risk mitigation measures to be implemented faster, which in turn helps to further improve patient safety.

Trace substances of active pharmaceutical ingredients in the environment

Our Pharmaceuticals and Consumer Health divisions carry out ecotoxicological investigations on active ingredients. These investigations serve as the basis for environmental risk assessments required in connection with the approval process for [human pharmaceuticals in Europe](#) and the [United States](#). In this way, we evaluate possible environmental risks that could result from the proper use of human pharmaceuticals. The results of these environmental risk assessments are outlined in the specialized information for physicians in general terms. This information includes details on how to properly dispose of expired or unused pharmaceuticals so that users are able to avoid unnecessary environmental emissions. These details are also included in the packaging inserts.

We take additional action in our production facilities to minimize discharges of active ingredients into the environment based on risk-oriented assessment parameters. For more information, please see Chapter 8.3 Water and Wastewater.

In some cases, measurements can detect active pharmaceutical ingredients in environmental media as trace substances, in other words in low concentrations. According to an [OECD publication from 2021](#), discharge into the environment occurs primarily through patients' excreta, as well as partially through the improper disposal of unused and expired medicines, and from hospitals. The OECD found that pharmaceutical production facilities are responsible for less than 1% of all emissions into the environment. The main path of entry into the environment for these trace substances is through wastewater discharged into surface waters such as rivers or the sea, as treatment plants are not always able to sufficiently eliminate trace substances.

Surface waters are used in some areas as a source of drinking water. However, current knowledge indicates that the trace substance concentrations of active pharmaceutical

ingredients measured in drinking water are harmless to human health. This assumption is based partly on the findings of the WHO's Drinking Water Parameter Cooperation Project report of 2017. Among the aspects studied in this report were the concentrations of active pharmaceutical ingredients measured in environmental media and mixtures of such substances measured in drinking water. The report found that there were no immediate health risks and consequently no need to act in the short term. Against the background of a potential increase in the use of pharmaceuticals and to further guarantee the safety of drinking water resources, the WHO recommends that the discharge of trace substances be observed comprehensively over a longer period of time.

In addition to human health, there is an increasing focus on the environmental impact of pharmaceutical trace substances. Such trace substances are the subject of scientific publications and a matter of public interest. The European Commission also deals with trace amounts, including those of medicinal products in the environment. Strategic approaches to managing pharmaceuticals in the environment have been published in connection with the Pharmaceuticals Strategy initiated in 2020.

For many years, the pharmaceutical industry has also addressed the issue of trace substances of medicinal products in the environment and the environmental risk assessment of active ingredients. Between 2015 and 2019, for example, an initiative of the manufacturers' associations EFPIA (European Federation of Pharmaceutical Industries and Associations), AESGP (Association Européenne des Spécialités Pharmaceutiques Grand Public) and Medicines for Europe addressed key points of a strategic approach to dealing with pharmaceuticals in the environment and developed possible solutions for this problem. This initiative focused partly on expanding the current legally required risk assessment for active pharmaceutical ingredients within the scope of the pharmaceutical marketing authorization process. Another focus was the development of a concept for analyzing and

managing wastewater from pharmaceutical production facilities. This is currently being implemented at Bayer (please see Chapter 8.3 Water and Wastewater).

The pharmaceutical industry initiative comprised various projects. Within this initiative, Bayer served from 2015 until 2018 as coordinator of the iPiE (Intelligent Assessment of Pharmaceuticals in the Environment) subproject. A total of 25 partners from Europe and the United States participated in iPiE, including 13 major pharmaceutical companies and nine universities and research organizations. The project was established by the Innovative Medicines Initiative (IMI), a public-private partnership of the European Commission and the EFPIA aimed at developing new models and assessment strategies for predicting the environmental impact of active pharmaceutical ingredients.

For the first time, a database of environmental information was created in the EU within the scope of iPiE that enables a comprehensive, transparent and comprehensible overview of more than 2,000 studies on the environmental behavior of active pharmaceutical ingredients already on the market. The publicly accessible database can be used by researchers, for example, to identify the possible environmental risks of new pharmaceuticals at an early stage. Evaluations of the database have already found that only a few of the registered active ingredients pose a potential environmental risk. These primarily include hormones, which already impact the environment in very low concentrations and are also used by companies such as Bayer.

Bayer is also active in the iPiE follow-up project PREMIER (Prioritisation and Risk Evaluation of Medicines in the Environment). A total of 25 public- and private-sector partners currently participate in PREMIER, including public authorities, universities and EFPIA companies. This IMI project, scheduled to run from 2020 until 2026, is geared toward improving and expanding the publicly accessible iPiE

database. Among the objectives of PREMIER are to make more details on the studies publicly accessible and to provide for modeling and evaluation tools. Furthermore, it aims to develop strategies and processes that enable active ingredients to be prioritized for which little environmental data is currently available (there has only been a legal obligation in the EU to produce environmental data and conduct a risk assessment since 2006). The goal is to identify the active ingredients that lead to heightened risks in the environment. The intention is to prioritize the generation of updated environmental data and enable risk assessments for these active ingredients to be performed. This in turn obviates the need for unnecessary studies – such as those involving animals (vertebrates) – for active ingredients classified as unproblematic. PREMIER is also aimed at researching and promoting environmentally friendly active ingredient design. Bayer's pharmaceutical research organization is actively participating in this project.

Bayer also remains involved in the stakeholder dialogue initiated by the German government with the goal of drawing up a strategy for dealing with trace substances in bodies of water. In round-table formats that bring together stakeholders from water management, environmental authorities and associations, health services providers and industry, measures are developed that aim to reduce the discharge of relevant trace substances. The objective is to develop a strategy for preventing the water-impacting effects of selected chemicals, including active pharmaceutical ingredients. Bayer participates in the round table on iodinated X-ray contrast agents, as these are among the products commercialized by us. Bayer has continuously and actively contributed to the discussions surrounding the assessment and investigation of the potential risk to the environment and helped shape their successful implementation. Reduction measures were recently evaluated through a design study and the final report was published.

Through a returns program, we enable doctors' offices and hospitals to send remaining stock or unused supplies of the iodinated X-ray contrast agent Ultravist™ back to us. This in turn makes it possible to properly reuse the iodine in an industrial cycle while at the same time helping to avoid iodine emissions into the environment.

Focus on: Access to Healthcare

Millions of people in many parts of the world do not have access to basic medical care. According to the World Health Organization (WHO), there are various reasons for this – a lack of medicines, poverty, a lack of or inadequately trained medical personnel, a lack of political will and insufficient access to medical data.

As a leading pharmaceutical company, we believe we have a responsibility to improve access to healthcare for all. For this reason, we are focusing on areas in which we can have the biggest impact by leveraging our scientific know-how, products, partnerships and global network.

In accordance with our strategy, we want to fulfill the need of 100 million women in low- and middle-income countries (LMICs) for modern contraception by 2030. We also want to support 100 million people in economically or medically underserved communities with self-care by interventions from Bayer. For more information, please see the Sustainability Strategy chapter.

It is also our ambition to improve access for people in LMICs to our prescription products through improved availability and modified drug pricing, as well as through our patient access programs.

We have implemented strategies for improving access to healthcare throughout the value chain.

Access to Medicine Index

Since 2008, the Access to Medicine Foundation has published a ranking of the 20 biggest pharmaceutical companies. The Access to Medicine Index evaluates the companies' measures to make medicines and diagnosis more easily accessible to people in LMICs. Bayer is currently ranked 13th, an improvement of three places compared with the assessment conducted in 2018. This is partly due to the fact that sustainability issues are now systematically and better managed and Bayer endeavors to achieve a secure supply chain in LMICs. We are working to achieve additional improvements for the 2022 ranking.

Family planning

The ability of girls and young women to complete their education and thus improve their opportunities in life is highly dependent on family planning options. For this to happen, they must be able to make their own well-founded decisions about whether to have children, and, if so, how many and when. Knowledge about their own sexuality and access to modern family planning are crucial to helping young people make important life decisions. Furthermore, both education and conversations about family planning strengthen gender equality and the role of women worldwide. That's why access to voluntary family planning has been an established human right for more than 50 years.

According to the United Nations, more than 200 million women in LMICs would like to prevent pregnancy but do not use safe and effective family planning methods. According to the United States Agency for International Development (USAID), investment in family planning is a "best buy" for development that can support the attainment of various Sustainable Development Goals (SDGs) – family planning provides the foundation for more equality and affluence, and plays a crucial role in reducing poverty (→ SDG 1) and hunger (→ SDG 2), improving health (→ SDG 3) and enabling women to participate in high-quality education. It also strengthens gender equality (→ SDG 5), which in turn is a crucial factor in future economic and social development.

Collaborations

Bayer works together with international partners to improve education on sexual rights and contraceptive options. Back in 2007, in close cooperation with 15 international partners, we launched the "Your Life" information campaign, which is directed toward young people around the world. The associated social media activities provide facts and figures on current contraception options and address concerns about contraceptives.

For many women, a lack of social acceptance for contraception – along with incomplete information or limited choices as regards the methods of contraception – is the biggest obstacle when it comes to deciding how to go about their own reproductive life planning. For this reason, it is important to not only strengthen young people's knowledge, but also to increase awareness among politicians and physicians about the sexual rights of women in LMICs. Against this background, we have supported the International Dialogue on Population and Sustainable Development –

an annual conference with participants from civil society, politics and the private sector – for many years.

Access to family planning products is not adequately guaranteed in many regions of the world. As a global leader in women's health, Bayer is a longstanding partner to international family planning programs. Bayer's contraceptive products are made available at preferential prices.

Irrespective of whether its own products are used, Bayer has been providing financial support to [The Challenge Initiative](#) (TCI) – a family-planning program based at Johns Hopkins University and implemented by the Bill & Melinda Gates Institute for Population and Reproductive Health – since July 2020. TCI aims to quickly and sustainably establish various family planning options on a broad scale. The program is currently being implemented in more than 90 Asian and African cities.

Since 2007, Bayer has been a member of the Reproductive Health Supplies Coalition (RHSC), a global partnership of public, private and nongovernmental organizations. The RHSC endeavors to ensure that people in LMICs are able to access affordable and high-quality contraceptives. Within the framework of the RHSC, Bayer works together with the United Nations Population Fund (UNFPA), USAID and international NGOs to make available hormonal contraceptives such as birth control pills, three-month injections, implants and coils. As a strategic partner, we also provide support with expertise in the areas of supply, logistics and product registration.

Achieved status

We already currently provide contraceptives to 41 million women in LMICs. More than a third of these women are reached through private distribution channels – particularly in higher middle-income markets. The rest – mainly women in countries with lower and lower-middle incomes – receive access through the international development network, such

as through UNFPA or participating national family planning programs. Shipments provided through such programs are usually free of charge for the women. To address the challenges linked to facilitating access to contraceptives over the next decade, and reach our target of enabling 100 million women to access modern contraceptives, we are continuously expanding our partnerships and increasing our production capacities. For more information on our Group target, please see the Sustainability Strategy chapter.

Expansion of production capacities

In 2021, we approved capital expenditures of more than €400 million to expand the contraceptive production facility at our site in Finland and build a new plant in Costa Rica. This investment is aimed at meeting the growing need for long-acting reversible contraceptives (LARCs) and expanding our offering of long-acting products that are in especially high demand in international development projects, such as the Jadelle™ implant and the Mirena™ hormonal intrauterine system.

Neglected tropical diseases

Together with other pharmaceutical companies, Bayer plays an important role in fighting neglected tropical diseases (NTDs). Bayer supports the WHO NTD road map 2021-2030, which aims to permanently eliminate 20 NTDs by 2030. For nearly 20 years, we have provided the WHO with two essential drugs to treat [African sleeping sickness](#) and [Chagas disease](#) in Latin America free of charge. We also provide funding for logistics and the distribution of these drugs in the affected countries, as well as for other activities.

Fewer than 1,000 patients required treatment for African sleeping sickness in 2020, 98% fewer than 20 years ago. The disease has thus been eliminated as a global public health problem after longstanding efforts.

Chagas disease

Currently, between six and seven million are infected with the pathogen of Chagas disease. Less than 1% of those infected have access to adequate diagnosis and treatment of the disease. Newborn babies and children are at particular risk because infected, and in some cases asymptomatic, mothers can pass on the pathogen to their unborn children. Our preclinical and clinical research has resulted in the development of a formulation of our Lampit™ product that is suitable for children and was approved by the United States Food & Drug Administration in August 2020. Approval was granted in Bolivia in 2021. The formulation enables the drug to be precisely dosed for children based on body weight. It also has better solubility and is easier to administer, which means it can be given to infants aged zero to two years. That makes this formulation of Lampit™ the first Chagas treatment approved for this age group.

Pork tapeworm

Since 2020, Bayer has also supported the WHO in the fight against infection with the pork tapeworm (*Taenia solium*), which is transmitted through the consumption of raw or insufficiently cooked pork. When people and pigs live closely together in unhygienic conditions, infection can also occur when the tapeworm's eggs are excreted with feces. The disease is asymptomatic but can also attack the brain in the late stages if left untreated (neurocysticercosis). Infection with the pork tapeworm at this stage has led to epilepsy in about 13 million people, accounting for about one-third of all epilepsy cases in the affected countries. Bayer provides two essential drugs to treat pork tapeworm infection, and financially supports the logistics and distribution of the medicines within the scope of national programs to eliminate the illness.

Onchocerciasis

Since 2014, Bayer has worked together with the Drugs for Neglected Diseases initiative (DNDi) to develop an active ingredient for the treatment of onchocerciasis. The first clinical trials in humans (Phase II) began in mid-2020. Transmitted by threadworms, this tropical disease leads to incurable so-called river blindness in about 10% of chronically ill patients. Some 30 million people around the world are infected with these threadworms, of whom more than 99% live in Africa.

Further initiatives

We also support programs to control the vectors of diseases such as malaria and dengue fever, as well as the Zika virus.

Furthermore, Bayer is a member of the European [ESCUlab project](#) (European screening centre; unique library for attractive biology) of the Innovative Medicines Initiative (IMI), which seeks drugs that will treat neglected tropical diseases and malaria effectively, among other objectives.

Malaria

We support various initiatives and organizations in the fight against malaria. As a member of the [Zero by 40](#) initiative, we aim, together with other agriculture companies and the Bill & Melinda Gates Foundation, to eliminate the malaria pathogen by 2040, through the use of innovative vector control, various treatment forms and preventive measures.

Further engagement

In addition to infectious diseases, noncommunicable diseases are a major challenge, particularly in LMICs. More than three-quarters of deaths from cardiovascular disease occur in LMICs. Between 1990 and 2013, sub-Saharan Africa was the only geographic region in the world to register an increase in deaths due to cardiovascular disease. The number of cardiovascular patients is expected to double by 2030. For this reason, Bayer is working in partnership with the German Society for International Cooperation (GIZ) and local health authorities in Ghana to develop a model project to establish an integrated diagnosis, treatment and continuing education concept for cardiovascular disease. The Ghana Heart Initiative, which Bayer supports, aims to facilitate more specific drug access programs by strengthening the healthcare system. The intention is for this model project to serve as a foundation and a catalyst for subsequent initiatives to develop capacities that can help treat noncommunicable diseases. The first phase involved the development of corresponding guidelines. Upon recognition by the Ghanaian health authorities, medical personnel underwent suitable training. We concluded an agreement with the GIZ to continue and expand the program through the end of 2023. Heidelberg University will independently evaluate the program. For more information, please see our [website](#).

Bayer and the [Bayer foundations](#) are similarly committed to numerous projects and local partnerships to strengthen health systems and build up capacities. Social commitment, access programs and innovative, inclusive business models jointly contribute to the implementation of our “Health for all, hunger for none” vision. For more information, please see Chapter 9. Charitable Giving and Foundations.

Antimicrobial resistance

Antimicrobial resistance (AMR) is an increasing problem in healthcare, and suitable antibiotics are urgently needed. Therefore, together with other pharmaceutical companies, we support the AMR Action Fund, which aims to bring two to four additional antibiotics to market maturity by 2030 to address AMR, antibiotics whose development would otherwise be jeopardized by funding problems.

Equitable drug pricing

The cost of medicines can present a major obstacle for patients, especially when they have to assume the costs themselves. This applies in particular to LMICs. We are therefore working on various options, also in collaboration with charitable organizations and governmental authorities, to provide solutions that give more patients improved access to much needed medicines. For some of our most important products, including individual new launches, (Adempas™, Eylea™, Kerendia™, Kyleena™, Mirena™, Nexavar™, Stivarga™, Verquvo™ and Xarelto™), we have established the framework conditions for more equitable pricing, which also account for per capita gross national income and thus enable more flexible decisions to be made about drug prices in respective countries.

Patient access programs

Our patient access programs help patients in LMICs to overcome financial obstacles to reliable drug access. We cooperate with insurance providers, charitable organizations and other partners to advance these options. Our patient access programs are developed according to the framework conditions in each country, and take into account patient needs, which are supported in various ways, e.g.:

- // Individual assessment of financial solvency and derivation of a patient-based financing and treatment plan
- // Reduction of patient expenses through the combined provision of free and payment-based medicines or the granting of discounts on the original selling price

Patents in low-income countries

In low-income countries (LICs), Bayer does not register or enforce patents for human pharmaceuticals or vector control products. This applies as long as a country retains the status of an LIC according to the World Bank classification and the country's government does not take any measures that would justify a change in that status.

We have also joined the Patent Information Initiative for Medicines (Pat-INFORMED), which provides basic patent information on our registered products and makes it available to the public, so as to facilitate the procurement of medicines, particularly in LICs.

4. Procurement

As a global company, Bayer procures services and materials from all over the world. We align our procurement and supplier management processes to ambitious ethical, social and environment-related principles. We expect our suppliers to also observe these principles and we support them in doing so. Through this approach, we help to improve sustainability in our supply chain.

4.1 Management Approach

The procurement organization supplies the company with raw materials, goods and services all around the world. We exert influence on society and the environment through our procurement activities and supplier relationships. Not only economic, but also ethical, social and ecological principles are therefore anchored in our Procurement Policy, which is binding for all employees worldwide.

Procurement acts on behalf of all divisions and enabling functions, leveraging synergies by bundling know-how and procurement spend. The head of Procurement reports directly to the Chief Financial Officer.

Procurement operates according to established procurement and supplier management processes. Long-term contracts and active supplier management for strategically important goods and services are important elements here. They serve to minimize procurement-specific risks such as supply bottlenecks or significant price fluctuations, and also to safeguard the company's competitiveness and ensure smooth production processes.

Our main direct procurement materials include active ingredients, raw materials, intermediates, finished products and seeds. Technical goods and services, research and development (R&D) supplies, marketing services and information technologies are important components of our indirect procurement portfolio. We procure various petroleum-based chemicals, but these account for 25% of our overall procurement volume at most.

Renewable raw materials for the manufacture of our products account for a minor proportion of our procurement volume. These materials are primarily used when it makes technical, economic and ecological sense to do so. For more information, please see our [website](#).

The following table provides relevant data on our procurement activities.

Procurement Activities		
	2020	2021
Procurement spend in € billion	17.7	18.9
Spend in OECD countries in € billion	14.1	14.9
U.S.A.	6.0	6.3
Germany	3.8	4.1
United Kingdom	0.6	0.6
Other	3.7	3.9
Spend in non-OECD countries in € billion	3.7	4.0
China	1.0	0.9
Brazil	0.8	1.0
India	0.6	0.8
Other	1.3	1.3

Procurement Activities

	2020	2021
Number of suppliers	97,362	93,844
of which from OECD countries	55,372	50,687
U.S.A.	15,376	14,034
Germany	9,945	7,794
United Kingdom	1,360	1,299
Other	28,694	27,560
of which from non-OECD countries	41,990	43,157
China	1,995	2,022
Brazil	7,447	7,588
India	9,237	10,351
Other	23,312	23,196
Number of countries	147	144

Bayer purchases locally wherever feasible in order to respond promptly to the requirements of our sites and simultaneously strengthen local economies. In 2021, this applied to 79% (2020: 77%) of our procurement spend at our [significant locations of operation](#), and to 77% (2020: 77%) of procurement spend in all countries worldwide.

When selecting suppliers, we consider all types of suppliers and supplier diversity.

Supplier Diversity Program

With its comprehensive Supplier Diversity Program, Bayer promotes diversity within the supply chain in the United States, Mexico, Brazil and South Africa. In doing so, we account in particular for underrepresented supplier groups such as companies owned or operated by women, ethnic minorities, people with disabilities or members of the LGBT+ community. Together with chambers of commerce and external organizations, we help these suppliers to further develop themselves professionally, offer them financial benefits to improve their competitiveness and assist them in qualifying for tendering processes. In 2021, for the fourth consecutive year, Bayer's U.S. operations received the highest rating in the Human Rights Campaign's Corporate Equality Index. In 2022, the program will be expanded to additional countries and included in the strategy for the individual procurement categories.

Strategic sustainability focus areas

Bayer works continuously to strategically evolve sustainability topics in procurement. In the coming years, the company intends to place increasing importance on environmental and human rights requirements throughout the supply chain and on the Supplier Diversity Program. In 2021, we began developing indicators to monitor progress in the various sustainability focus areas and define suitable targets. In 2021, we continued to ensure that all strategically important suppliers had to present an EcoVadis rating of at least 45 of 100 points ("green" assessment) or a comparable audit result. Since 2021, furthermore, potential new suppliers with a high inherent sustainability risk and procurement spend of more than €250,000 have been examined in advance with regard to sustainability aspects.

The focus in 2021 was on developing strategic and operational approaches for ensuring respect for human rights and the reduction of the carbon footprint in the supply chain.

In the agriculture industry, seed producers are subject to particular risks, especially with regard to respecting human rights. We shall place greater emphasis on this aspect in the future as we develop our new human rights strategy and the sustainability risk classification. In 2021, we concentrated on raising awareness among our Procurement employees and our suppliers about human rights in the supply chain. Procurement also participates in an internal Bayer project to implement the German Supply Chain Due Diligence Act in our business operations. For more information, please see Chapter 5. Human Rights. In 2022, we plan to expand our measures aimed at fulfilling corporate due diligence in procurement with respect to human rights in the supply chain and integrate them more intensively into our procurement processes.

Within the framework of Bayer's sustainability strategy, Procurement is also responsible for all measures aimed at reducing the carbon footprint of our value chain (Scope 3). We pushed ahead with existing activities and initiated new measures in 2021. For more information, please see Chapter 7. Climate Protection. We cooperate with the [World Business Council for Sustainable Development \(WBCSD\)](#) and the CDP Supply Chain Initiative, and head up a special GHG Scope 3 Emissions working group in the TfS initiative. As regards palm oil, we use credits according to the book & claim procedure of the Roundtable on Sustainable Palm Oil (RSPO). Beginning in 2022, we will successively transition to the mass balance supply chain standard of the RSPO.

4.2 Sustainability in the Supply Chain

Clear, sustainability-oriented criteria and standards apply to our supply chain at both global and regional level. We have established a four-step process throughout the Group to improve sustainability practices in the supply chain.

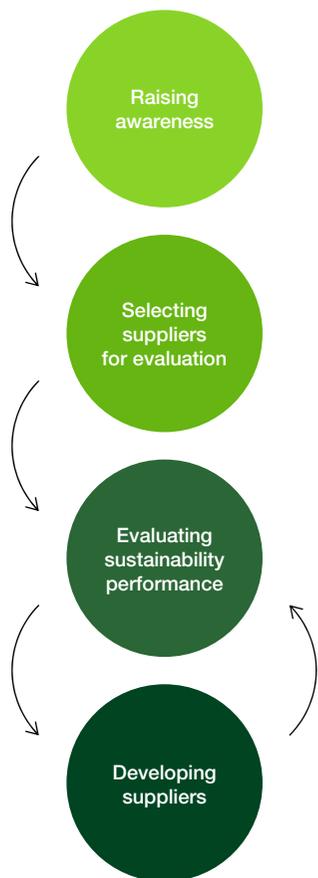
This process is centrally steered by the Sustainability unit in Procurement. It is implemented through cross-functional cooperation between the Procurement and Public Affairs, Science, Sustainability & HSE enabling functions.

We use dedicated training measures to instruct our procurement employees in our sustainability requirements. In 2021, we conducted advanced training on our new sustainability focus topics.

Step 1: Raising awareness

The core principles of our sustainability requirements are established in [Bayer's Supplier Code of Conduct](#), which is based on our [Bayer Human Rights Policy](#), the principles of the [U.N. Global Compact](#) and the core labor standards of the [International Labour Organization \(ILO\)](#). The code is available in 12 languages and covers the areas of ethics, relations with employees and other stakeholders (including human rights), health, safety, environment and quality, and governance and management systems. In our Supplier Code of Conduct, we state that complaints and (compliance) violations can be reported – anonymously if desired – via a central compliance hotline set up by Bayer that is available worldwide (for more information, please see Chapter 2.6 Compliance). Additionally, we expect our suppliers to make an adequate complaint mechanism available to their stakeholders.

Four-step Management Process to Improve Sustainability Practices in the Supply Chain



The code is applied in the selection and evaluation of our suppliers and is integrated into electronic ordering systems throughout the Bayer Group. As a result, suppliers must already commit to our core principles upon registration. Furthermore, our standard supply contracts contain a clause that authorizes us to verify suppliers' compliance with our

sustainability requirements. This clause will be successively integrated into all contracts that are up for renewal in 2022. Our Code of Conduct is supplemented by a global guidance document, which, like the Supplier Code of Conduct, is available on our website.

Step 2: Selecting suppliers for evaluation

Each year, Bayer systematically selects suppliers whose observance of the code requirements needs to be reviewed through an online assessment or an audit. The first step is to identify all suppliers of strategic relevance to Bayer who must automatically undergo a sustainability evaluation.

In the second step, Bayer gives a sustainability risk classification to any remaining suppliers representing a significant annual procurement spend of more than €0.5 million. The sustainability risk classification comprises the assessment of risks prevailing in the respective supplier's country (country risk) and resulting from the supplier's sector of activity (category risk). This process enables a more detailed view of the risks in the areas of environment (e.g. climate and energy), social standards (e.g. child labor) and corporate governance (e.g. data protection). This more targeted analysis with individual risk criteria increases transparency in our supply chain. The risk categorization is based on internationally recognized classifications of country risks such as those applied by the World Bank and of category risks such as those employed by the United Nations.

The procurement organization examines the suppliers identified in these two steps and selects the final suppliers requiring evaluation. In 2021, this selection process yielded 270 strategically important suppliers, making up around 20% of the total procurement spend, and 320 suppliers with a high sustainability risk and a significant procurement spend (>€0.5 million p.a.), making up nearly 7% of the total procurement spend.

Also included in the evaluation process are suppliers for which evaluations were performed through our Together for Sustainability (TfS) industry initiative and the Pharmaceutical Supply Chain Initiative (PSCI), in addition to those who proactively allowed themselves to be evaluated. These initiatives should lead to a standardization of the sustainability requirements that suppliers in the chemical and pharmaceutical industries are expected to meet. The sharing and mutual recognition of assessment and audit results should also create synergies within the respective initiatives.

Step 3: Evaluating sustainability performance

Bayer verifies the observance of the code requirements by the suppliers selected in Step 2 by means of EcoVadis online assessments or through on-site audits or, during the COVID-19 pandemic, virtual audits conducted by both external and Bayer auditors.

The online assessment criteria of EcoVadis – broken down into the areas of environment, ethics, labor practices and human rights, and sustainable procurement – correspond to the requirements of our code and also take into account country- and industry-specific conditions and supplier size. In total, our service provider EcoVadis assessed 802 (2020: 670) suppliers on our behalf in 2021.

In 2021, we also arranged for 67 (2020: 26) of our suppliers to be audited on site by external, independent auditors. In addition, 10 (2020: 5) suppliers were audited virtually due to the global COVID-19 pandemic. The audit criteria included both the specifications of our code and the industry-specific requirements of the TfS and PSCI industry initiatives.

Furthermore, internal and external auditors evaluate selected new and existing suppliers with a focus on HSE. These audits are performed for suppliers with significant risk potential as regards, for example, substances, production processes, occupational safety or environmental factors, as well as for toll or contract manufacturers with an increased country risk. In 2021, 200 (2020: 83) suppliers were evaluated by means of HSE audits.

Assessments and Audits of Bayer Suppliers¹

	2020	2021
Sustainability assessments ² via the EcoVadis platform	670	802
Sustainability audits ³ by external auditors	31	77
HSE ⁴ audits by external or Bayer auditors	83	200

¹ The online assessments of our suppliers that form part of a group generally takes place at the parent-company level.
² Initial and re-assessments of suppliers working for Bayer; initiated by Bayer and shared via EcoVadis within the TFS initiative
³ Initial and follow-up audits of suppliers working for Bayer; initiated by Bayer and shared as part of the TFS and PSCI initiatives
⁴ Health, safety and environmental protection

In addition, verification processes were established for the fulfillment of further international regulations such as those requesting companies to disclose the origin of certain raw materials. This applies, for example, to conflict minerals. When surveying our relevant suppliers, we use the internationally recognized Conflict Minerals Reporting Template to identify the use, sources and origin of certain minerals in our supply chain. We communicate in our Supplier Code of Conduct that our suppliers have to ensure that products supplied to Bayer do not contain metals derived from minerals or their derivatives originating from conflict regions that directly or indirectly help to finance or support armed groups and cause or foster human rights abuses. Suppliers who do not meet these requirements are immediately notified that these standards must be complied with and suitable measures initiated.

Step 4: Developing suppliers

The online assessments and on-site audits are analyzed and documented so that specific improvement measures can be defined. In 2021, suppliers who had undergone online assessments by EcoVadis demonstrated the need for improvement in particular in the categories of ethics and sustainable procurement, while those who had been audited required improvement in occupational health and safety.

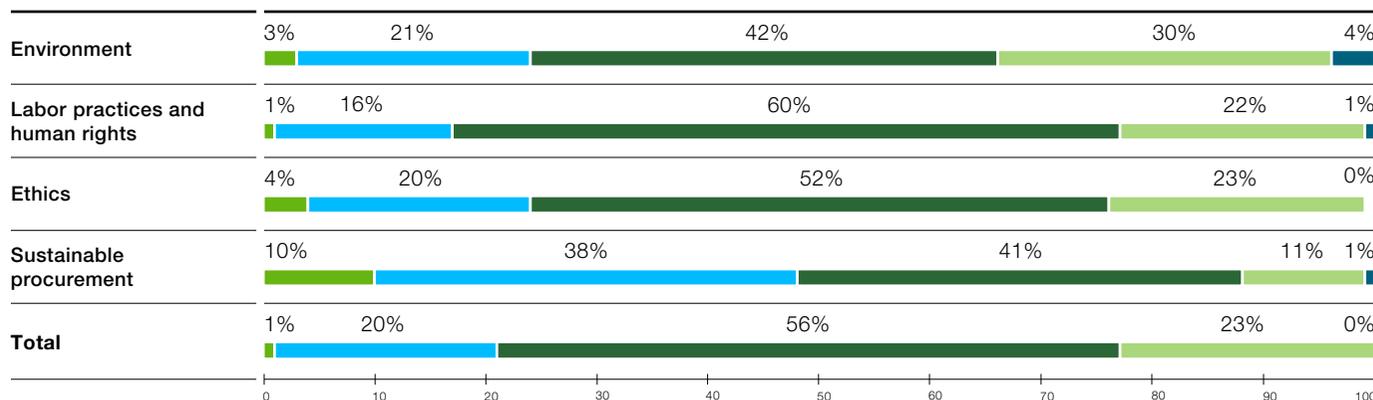
A supplier receives a critical result if one or more serious violations or several major findings in the implementation of sustainability aspects are identified. In these cases, Bayer requests that the suppliers remedy the identified weaknesses within an appropriate timeframe based on specific action plans. In 2021, this applied to 22 suppliers (3% assessed and audited suppliers; 2020: 2% (13)). We monitor the implementation of these activities by way of re-assessments or follow-up audits. Bayer retains the right to

terminate a supplier relationship if no improvement is observed during a re-evaluation. In 2021, Bayer was not prompted to end any supplier relationship due solely to sustainability performance. However, we implemented measures to reduce business with suppliers who were not able to improve their sustainability performance.

Our monthly monitoring shows that 508 (2020: 357) of the 879 (2020: 701) Bayer suppliers evaluated in 2021 improved their sustainability performance.

A key factor in this collaboration is helping our suppliers to improve their sustainability performance. Here we focus both on remedying deficiencies and on collaborating on sustainability topics.

Evaluating the Sustainability Performance of Our Suppliers



Valuation according to EcoVadis (in points): 0-24 25-44 45-64 65-84 85-100
 Number of suppliers assessed: 802 (as of December 31, 2021)

In 2021, Bayer organized a global virtual Supplier Day that focused partly on sustainability issues. We used this opportunity to communicate our expectations and ambitions regarding the issues of environmental protection, human rights and inclusion and diversity to our suppliers.

Beginning in 2022, we will establish a comprehensive approach to further strengthen supplier development in terms of sustainability.

The industry initiative PSCI also organized virtual training courses and workshops for suppliers in India and China in 2021. Through the PSCI online resource library, additional advanced training modules are offered to our suppliers that are being expanded each year. In 2021, PSCI offered new webinars on human rights legislation, process and plant safety, and environmental protection (including pharmaceuticals in the environment and antibiotic resistance). PSCI gives suppliers the opportunity to network among one another and further develop a responsible supply chain.

Together with the TfS initiative, we began to develop a practically oriented learning environment for suppliers and purchasers in 2021 so as to further establish competencies as regards sustainability issues. The focus here is on ethical aspects, conflict minerals, waste management and anti-corruption measures, among other issues. The training courses are expected to be available beginning in 2022. In 2021, we selected more than 200 suppliers to participate in TfS training courses based on their sustainability performance and Bayer's assessment plan. The training courses dealt with labor and human rights guidelines, whistleblower procedures, environmental reporting and sustainable procurement guidelines.

5. Human Rights

Bayer is a founding member of the U.N. Global Compact and respects the Universal Declaration of Human Rights and the International Covenants on Civil and Political Rights and on Economic, Social and Cultural Rights of the United Nations. We support the U.N. Guiding Principles on Business and Human Rights (UNGPs), which are among the most important international standards for preventing and combating possible human rights violations in connection with business activities. We commit to respect human rights due diligence in our activities along the value chain as described in the UNGPs. We also support the OECD Guidelines for Multinational Enterprises, the Tripartite Declaration of Principles concerning Multinational Enterprises and Social Policy of the International Labour Organization (ILO), and the latter's core labor standards.

5.1 Management Approach

Human rights are among the responsibilities of the Chairman of the Bayer Board of Management. In his role as Chief Sustainability Officer, he is supported as regards the topic of human rights by the Public Affairs, Science, Sustainability & HSE Enabling Function. The implementation of our human rights standards in business operations is regulated by Group regulations, processes and management and monitoring systems.

Bayer fully supports human rights and has documented its stance in a globally binding [Bayer Human Rights Policy](#). We are committed to respecting and fostering human rights within our own business activities and in business relations. Our commitment extends to all Bayer employees worldwide and the entire value chain, comprising suppliers, business partners, customers, consumers and local communities. Guided by our LIFE values and supplementary to our Human

Rights Policy, we substantiate specific standards and responsibilities as regards respecting human rights in the following additional Group regulations: [Bayer Societal Engagement \(BASE\) Principles](#), Data Privacy, [Corporate Compliance](#), Fairness and Respect at Work, [HSE Management and HSE Key Requirements](#), as well as Security & Crisis Management.

Child and forced labor are strictly prohibited at Bayer in accordance with the core labor standards of the ILO. The binding nature of this global ban is established in both our Human Rights Policy and our Supplier Code of Conduct.

We also expect our business partners, and particularly our suppliers, to fully observe human rights, as stated in our [Supplier Code of Conduct](#), which is based on our Bayer Human Rights Policy, the principles of the U.N. Global Compact and the core labor standards of the ILO.

We have put in place suitable directives and management systems to meet our product stewardship responsibility. For us, product stewardship means both that our products meet the highest quality standards and that they are safe for people, animals and the environment when properly used. For more information, please see Chapter 3. Product Stewardship.

Human rights strategy

By 2030, we want to be industry-leading in our approach to human rights. With this goal in sight, we further developed our human rights strategy in 2021 and are in the process of updating our Human Rights Policy. Both are based on a status and risk analysis. The draft policy is currently being assessed for conformity with the requirements stemming from the German Supply Chain Due Diligence Act with which we

align ourselves. It is intended for both the human rights strategy and the policy to become effective in 2022 once the assessment has been completed.

To determine potentially adverse effects of our operations on human rights, we use our Group-wide integrated risk management system. The Bayer Risk Portfolio is regularly reviewed and updated as necessary. We are aware that human rights due diligence is a continuous process. The development of our strategy therefore comprises several interlocking phases intended to cover not just the addressing of human rights risks and impacts, but also our efforts to achieve our company vision and selected Sustainable Development Goals (SDGs):

Phases of the Human Rights Strategy



1. Definition of the framework: derivation of the human rights strategy based on an analysis of the status and risks in accordance with the UNGPs, our vision “Health for all, hunger for none” and the future requirements stemming from the German Supply Chain Due Diligence Act

2. Operationalization and full integration: expansion of existing due diligence processes to address human rights risks

3. Strategic positive contribution: support for the protection of human rights in areas that concern our business.

5.2 Implementation Measures

We implement measures to ensure respect for human rights both within our own company and along our entire value chain. Group regulations, processes, and management and monitoring systems regulate the implementation of human rights standards.

Identifying risks and impacts

In 2021, together with external partners, we virtually completed the renewed Group-wide identification and assessment of our human rights risks in accordance with the UNGPs using our Bayer-wide risk management system.

The first step in this process was to identify potential human rights risks with which we could be involved directly through our business activities, our products or services, or indirectly in our supply chain. These risks were then separately assessed with regard to their degree of severity, materiality and likelihood of occurrence.

Human Rights Due Diligence in Accordance with the UNGPs at Bayer



This enabled us to identify the human rights that could be most significantly negatively impacted through our activities and business relations in the upstream and downstream value chains (salient human rights) or that are of particular importance for our company (material human rights). The results of the human rights risk analysis are intended to be published as the human rights strategy comes into force.

Salience & materiality

Two dimensions must be accounted for when managing human rights risks. The first comprises salient human rights issues, which refer to those human rights that can be most severely affected by our activities and business relationships. The other concerns material human rights, which are those that are of great importance for our internal and external stakeholders.

Plans are in place to incorporate the results of this human rights risk analysis into our Group-wide, integrated risk management process. For more information on our Group-wide, integrated risk management process, please see Chapter 2.8 Risk Management.

Measures to address risks and impacts

We verify the observance of human rights at our sites partly by means of Bayer audits. Bayer Internal Audit regularly conducts audits following the International Internal Audit Standards (IIA). The annual audit planning follows a risk-based approach. These audits include a verification of our human resources processes, particularly concerning labor contracts, compliance with hiring requirements (including a minimum age verification) of our permanent and temporary employees, and employees' working hours. It is also examined whether employees are paid a living wage. Our procurement processes are audited as well, for example work with contractors. A total of 89 audit reports were compiled in 2021, of which 12 were preventive compliance system audits or incident-related investigations.

We offer numerous ongoing training programs to enhance employees' awareness of the importance of human rights in their day-to-day activities. In 2021, we also published a dedicated human rights basic training course in English for all employees. There are plans to make this course available in eight additional languages in 2022. In 2021, more than 85% of our employees received training on aspects of our Human Rights Policy in sessions totaling more than 215,000 hours. The issue of human rights has also been an integral element of training measures for the management of our country organizations since 2021.

We report in detail on human rights due diligence for our workforce and the local communities in the relevant chapters 6. Employees and 8. Environmental Protection and Safety.

Grievance mechanisms

If there are indications of violations of our Human Rights Policy, employees and members of the general public can contact the worldwide [compliance hotline](#), which is available in more than 300 languages. This can also be done anonymously if desired. Alternatively, employees can also report suspected violations to the respective compliance functions or to the Internal Audit unit, or submit information via an internal company email address or in the form of an incident request via a newly implemented platform. For more information, please see Chapter 2.6 Compliance.

Challenges in the supply chain

As regards the topic of human rights, we are focusing especially on our supply chain because this connects us with several million rights holders – in other words people who are directly or indirectly impacted by our activities. For this purpose, Procurement undertakes a classification of the sustainability risk of our suppliers. This risk classification encompasses all procurement countries and categories such as services and seed production, the latter also including seasonal workers. This enables us to identify and systematically

address human rights risks by country and category. Aspects of human rights are also covered in the training offerings and the Supplier Code of Conduct guidance.

In its supply chain management activities, Bayer additionally undertakes to achieve transparency in the fight against modern slavery. For more information, please see our [Modern Slavery Act Statement](#).

Furthermore, we verify the observance of human rights by our suppliers, partly by means of on-site audits that also include interviews with the suppliers' management and employees. In 2021, audits of suppliers uncovered a very small number of serious violations against applicable wages, other benefits, working time, fair treatment as well as occupational health and safety. In each of these cases, we actively cooperated with our suppliers to improve the situation for employees in a timely fashion. For more information, please see Chapter 4. Procurement.

The risk of human rights violations poses a particular challenge for Bayer in the seed supply chain. The focus here is on the risk of child labor.

Combating child labor

Our position on child labor is quite clear – it is not tolerated at Bayer. We therefore obligate our suppliers to refrain from employing children. Through our Child Care Program, Bayer has for years taken systematic action to prevent child labor in the seed supply chain. The program is established in India, Bangladesh and the Philippines – the countries in which we identified the potential for child labor infractions through our risk assessment.

Through our Child Care Program, we raise awareness about this problem among our suppliers and clearly communicate our requirements. It involves systematic and repeated inspections of individual seed producers in their fields by local Bayer employees during the growing season.

As a supplementary quality control measure, a special team from Bayer India carries out sample inspections in the fields in India, Bangladesh and the Philippines, in addition to a general process and documentation review.

Despite the restrictions associated with COVID-19, local Bayer employees continued their field inspections wherever possible, while observing safety precautions. In this context, it was determined that the incidence of child labor in India had increased due to return migration of the rural population and the enormous challenges associated with the pandemic. It was once again not possible to have sample inspections conducted by Bayer India's special team in the Philippines and Bangladesh in 2021 due to travel restrictions. In 2020/2021, we uncovered a total of 40 cases of child labor among our seed suppliers in India (see table below). No cases of child labor were identified in Bangladesh or the Philippines over the same period.

We measure the success of our comprehensive program in India using the indicator "Child Labor Incidence in Relation to the Total Number of Laborers Monitored in Seed Production for Bayer." Bayer sold its cotton business following the 2020/2021 harvesting season. As of 2022, monitoring in India therefore will only take place for rice, vegetables and corn.

Child Labor Incidence in Relation to the Total Number of Laborers Monitored in Seed Production for Bayer Taking India as an Example¹

	Child labor incidence	Total laborers monitored	Child labor incidence in relation to total laborers monitored	
	2020/21	2020/21	2019/20	2020/21
Cotton ²	38	48,292	0.02%	0.0787%
Rice ²	2	80,832	0.01%	0.0025%
Vegetables ³	0	39,832	0%	0%
Corn ³	0	93,724	0%	0%

¹ The figures cover several growing cycles in the cultivation year 2020/21. In India, the growing year under review lasts from the middle of one year until the middle of the subsequent year. Cumulated depiction on the basis of control inspections performed (at least one per growing season for rice and up to six per season for cotton)

² Bayer Child Care Program

³ Child care program of the acquired agricultural business. Harmonization with the Bayer Child Care Program began in 2021. This program is being advanced in 2022 in consideration of the requirements stemming from the German Supply Chain Due Diligence Act.

We immediately put a stop to instances of child labor among our seed producers and closely track them through the measures related to our Child Care Program. We visit the parents of children we find working in the fields to specifically convince them of the advantages of school education. Graduated sanctions are also applied for noncompliance by our suppliers. These range from written warnings to termination of the contract in the case of repeated noncompliance. By contrast, suppliers who can verify that they strictly observe our ban on child labor receive bonuses such as incentive payments. Thanks to a stringent monitoring system and the support of local information and educational initiatives, there are very few instances of child labor among seed producers.

Learning for Life initiative

The Learning for Life initiative is an integral part of our Child Care Program in India. With advanced training measures in farming, we help disadvantaged young people gain the skills and knowledge needed for modern agricultural vocations and prepare themselves for advanced agricultural employment in villages or companies. The young people who have completed the training program serve as role models for other children to continue pursuing their school education. In combination with the Early Child Education Program implemented between 2005 and 2012/2013, we had reached 7,220 children and young people with our Learning for Life activities by the end of 2021. This number includes the more than 1,300 school students who successfully completed the career-oriented program between 2010 (the year of launch) and 2021.

Continuously raising awareness about child labor in the agriculture sector requires extensive measures and the involvement of various stakeholders. Against this background, Bayer joined with other seed companies back in 2019 to establish the Enabling Child and Human Rights with Seed Organizations (ECHO) initiative. ECHO is one of the biggest multi-stakeholder forums for the promotion of children's rights and decent work – which includes fair wages as well as healthy and safe working conditions. Within this scope, we organized several events in 2021 dealing with themes such as decent work standards; health, safety and social protection; and abolition of child labor.

In the Global Child Forum (GCF) Benchmark 2021, which regularly evaluates companies as regards their handling of children's rights, we received a leading rating for our efforts to fight child labor and are the top-rated company in our industry.

5.3 Engagement

We engage in dialogue with other stakeholders on the topic of human rights and actively participate in committees and initiatives established to ensure their observance, for example in corresponding working groups of [econsense](#), the [Business for Social Responsibility](#) (BSR) initiative and, in the supply chain, via our industry initiatives [Together for Sustainability](#) (TfS) and the [Pharmaceutical Supply Chain Initiative](#) (PSCI). The member companies from various industries discuss best practices, challenges and experiences in implementing the UNGPs. At the Pre-Summit of the U.N. Food Systems Summit, we joined the Coalition of Action on Living Incomes and Decent Work, and are supporting this initiative.

Bayer is also an active participant in the current discussion on due diligence with respect to human rights at the EU level and on the implementation of the requirements stemming from the German Supply Chain Due Diligence Act at the national level. Together with a partner, we conducted a Bayer Straight Talk in October on the EU's human rights due diligence initiative, featuring participants from politics, law, civil society and industry. At the 8th Wiesbaden Compliance Day, we presented initial experiences from the implementation of our due diligence program. We established a cross-divisional and cross-functional working group to implement the requirements stemming from the German Supply Chain Due Diligence Act.

6. Employees

Bayer's success is essentially built on the knowledge and commitment of our employees. As an employer, we focus on our corporate values (LIFE values) and a dialogue-oriented corporate culture based on trust and respect for diversity and equality of opportunity. We offer our employees attractive conditions and wide-ranging individual development opportunities.

6.1 Management Approach

Human Resources (HR) at Bayer assumes leadership of the HR organization and is responsible for Group-wide regulations and standards for our employees. Since February 2021, HR has been headed directly by a member of the Board of Management, the Chief Transformation and Talent Officer, who also assumes the function of Labor Director. HR is responsible for the operational design, implementation and steering of the global HR processes with the goal of accelerating the development and impact of our talent.

Corporate culture

The company aims to create a culture that is based on fairness and respect. This includes observing Group-wide standards of conduct and protecting employees from discrimination, harassment and retaliation. These standards are set forth in our Group Regulation on Fairness and Respect at Work. Bayer employees around the world are provided with guidance on how to comply with these. Further binding Group regulations specify details on HR issues (see graphic).

The LIFE values are firmly anchored in our company and give us orientation in aligning our business. The acronym LIFE (leadership, integrity, flexibility and efficiency) symbolizes our values and leadership principles. In 2020, we updated the attributes of the LIFE values to better align them with the new Bayer vision "Health for all, hunger for none." The attributes define the practical importance of the individual values and the behaviors associated with them.

Numerous external awards and surveys bear witness to our excellent reputation as an employer. These include the awards we received in 2021 as one of the best employers in Germany, China, the United States and Brazil. More than half of the Bayer workforce is employed in these four countries.

Digitalization

Digitalization represents a major opportunity for Bayer. To be in a position to provide background information on the Group's digital transformation, more than 80% of top management employees, the most senior management level below the Board of Management, have so far received training in digital topics.

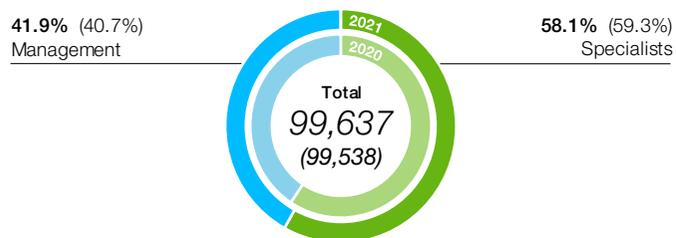
Robotic process automation and artificial intelligence are applied to simplify and increase the efficiency of a number of HR processes. They also help to increase user experience and to reduce costs and manual activities.

Binding Group Regulations

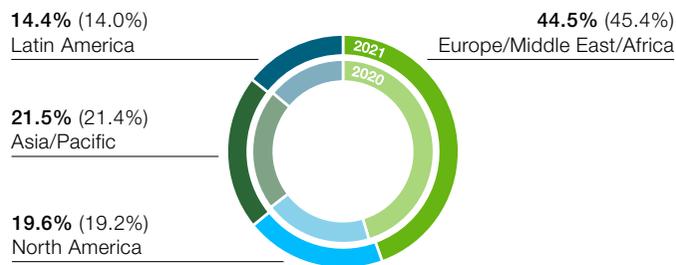


Employee Data¹

Total Employees 2021 (2020)

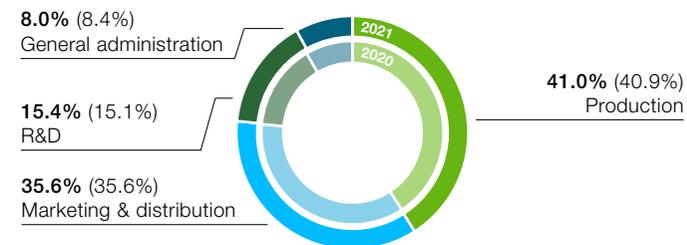


Employees by Region 2021 (2020)



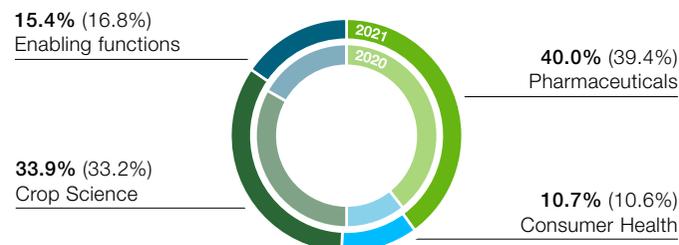
	2020	2021	Change (%)
Europe/Middle East/Africa	45,146	44,309	-1.9%
North America	19,111	19,515	2.1%
Asia/Pacific	21,310	21,448	0.6%
Latin America	13,971	14,365	2.8%

Employees by Function 2021 (2020)



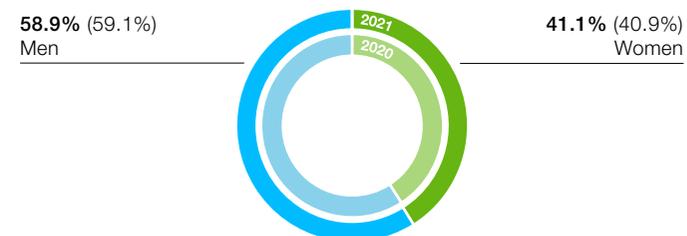
	2020	2021	Change (%)
Production	40,696	40,838	0.3%
Marketing & distribution	35,424	35,496	0.2%
R&D	15,065	15,310	1.6%
General administration	8,354	7,993	-4.3%

Employees by Division 2021 (2020)



	2020	2021	Change (%)
Crop Science	33,064	33,738	2.0%
Pharmaceuticals	39,206	39,931	1.8%
Consumer Health	10,570	10,647	0.7%
Enabling functions	16,698	15,321	-8.2%

Employees by Gender 2021 (2020)



	Women		Men	
	2020	2021	2020	2021
Europe/Middle East/Africa	19,971	19,530	25,174	24,779
North America	7,232	7,482	11,879	12,033
Asia/Pacific	8,174	8,447	13,136	13,001
Latin America	5,325	5,465	8,647	8,900
Total	40,702	40,924	58,836	58,713

¹ Number of employees in full-time equivalents (FTE)

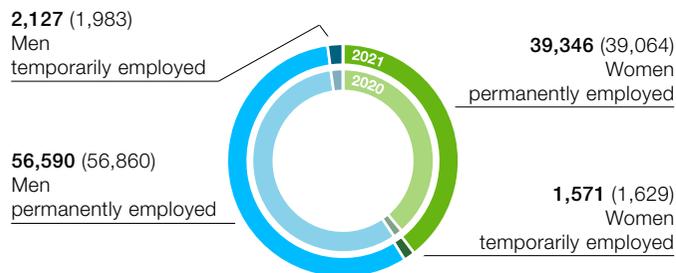
6.2 Employee Data

On December 31, 2021, Bayer employed 99,637 (2020: 99,538) people worldwide. In Germany, we had 23,116 (2020: 23,398) employees, which was 23.2% of the total Group workforce (2020: 23.5%). For further employee data, please see the [2021 Annual Report](#).

Employment status and new hires

Within Bayer's workforce, 3.7% of employees (1.6% women and 2.1% men) have temporary contracts. On the reporting date, our employees had worked for the Bayer Group for an average of 11.2 years (2020: 11.3).

Employees by Employment Status, Gender and Region 2021 (2020)

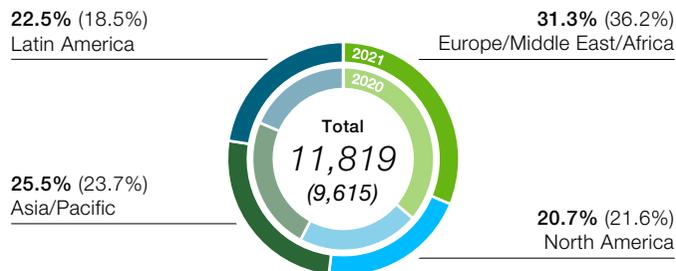


	Permanently employed		Temporarily employed	
	2020	2021	2020	2021
Europe/Middle East/Africa	43,109	42,445	2,037	1,863
North America	18,928	19,378	183	137
Asia/Pacific	20,547	20,691	763	756
Latin America	13,343	13,431	629	934

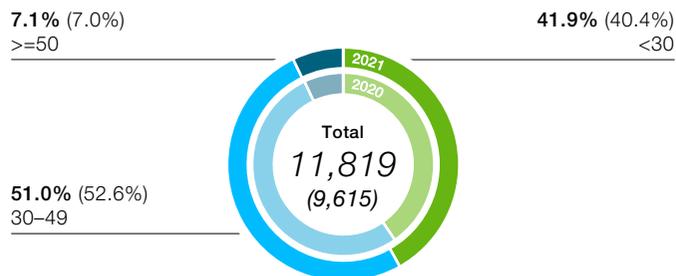
In total, the Bayer Group hired 11,819 new employees in 2021, accounting for 11.7% of the workforce.

New Hires 2021 (2020)

by Region



by Age Group

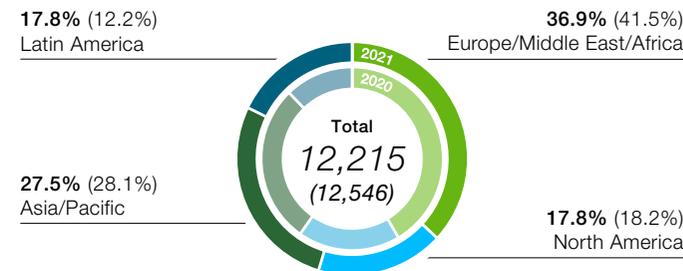


by Gender

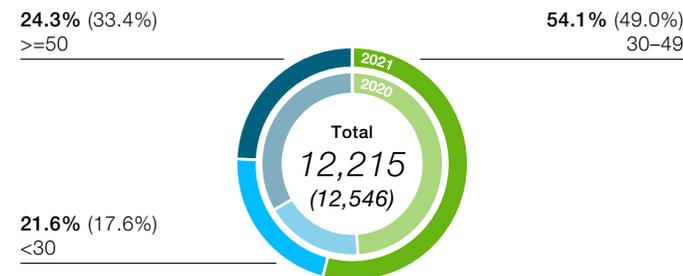


Fluctuation of Employees 2021 (2020)

by Region



by Age Group



by Gender



The overall fluctuation rate was 12.1%, a decrease of 0.1% compared with 2020. This figure includes all employer- and employee-driven terminations, termination agreements, retirements and deaths.

Fluctuation				
%	Voluntary		Total	
	2020	2021	2020	2021
Women	5.1	6.7	12.3	12.6
Men	4.7	5.9	12.2	11.8
Total	4.9	6.2	12.2	12.1

Bayer uses temporary employees from staffing agencies primarily in response to short-term personnel requirements, fluctuations in order levels, temporary projects or as replacements for employees suffering a long-term illness. In some countries, staff are employed via agencies for seasonal work. On December 31, 2021, some 4,488 temporary employees from staffing agencies were working for Bayer at our [significant locations of operation](#). In Germany, the proportion of such temporary employees from staffing agencies compared with the total for the core workforce was 1.4%.

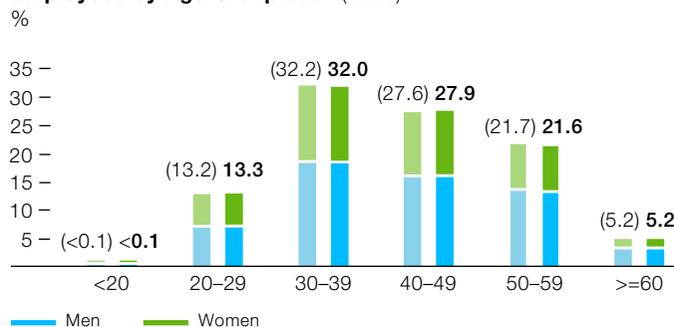
Demographics

We want to create an optimal environment for our employees in all life phases and thus safeguard the long-term availability of specialists and knowledge transfer. We take a range of steps to address the individual needs of our employees by offering age-appropriate jobs in addition to health and sports programs, flexible working arrangements and active knowledge management.

Through the Bayer Senior Experts Network (BaySEN) initiative, selected experts can continue to contribute their expertise even after retirement by temporarily working for Bayer on certain projects or for special tasks. In this way, BaySEN supports demographic diversity and helps different generations to work together and learn with and from one another.

The average age of our employees Group-wide is 42.

Employees by Age Group 2021 (2020)



The demographic situation differs greatly from one region to another.

Employees by Gender, Region and Age Group

	Europe/ Middle East/Africa	North America	Asia/Pacific	Latin America
	Women	19,530	7,482	8,446
<20	4	1	1	3
20-29	2,108	629	2,048	1,138
30-39	5,608	1,820	3,757	2,251
40-49	5,838	2,272	1,988	1,495
50-59	5,081	1,968	601	530
>=60	891	792	51	49
Men	24,779	12,033	13,000	8,900
<20	11	2	1	11
20-29	2,561	1,126	2,254	1,370
30-39	6,641	3,157	5,347	3,256
40-49	6,637	3,432	3,335	2,761
50-59	7,094	3,137	1,879	1,290
>=60	1,835	1,179	185	212

In Germany, the General Works Agreements on lifetime working and demographic change and on addressing demographic change at the nonmanagerial level at Bayer are among the tools we use to help shape the working environment for all life phases. These General Works Agreements provide for a reduction in employee workloads that was extended to further age groups, as well as measures to ease the return to work of nonmanagerial employees after long-term illness, and an extensive health screening program for all employees. In 2021, more than 97% of those who were eligible took part in the program to reduce the workload of older employees. Through the BayZeit long-term account, furthermore, employees in Germany can convert part of their gross salary already in the early years of their employment into free time that they can later take off.

Restructuring measures

We act with social responsibility when changes and restructuring measures are necessary. In all countries, we aim to minimize the impact on employees and find mutually agreeable solutions in cases where job reductions are necessary. This is also the case in Germany, where agreements are in place with employee representatives that fundamentally rule out dismissals for operational reasons in the intercompany personnel network of Bayer AG in the country until the end of 2025.

We made further progress with the planned Group-wide measures first announced in 2018 and are at different stages of development with regard to the acceleration of our transformation announced in 2020. We anticipate that all of the major transformation measures will be implemented by the end of 2024. Flexible models with attractive conditions have been offered to employees of various age groups since February 2019.

6.3 Inclusion and Diversity

Mutual understanding and a company culture that leverages talented employees with a range of backgrounds and outlooks is an important success factor for the Bayer Group. We create a working environment in which all employees feel welcome and can perform at their best. We want to continue to recruit and promote employees who have top skills and qualifications while at the same time focusing on inclusion and diversity. We employ people from around 154 nations.

Our Inclusion and Diversity (I&D) strategy focuses on the integrative behavior and decision-making of all employees. We have established I&D committees at various management levels that work together with our I&D leads to embed inclusion, diversity and equity into four key areas, comprising our company culture, the advancement and development of our employees, our business processes and our company brand.

Clear aspirations

We have established clear goals for gender balance throughout the Bayer Group. We want to increase the proportion of women in top management to 33% by 2025. The combined proportion of women at all other management levels (including upper and lower management) is to be increased to 50% by 2025. The goal is to increase the proportion of women in top management to 50% by 2030.

We have also defined additional aspirations for 2025 and 2030 for further diversity dimensions including age structure, nationality, experience, LGBTQ+ and people with diverse abilities. Further diversity dimensions such as ethnic background and skin color are integrated into the targets for our country organizations.

In 2021, we agreed on the following measures to achieve our I&D aspirations:

- // Advancement of our high-potential employees (top talent programs) with a focus on I&D
- // Support programs to develop our future top management taking into account I&D
- // Integrated talent advancement that systematically mitigates potential bias
- // Greater accounting for I&D in our Group regulations and procedures
- // Further strengthening of the I&D committees
- // Further expansion of I&D expertise and upskilling
- // Rewards for and recognition of good performance to advance I&D
- // Regular communication of I&D progress

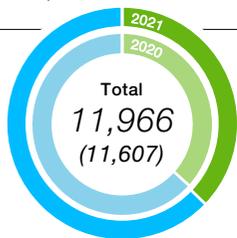
Progress

In 2021, the proportion of women in lower management was 44% (2020: 43%). The proportion of women in upper management in 2021 was 37% (2020: 36%). The proportion of women in top management, the highest management level in the Bayer Group below the Board of Management, increased again compared to previous years. By the end of 2021, it was made up of 27% women (2020: 23%) and 73% men (2020: 77%).

Employee Structure of the Bayer Group 2021 (2020)

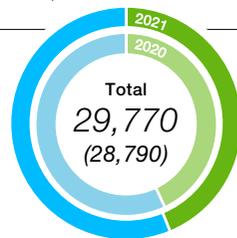
Upper management

62.8% (63.9%) Men 37.2% (36.1%) Women



Lower management

56.2% (57.0%) Men 43.8% (43.0%) Women



Specialists

59.5% (59.2%) Men 40.5% (40.8%) Women



Group

58.9% (59.1%) Men 41.1% (40.9%) Women



Since February 2021, the Board of Management has again had one female member. The proportion of either women or men on the company's Supervisory Board should not fall below 30%. The Supervisory Board meets this target, with women making up 35%. For more information, please see the Declaration by Corporate Management in the [2021 Annual Report](#).

For information on the gender pay equity analysis initiated in 2020, please see Chapter 6.4 Fair Compensation.

Currently, 37 nationalities are represented in Bayer's top management, with around 65% of these employees working in their home countries.

The voluntary self-declaration of ethnic origin and/or skin color is currently available in a limited number of countries. 19% of our employees in Brazil are Black and 3% are Asian. Our employees in South Africa are 31% Black, 7% Asian and 5% "colored" (multi-ethnic). In the United States, 13% are Asian, 8% Hispanic or Latino, and 5% Black or African American.

People with diverse abilities are an integral part of our workforce. Based on voluntary statements by employees, we employ more than 2,150 people with diverse abilities in 39 countries, 45% of whom are women and 55% men. That represents around 2.1% of our total workforce. Most employees with diverse abilities work for our companies in Germany, where they made up 4.4% of the workforce in 2021.

Business Resource Groups

The Inclusion and Diversity strategy also incorporates Business Resource Groups (BRGs), which help us to cultivate an inclusive and diverse company culture. BRGs currently exist at Bayer for women, LGBTQ+, employees with diverse abilities, families and other global and regional employee groups, including with respect to ethnic origin or skin color.

Three of our BRGs were each assigned a different sponsor from Bayer AG's Board of Management:

- // BLEND (BRG for lesbian, gay, bisexual, transgender and queer [LGBTQ+] employees and their supporters at Bayer)
- // ENABLE (BRG for the advancement of employees with diverse abilities)
- // GROW (BRG for the advancement of women)

The intent here is for the members of the Board of Management to advise and support the BRGs as mentors, and for them to thereby gain a multicultural perspective empowering them to anchor inclusion and diversity more strongly in our company culture.

As a signatory to the United Nations [Women's Empowerment Principles](#), we pursue an inclusive approach to ensure that gender equality is directly integrated into all relevant human resources processes and driven forward by the management. The seven Women's Empowerment Principles explain how to ensure that everyone can enjoy the same rights in the workplace, on the employment market and in society at large irrespective of their gender.

We also support the Diversity Charter corporate initiative, have joined "The Valuable 500" initiative and are a founding member of the German "Chefsache" network. Together with the other members, we develop practical strategies to achieve an equal balance of women and men in management positions in the respective organizations.

In 2021, around 50% of our employees completed a training course in understanding bias around the world.

6.4 Fair Compensation

Bayer applies uniform standards to ensure that employees are fairly compensated throughout the Group. Our performance and responsibility-related compensation system combines a basic salary with performance-related elements, plus additional benefits. Adjustments based on continuous benchmarking make our compensation internationally competitive.

We attach great importance to equal pay for men and women, and to informing our employees transparently about the overall structure of their compensation. Our Group Regulation on Total Rewards provides a binding framework specifying the global requirements.

We developed a consistent methodology for gender pay equity analysis in 2020 that we have since applied in Brazil, China and to upper management in Germany, covering about 20% of our global workforce. After taking into account all analyzed individual characteristics such as age, job description, department and length of service (adjusted mean gap), the first result of this analysis was that we determined the existing gender pay gap to be below 2%. The countries investigate and rectify these differences as quickly as possible, usually within the scope of the annual salary adjustments. This analysis will be further expanded to include 80% of our global workforce by the end of 2022. In addition, 15 countries undertake their own analysis of gender pay equity according to the respective applicable legal requirements.

Living wages

Bayer compensates employees on both permanent and temporary employment contracts in excess of the statutory minimum wage in the respective countries, paying at least a living wage that is annually reviewed and specified worldwide by the nonprofit organization Business for Social Responsibility (BSR). This also applies to part-time employees whose compensation was proportionately aligned with that of a full-time position. The payment of living wages is implemented at the country level and reviewed each year by HR to ensure that the requirements of the BSR are observed throughout the Group.

A living wage is defined as the wage that is required to purchase the goods and services needed to meet a minimum cultural and social standard of living in a country – including basic needs such as accommodation, energy and food, but also leisure activities, cultural participation and a savings rate. In other words, the concept of a living wage goes beyond the otherwise customary statutory minimum wage. In addition, living wages are adapted annually to changing conditions in specific countries, while statutory minimum wages usually remain unchanged for several years. Although minimum wages are legally established in many countries, they often are not sufficient to enable a living standard above the poverty line. By integrating the living wage concept into our operations, we also support the Universal Declaration of Human Rights and the global Sustainable Development Goals (SDGs) of the United Nations.

Compensation structures at Bayer

At Bayer, individual salaries are based on personal and professional abilities and the level of responsibility assigned. At the managerial level, this is based on a uniform evaluation approach for all positions throughout the Group using the internationally recognized Hay method. Differences in pay based on gender are ruled out in areas of the Bayer Group and jobs covered by a binding collective bargaining agreement. In the emerging markets and developing countries, we exceed local market conditions as regards compensation levels and pay at least a living wage.

In the majority of cases, full- and part-time employees at our significant locations of operation receive the same rates of fixed and variable pay. Our compensation concept also includes variable one-time payments to recognize outstanding performance. In many countries, employee stock programs enable the purchase of Bayer shares at a discount. Depending on statutory requirements, employees on temporary contracts may not be entitled to long-term compensation components such as pension plans in some countries. Since 2021, the long-term variable compensation of our upper and top managerial employees has taken into account progress towards the Group's sustainability targets. The calculation of target attainment corresponds with that for the Board of Management. For detailed information on the variable compensation of our Board of Management, please see the Compensation Report in the 2021 Annual Report.

Retirement benefits

Alongside providing attractive compensation for their work, Bayer contributes to the financial security of its current and former employees. Retirement benefit plans are available to 76% (2020: 71%) of Bayer employees worldwide to complement national pension systems. The benefits provided depend on the legal, fiscal and economic conditions in each country, employee compensation and individual years of service.

Availability of Retirement Benefit Plans¹

%	2020	2021
Europe/Middle East/Africa	81	91
North America	99	100
Asia/Pacific	32	33
Latin America	62	65
Total	71	76

¹ In addition to state pension insurance

6.5 Learning and Training

Our employees need a broad spectrum of competencies, skills and knowledge to fulfill our mission "Science for a better life." Successful careers at Bayer are the result of lifelong learning. We view it as a central task to offer our employees a broad range of continuing education options. These include special training in the area of digitalization.

Through easily accessible learning opportunities, we enable our employees to learn according to their own needs and schedule. With the help of digital technologies, we offer the option of a personalized learning offering. As part of our learning environment, customized content can specifically be selected from internal and external sources via a virtual platform. Furthermore, there is also scope to determine on an individual basis how often employees engage in learning and the amount of time they spend on learning on mobile devices or at the workplace. We continuously update various learning materials such as videos, books, courses, podcasts and articles. We recently added new content from the areas of digitalization, inclusion, diversity, equity and leadership to our learning offering.

The top three skills our employees choose most often are leadership, project management and data analytics.

In addition, the Bayer Leadership Academy offers courses for the systematic development of our managerial staff. Functional academies such as the Innovation Academy, IT Academy and R&D Academy offer advanced training in various disciplines.

Full- and part-time employees and temporary employees from staffing agencies complete the necessary compliance and ongoing vocational training, both through classroom and computer-assisted education measures.

Learning and training time averaged 26.2 hours per employee in 2021. The average cost of ongoing training per employee was €536.

Learning and Training Hours by Category and Gender 2021

Category	Women	Men	Total
Upper management	19.1	15.8	16.9
Lower management	25.2	22.0	23.4
Specialists	26.0	30.4	28.5
Overall average	25.5	26.8	26.2

Vocational training

To meet the need for skilled employees, Bayer hires apprentices, primarily in Germany, providing solid training in more than 30 different occupations. We employed around 1,062 apprentices overall in 2021 (of whom 27% were women). Around the world, Bayer also offers trainee programs in various areas for those embarking on a career and internships for students.

6.6 Employee Development and Integration

Bayer promotes a culture of candid feedback and encourages feedback in all directions: from supervisors to employees, between colleagues and from employees to supervisors.

Our managerial employees serve as role models and play an important part in promoting performance and further developing the feedback culture at Bayer. Supervisors have the opportunity to ask their team for feedback about their leadership behavior. The Leadership Pulse feedback tool helps them to understand how their team perceives them in their role as a manager.

Bayer's virtual mentoring approach is available to all full-time and part-time employees globally, participants to independently leverage professional development opportunities, either for their own benefit as a mentee or for others as a mentor. The program is supported by an algorithm based on artificial intelligence that brings together mentors and mentees from throughout the Bayer Group. Since the launch, more than 3,500 employees have registered; 48% of participants are women and 52% are men.

Performance targets and development dialogue

Bayer pursues a globally standardized approach for performance evaluation and employee development, as defined in the Group Regulation on Performance and Development. The performance assessment procedure is available to 80% of our employees worldwide. Excluded from this in particular are employees whose existing works agreements do not allow for individual performance assessments, for example in Germany.

Our employees and supervisors jointly set flexible annual targets. In consultation with their supervisors, employees can select targets of relevance for themselves and their work areas, as well as make flexible adjustments to the targets during the evaluation phase. Both individual and team targets can be set. In 2021, flexible annual targets were agreed for 71% of eligible employees, 44% of them female and 56% male.

80% of our employees (78% of our specialists and 97% of our managers) can participate in a year-end evaluation concerning the fulfillment of their targets. At the end of 2021, 98% of the eligible employees (43% female and 57% male) received such an evaluation. In addition, employees can regularly and openly discuss their performance, challenges, ideas and well-being with their supervisors during so-called check-ins.

Managers throughout the Group have the option of presenting Top Performance Awards to incentivize outstanding individual and team successes. These involve a variable payment to reward particular achievements directly in a timely fashion. Additional recognition programs are in place in some countries. In many countries, employees are recognized with years of service awards.

In regular development dialogues, employees discuss perspectives for their further career development together with their supervisors. More than 44,000 development dialogues were held and documented in 2021. In total, 44% of our employees participated in development dialogues (of whom 44% were women and 56% men; in total 42% of our specialists and 55% of our employees in management).

Thanks to our wide-ranging business activities, employees throughout the Bayer Group can access various opportunities for development. Vacancies throughout the Bayer Group, from nonmanagerial right up to upper management level, are advertised via a globally accessible platform.

Scientists

To maintain an enthusiasm for Bayer among top researchers and scientists, we offer them special development opportunities that are tailored to their requirements. These include new scientific challenges, special advanced training offerings and a career path either as experts or as managers in various Bayer regions, functions or divisions. Through our Science Fellows Community, we talk to our scientific specialists about their own career development. Special mentoring programs are established to support employees' early development and their regular networking with experienced scientists and managers.

Dialogue and exchange

We offer ample opportunity to actively discuss company-specific topics and scope for optimization via various internal communication channels. We actively involve our employees in business processes by offering the opportunity for dialogue. Informing staff in good time and comprehensively about upcoming internal company changes, in compliance with the applicable national and international regulations, is very important to us.

We measure employee engagement at Bayer by means of institutionalized feedback discussions and regular employee surveys. This enables us to monitor the effectiveness of our initiatives and implement any necessary improvements. In addition, we conduct biannual employee surveys throughout the Group; the participation rate in 2021 was approximately 60%. Based on the employee surveys, the approval rate for employee engagement in both halves of the year was about 74%.

We engage in open and trustful dialogue with employee representatives worldwide. The main dialogue formats are regular employee assemblies and information events for managers, as well as the European Forum, at which employee representatives from European sites engage in discussion with the Board of Management and other company managers on topics of overarching relevance to the company.

Our employees can submit Bayer-related questions through the internal crowdsourcing platform WeSolve to obtain innovative, interdisciplinary ideas. These questions are then answered with the help of other employees with whom the person asking the question does not normally have any contact.

To promote a culture of innovation in the workplace, additional platforms for making work-related suggestions are available to employees in Germany, such as the Bayer Ideas Pool and the Ideas Forum. The suggestions made here by employees on improving processes, occupational safety and health protection are rewarded and utilized. More than 2,500 ideas were submitted in 2021. 42% of the suggestions for improvement evaluated in 2021 were implemented. In the first year of implementation alone, those improvements that led to quantifiable benefits generated savings of some €2.2 million. In 2021, Bayer distributed bonuses of around €840,000 for the implemented proposals.

Volunteer work to support social projects

In various countries, our employees voluntarily support social projects, usually in the areas near our sites. In the United States, we support employees who personally volunteer their time in charitable organizations. Our employees can also participate in events and activities supported by Bayer that help to improve living conditions in the immediate vicinity of our sites.

Our employees launched the PROSI (PRO Social Initiatives) initiative in 2018. This voluntary program gives employees in numerous countries the opportunity to work together on local social projects. Our employees initiate and support more than one hundred projects with their personal commitment.

6.7 Work-Life Integration

We help our employees to balance their work and private lives. To take their individual situation into account, we therefore give them flexibility in shaping their working hours and work locations and offer them parental leave and support with childcare and caring for close relatives. In many countries, our commitment in this area goes beyond the statutory requirements. An overview of the selected benefits for employees in each country can be found in the [Appendix](#) to this report.

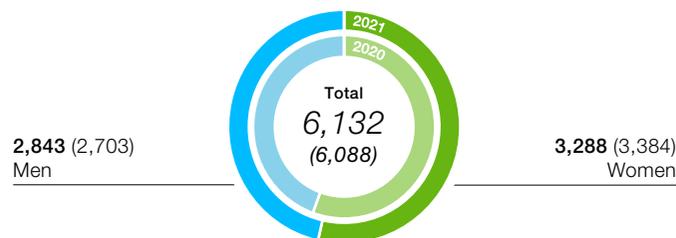
The next normal

In response to the COVID-19 pandemic, Bayer permanently expanded the flexibility it offers employees for shaping working hours and work locations and thus created a “next normal” in this regard for suitable responsibility profiles. This makes it easier for employees to meet both their work responsibilities and their private obligations. It also helps keep our employees safe and limit the spread of the pandemic.

The increased use of flexible working models is part of our next normal, in which our employees are given more flexibility and responsibility at all hierarchy levels (empowerment). In line with the requirements of (labor) law and taking into account cultural differences, we want to meet the needs of our employees and customers and thus strengthen our business operations.

In 2021, part-time employees accounted for around 6.2% of the Bayer Group workforce (53.6% female and 46.4% male), primarily in Europe.

Part-Time Employees by Gender 2021 (2020)



Bayer enables both men and women to take parental leave, although national parental leave regulations vary widely from country to country. 1,782 women and 1,563 men took parental leave in 2021. Over the course of the year, 2,719 employees on parental leave returned to work.

The next table shows uses Germany as an example and shows the number of employees who have returned to work after opting for the standard statutory parental leave program of up to three years per child. By the end of 2021, 76% had returned to work. 67% of women and 95% of men who have taken parental leave since 2019 have returned to work.

Employees Returning from Parental Leave in Germany 2021

	Women		Men		Total	
	%	Number	%	Number	%	Number
Employees on parental leave since 2019	50	1,099	50	1,082	100	2,181
of which still on parental leave/dormant contract	33	366	5	51	19	417
of which returned by 2021	67	733	95	1,031	76	1,764
of which with terminated contract ¹	6	63	5	49	5	112

¹ This includes employer- and employee-driven terminations, severance agreements and departures following the expiration of employment contracts.

Bayer in Germany has agreed uniform conditions for mobile working in a General Works Agreement with the Works Council. Through this, employees have the freedom to work remotely on certain days after consulting with their supervisor. As a result of the COVID-19 pandemic, employees made use of mobile working whenever operationally possible. In addition, using the BayZeit long-term account, employees in Germany can convert part of their salary into free time, which they can later take off to care for children or close family members, or to take part in an advanced training course, for example.

The General Works Agreement on caring for close relatives helps Bayer employees in Germany to combine their work with their role as carers by utilizing adapted worktime models and taking temporary paid leave.

6.8 Health Provision

“Health for all” is a core element of our corporate vision, which is why the health of our employees is of the utmost importance for us. We have established health provision programs and support access to reliable and high-quality healthcare. For information on our occupational health and safety measures, please see Chapter 8.6 Occupational Health and Safety.

In 2021, we maintained our global framework concept BeWell@Bayer to promote our employees' health and quality of life. This expands the core aspect of health into a comprehensive approach, targets further health improvements in the daily work environment and is intended particularly to help employees better balance their professional and private lives.

In 2021, we focused particularly on mental health as one of the most important pillars of our BeWell@Bayer framework. Through a new global platform entitled “House of Health,” we offer programs and materials to help promote a holistic approach to health and well-being at Bayer.

Our occupational health management activities include numerous additional preventive programs, ranging from ergonomic workplace and stress management initiatives to incentive systems to promote healthy behavior. Employees can access these programs through Bayer's intranet and through internal and external company benefits platforms. Our employee representatives are included in occupational health management and are actively involved in its development. The Bayer European Forum – which brings together management and employee representatives – has signed the Luxembourg Declaration on Workplace Health Promotion in the EU

and is committed to the principles contained therein on the implementation of workplace health promotion. Health check-ups are an integral part of our global health promotion initiatives.

We want to provide employees in all countries with access to reliable and high-quality healthcare. Almost 97% of our employees worldwide either have statutory or private health insurance or can obtain health insurance through the company.

Health Insurance Coverage¹

%	2020	2021
Europe/Middle East/Africa	99	98
North America	96	90
Asia/Pacific	97	96
Latin America	94	100
Total	97	97

¹ Financially supported by the employer

COVID-19 response

In the context of the COVID-19 pandemic, we have ensured sufficient coverage with the health insurance policies that we promote as employer for cases linked to the pandemic. Statutory changes with respect to health insurance and healthcare services in connection with COVID-19 are continually monitored and updated as necessary. In certain countries, additional health benefits were introduced to provide services beyond the statutory needs.

For information on our occupational health and safety measures during the ongoing pandemic, please see Chapter 8.6 Occupational Health and Safety.

6.9 Employee Rights

Employees at all Bayer sites around the world have the right to elect their own representatives. In 2021, the working conditions for around 54% of our employees worldwide were governed by collective or company agreements. At various country companies, the interests of the workforce are represented by elected employee representatives who have a right to be consulted on certain personnel-related decisions.

Proportion of Collective Agreements by Region¹

%	2020	2021
Europe/Middle East/Africa	80	80
North America	2	2
Asia/Pacific	48	49
Latin America	52	52
Total	55	54

¹ Percentage of employees covered by collective bargaining agreements or company agreements, especially with respect to wages and working conditions

The contractually agreed working hours of our employees do not exceed 48 hours a week at any of our [significant locations of operation](#).

7. Climate Protection

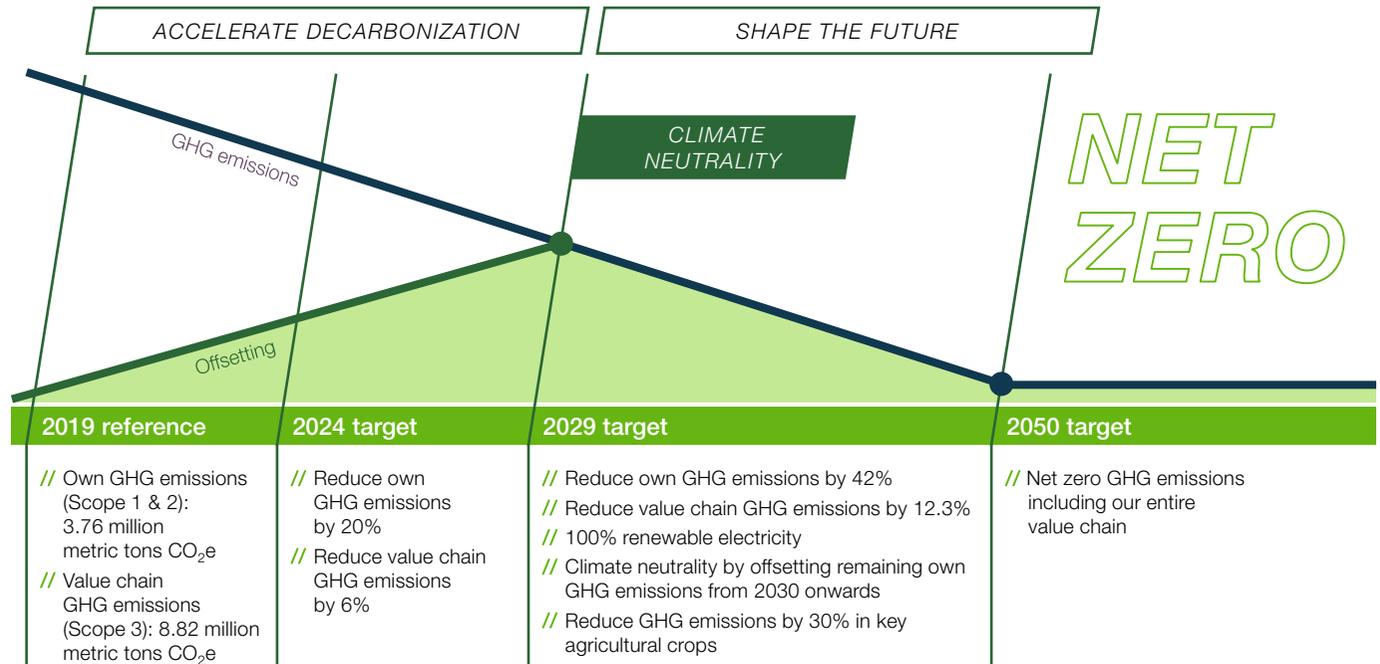
Climate change affects us all and is one of the greatest challenges that humankind will face in the future. Bayer considers climate protection and the related reduction of greenhouse gas emissions to be a top priority. We support the Paris Agreement and the objective of limiting global warming to 1.5°C relative to the pre-industrial level. [The Science Based Targets initiative \(SBTi\)](#) has validated our target and confirms our contribution to fulfilling the Paris Agreement. We anticipate that our business areas of healthcare and agriculture will on the one hand be impacted by climate change, but on the other will also be part of the solution.

7.1 Management Approach

The Chairman of the Board of Management holds direct responsibility for climate protection in his role as Chief Sustainability Officer. In keeping with their level of importance, climate-change-related topics and Bayer's climate strategy were discussed at a total of two meetings of the Board of Management and two meetings of the Supervisory Board in 2021. The attainment of our Group target to reduce greenhouse gases through 2030 is factored into the long-term compensation of the Board of Management and Bayer's managerial staff. The compensation-relevant target is based on Bayer's necessary contribution to an SBTi-validated 1.5°C scenario. Climate protection is also an integral element of annual variable compensation.

In addition, the Sustainability Council established in 2020 advises the Board of Management in all matters related to sustainable development – including climate protection. In 2021, climate change and the related impacts and opportunities for Bayer were discussed at two meetings of the Sustainability Council.

Roadmap to Net Zero



GHG = greenhouse gas

The Chairman of the Board of Management is supported in this by the Public Affairs, Science, Sustainability & HSE Enabling Function and the sustainability departments within the divisions. The divisions handle the operational implementation of the climate protection measures at their sites with the support of the enabling functions. We formed Group-wide working groups for the strategic and operational implementation of climate-change-related measures and a special working group to analyze various climate scenarios and their impacts on our business.

7.2 Climate Strategy

Net zero target

Bayer has undertaken to achieve a net zero target for greenhouse gas emissions throughout the entire value chain by 2050 or earlier. As an external expression of commitment to net zero greenhouse gas emissions, the company also signed the [Business Ambition for 1.5°C](#), a campaign of the SBTi in partnership with the U.N. Global Compact and the [We Mean Business Coalition](#).

Medium-term climate targets by 2030

Bayer aims to achieve climate neutrality at all its own sites by 2030. To attain that target, we intend to reduce by the end of 2029 our own emissions – the so-called Scope 1 and Scope 2 emissions – by 42% relative to the reference year 2019. This target on the pathway to a 1.5°C scenario was reviewed and acknowledged by the SBTi.

We have set a reduction target for Scope 3 emissions of 12.3% by 2029 (relative to 2019) for our value chain. This target was also reviewed and acknowledged by the SBTi.

Interim targets by 2024

By 2024, we aim to reduce our own (Scope 1 and Scope 2) emissions by 20% and our emissions in the value chain (Scope 3) by 6% (relative to 2019) in line with the reduction pathway of our Science Based Target (SBT).

Measures

We have developed a net zero roadmap to achieve our ambitious climate targets. This roadmap comprises various measures in the areas of energy & efficiency, governance and offsetting. To implement our long-term climate strategy, our focus lies on reducing the greenhouse gas emissions associated with our operations and on the resilience of our business fields.

Energies & efficiencies

// Electricity from renewable energies: by 2029, we intend for 100% of the electricity we purchase to be derived from renewable sources. In 2021, therefore, we pressed ahead with the conversion of our Group-wide electricity procurement, and renewable energies now account for 24.7% of our total purchased electricity volume. We have defined specific criteria for the procurement of green electricity and published this information on our [website](#). These criteria include the geographical proximity between power

generation locations and Bayer's sites, the use of new production sources and a focus on wind and solar energy. The criteria are based on the [next-generation green power](#) guidelines of the WWF (World Wide Fund for Nature).

// Investment in efficiency measures and renewable energies: to achieve an absolute reduction in our remaining emissions, we intend to invest €500 million through 2030 in renewable energies and in increasing the energy efficiency of our facilities and buildings. We are investing in process innovations, more efficient facilities and building technology, as well as in the implementation and optimization of energy management systems, particularly at our production sites. Capital expenditure projects are under way at various sites to advance the use of climate-neutral technologies such as geothermal energy or emissions-free steam production.

Governance

// Capital investment and an internal CO₂ price: we are aligning our capital expenditures to our goal of achieving net zero greenhouse gas emissions by 2050. This is in line with the international goal of limiting global warming to 1.5°C. To drive this transition, we have established an internal CO₂ price of €100 per metric ton of CO₂ for the calculation of our capital expenditure projects.

// Investment decisions: we perform a voluntary ecological assessment for capital expenditure projects exceeding €10 million. Emissions reduction and efficiency measures are integral to these evaluations.

Offsetting

// We will offset our own emissions (Scope 1 and 2) that still remain following reduction through technological measures and cannot be avoided (such as greenhouse gas emissions generated by chemical processes) by purchasing certificates from climate protection projects that meet recognized quality standards. These projects need

to have a connection to our own business. Here as well, we have established specific criteria for our own procurement of certificates from climate protection projects. In this process, we focus on nature-based climate solutions, preferably concerning forestry and agriculture projects. We will also invest in innovative projects to promote the development of voluntary carbon markets. We report on our [website](#) on our strategy and the projects we support.

// We offset 300,000 metric tons of our greenhouse gas emissions in 2021 by financing reforestation and forest conservation projects, for example in Brazil, Indonesia, Nicaragua and Uganda.

LEAF Coalition

The destruction of forests is a pressing global challenge, especially considering that forest conservation is one of the most important measures to protect biodiversity and the climate.

Within the framework of its activities to protect the forests, Bayer is a participant in the [LEAF](#) (Lowering Emissions by Accelerating Forest finance) Coalition. LEAF mobilized more than US\$1 billion in 2021 to initiate the biggest public-private effort to protect the rainforests.

We clearly advocate enforcement of the corresponding laws to protect the Amazon rainforest. That also includes driving forward the sustainable intensification of agriculture in Brazil to prevent further deforestation.

Certificates from activities undertaken in connection with LEAF are expected to be part of our offsetting portfolio beginning in 2023.

Value chain (Scope 3)

By 2029, we aim to reduce greenhouse gas emissions along the upstream and downstream value chain (Scope 3) by at least 12.3% (reference year 2019) through cooperation with suppliers and customers. This target was validated and acknowledged by the [Science Based Targets initiative](#) (SBTi). As the ability of one company on its own to reduce greenhouse gas emissions along the value chain is only limited, Bayer has joined together with other companies within various initiatives. Together, we aim to ascertain the level of greenhouse gas emissions and climate risks and develop reduction targets and strategies within the scope of programs such as the [Together for Sustainability \(TfS\) initiative](#) of the chemical industry.

Bayer heads up the working group to reduce greenhouse gas emissions in the supply chain. The goal is to standardize the calculation of a product-related carbon footprint (PCF) for the chemical industry. At the same time, an approach is being developed to pass on the PCF within the value chain. The plan is to share results from the TfS working group with the [Carbon Transparency Partnership \(CTP\)](#) of the [World Business Council for Sustainable Development \(WBCSD\)](#). The CTP develops climate approaches across industries. As a member of the WBCSD, we are working on suitable measures there as well.

Through the Supply Chain Initiative of [CDP](#) (formerly the Carbon Disclosure Project), we ask our strategically important suppliers and those who account for a significantly high proportion of our emissions in the value chain to provide us with more exact greenhouse gas emissions data. Using the methods of the Supply Chain Initiative, we aim to learn more about the greenhouse gas emissions of our suppliers and the share of these emissions attributable to products and services sourced by us. We also ascertain reduction targets and the use of renewable energies. The goal is

to better integrate data collected by our suppliers into the calculation of our emissions for the value chain. By applying the Supply Chain Initiative methods, furthermore, we aim to identify potential for reducing greenhouse gas emissions among our suppliers and incorporate this potential into our supplier development efforts (please see also Chapter 4.2 Sustainability in the Supply Chain).

In 2021, we – like our biggest transport and logistics partners and various industrial companies – began to implement the IT solution “[EcoTransIT World](#)” for automatic calculation of transport-related greenhouse gas emissions. EcoTransIT World is geared toward continuously evolving and harmonizing the methods for determining emissions in the transport sector worldwide and thus creating a globally acknowledged methodology. Bayer is also a member of the EcoTransIT World Initiative.

Furthermore, we take advantage of the [Pharmaceutical Supply Chain Initiative \(PSCI\)](#) working group to engage in dialogue within the pharmaceutical industry about measures to reduce Scope 3 emissions.

For more information on our target of reducing greenhouse gas emissions in agriculture by 30%, please see also the Focus on: Agriculture chapter.

Climate policy engagement and management

Externally, we advocate for a climate position in line with our ambitious targets and demand that our partners also undertake decarbonization measures in accordance with the Paris Agreement. We critically scrutinize our memberships in relevant industry associations and their positions as regards climate policy measures. To ensure transparency in this connection, we published an [Industry Association Climate Review](#) for the first time in 2021.

This report compares the climate policy positions of our industry associations with our own climate goals. As our industry associations represent us in the public debate, we disclose where we agree with these positions and where they diverge from ours. It is of paramount importance to us that we maintain a dialogue with our associations to achieve an amicable solution. Where differences exist, dialogue enables us to take measures to close these gaps.

The analysis of 2021 represents a first step and forms the basis for Bayer’s further efforts to advocate through its member associations for scientifically founded policies to combat climate change. In producing this analysis, we worked together with [Climate Action 100+](#), an investor initiative that cooperates with the world’s biggest industrial companies on the issue of climate change.

Climate reporting

We are committed to transparently communicating our climate targets and progress, as well as the impact that climate change has on Bayer.

Through our longstanding and continuous participation in [CDP](#), we disclose our climate-related activities and progress with a high degree of detail.

Bayer supports the recommendations of the [Task Force on Climate-Related Financial Disclosures \(TCFD\)](#) with respect to reporting on this topic. In our report, we implement the 11 recommendations of the TCFD in the four categories of Governance, Strategy, Risk Management and Metrics & Targets. For more information, please see our separate [TCFD report](#).

7.3 Risk and Opportunity Analysis

In 2021, we looked at the risks and opportunities stemming from the effects of climate change from various perspectives to better evaluate them as regards our company and integrate them into our strategy and measures. Climate-related risks are already accounted for in our Group-wide Enterprise Risk Management (ERM) system.

Climate scenarios

We analyze the possible effects of climate change across two different scenarios. We use these scenarios to understand the impact of this factor on our business and to identify measures for mitigating risks and exploiting opportunities. With a cross-functional and -divisional team we have identified relevant opportunities and risks for our business in both scenarios.

Building on [Assessment Report 6](#) of the Intergovernmental Panel on Climate Change (IPCC) and supplemented with further sources relevant to our business areas, we have drafted our scenario description. The basis comprises an optimistic scenario concerning climate change with warming of below 2°C – the “Green Road” SSP1-2.6 (temperature increase of 1.8°C by 2100 compared with the preindustrial age) – and one that is aligned to current global behavior – the “Rocky Road” SSP3-7.0 (temperature increase of 3.6°C).



Green Road (SSP1-2.6)

- // The Green Road scenario assumes the average global temperature will rise by 1.7°C between 2041 and 2060 compared with the preindustrial age. Between 2081 and 2100, the temperature is likely to rise by 1.8°C compared with the preindustrial age.
- // This scenario is characterized by the rapid implementation of ambitious and globally coordinated climate-related laws and provisions, which could include short-term, intensified and transitory changes such as new regulations for enterprises. The rapid reduction in greenhouse gas emissions leads to less severe weather- and climate-related effects.



Rocky Road (SSP3-7.0)

- // The Rocky Road scenario assumes an average global temperature rise of around 2.1°C between 2041 and 2060, and a likely rise of 3.6°C between 2081 and 2100 compared with the preindustrial age.
- // In this scenario, we expect less ambitious laws and provisions that vary widely from one region to another. That leads to a slower pace of emissions reduction and thus more intensive weather- and climate-related changes in all regions of the world. The varying levels of ambition also lead to additional trade barriers that can be manifested in measures such as a Carbon Border Adjustment Mechanism (CBAM).

In our analysis of the effects of climate change, we go beyond the customary Enterprise Risk Management time horizons and instead apply the following time horizons:

- // Short term (2021–2025)
- // Mid term (2026–2035)
- // Long term (2036–2050)

Climate impact drivers

Based on the overarching description, we have identified nine climate impact drivers of materiality for Bayer so as to analyze in more detail the effects that the regulatory and physical changes will have on our business. The goal of the analysis is to identify the relevance and change potential as pertains to Bayer and our fields of business and to determine further activities.

We separately gauge the respective opportunities and risks associated with the nine climate impact drivers shown in the graphic – in each case based on the various time horizons and on the Green Road and Rocky Road scenarios.

Climate Impact Drivers		Short term (2021–2025)		Mid term (2026–2035)		Long term (2036–2050)	
		Risk	Opportunity	Risk	Opportunity	Risk	Opportunity
Transitional impact drivers							
Laws, regulations, policies		●	●	●	●	●	●
		●	●	●	●	●	●
Carbon taxation/pricing, carbon border adjustment & offsetting		●	●	●	●	●	●
		●	●	●	●	●	●
Commodity prices		●	●	●	●	●	●
		●	●	●	●	●	●
End customer/customer/market		●	●	●	●	●	●
		●	●	●	●	●	●
Food security		●	●	●	●	●	●
		●	●	●	●	●	●
Acute physical impact drivers							
Extreme weather events		●	●	●	●	●	●
		●	●	●	●	●	●
Chronic physical impact drivers							
Permanent water cycle		●	●	●	●	●	●
		●	●	●	●	●	●
Diseases		●	●	●	●	●	●
		●	●	●	●	●	●
Temperature		●	●	●	●	●	●
		●	●	●	●	●	●

The Green Road (SSP1-2.6) = The Rocky Road (SSP3-7.0) = Relevance = low high

Below we provide insight into the assessments of the individual climate impact drivers.

Transitional impact drivers

Based on the Paris Agreement, the most important countries and regions in which Bayer operates have committed to limit global warming by reducing their greenhouse gas emissions.

- // One example is the European Union’s Green Deal, the goal of which is to accelerate the transition to an emissions-free future and achieve climate neutrality by 2050. The EU is consequently expected to further increase costs for the emission of greenhouse gases (e.g. through CO₂ regulations such as the EU emissions trading system (EU-ETS) or a CO₂ tax), adjust financing incentives (e.g. through the EU taxonomy) and drive forward technological changes (e.g. through the promotion of renewable energies and hydrogen technologies).
- // China has committed to attain net zero emissions by 2060 and is therefore expected to introduce further regulations in this connection.

Through our strategy for achieving climate neutrality and reducing greenhouse gas emissions on the pathway to a 1.5°C scenario, we are reducing the risk of additional costs caused by the expected regulations.

We continuously analyze the further effects of regulatory changes on our business. National and international CO₂ reduction targets could lead to the abandonment of fossil fuels and impact the demand for fuels from biomass (biofuels), for example. Depending on the regulators’ decision, this could lead to either increased or reduced demand for biofuels. This decision could impact our sales markets, as some of our customers grow corn for the production of biofuels.

As one of the world's biggest CO₂ emitters, the agriculture industry can also play a key part in protecting the climate and thus mitigating climate risks – for example by capturing CO₂ in farmland. For more information on our target of reducing greenhouse gas emissions in agriculture by 30%, please see the Focus on: Agriculture chapter.

Physical impact drivers

Weather and climate effects are of particular significance for the Crop Science Division and are accounted for in both strategic planning and the seasonal business risk. These effects are intensifying as a result of climate change, and both short-term (extreme) weather events and long-term climate changes will further increase.

Acute physical impact drivers

All climate models anticipate an increase in extreme weather conditions (such as drought, heavy rains and storms) that present an elevated risk of crop losses and thus risks for the agricultural value chain as a whole. Despite all precautions, operations at our sites or those of our customers may be disrupted and crop failures may occur in connection with extreme weather events such as natural disasters. In the IPCC forecasts, the intensity of such events varies widely from one region to the next. In the IPCC's regional fact sheets for the [Central North America](#) region (CNA), for example, extreme precipitation is predicted to increase; the [South American Monsoon region](#) (SAM) is expected to experience both a delay in the monsoon season and intensified droughts.

In addition to risks, however, climate change can also create opportunities for our business. Bayer's product range and innovation capability – particularly in the agricultural value chain – will create a foundation for leveraging new options and sales opportunities in the future against the background of climate change. As a seed producer, we already offer plants with increased resistance to extreme weather conditions. That includes short-stature corn that is less susceptible to storms (for more information, please see the Focus on: Agriculture chapter).

We also enable farmers to react better and more quickly to extreme weather conditions with our FieldView™ digital farming platform. For more information, please see Chapter 3.6 Crop Science.

Chronic physical impact drivers

The long-term natural and physical effects of climate change will impact particularly the permanent water cycle (for example through a transition to a wetter or a drier climate or a delay in the monsoon season), the spread of diseases or insect pests, and further coupling effects of temperature changes. These effects will become particularly relevant for our agricultural business.

We develop strategies to help farmers increase their resilience against the effects of climate change. At the same time, we want to help farmers reduce their own greenhouse gas emissions and cultivate healthy and sustainable crops. As there are no uniform solutions in agriculture, farmers need numerous options from which they can select the most suitable for their fields and the locally prevailing conditions.

In addition, health risks such as cardiovascular disease can also intensify due to hotter summer months or more frequent heatwaves. This could create increased demand for products for cardiovascular disease or nutritional supplements.

Next steps

As data models and insights into climate change are constantly evolving, we will continue to expand and refine our scenario description and analysis in 2022 and beyond. By doing this, we want to be in a position to describe future challenges and opportunities as accurately as possible to derive short-, medium- and long-term mitigation measures. Findings from these analyses will play a bigger role in our strategic, portfolio and operational processes.

We also participate in the [Value Chain Risk to Resilience](#) working group of the international Business for Social Responsibility network. Through dialogue in this forum, we improve our own analyses and want to help improve the identification of regulatory and physical climate risks and climate resilience measures throughout companies' supply chains.

7.4 Greenhouse Gas Emissions

At Bayer, air emissions are primarily caused by the combustion of primary energy sources such as gas and oil. These are used to generate electricity, steam and auxiliary energy (such as for heating and cooling) for the manufacture of our products. Further emissions derive from chemical processes in which coal and other energy sources are required to produce chemical reactions. Emissions are also generated by our vehicle fleet and in the extraction and processing of raw materials.

In reporting greenhouse gas emissions, we take into account the recommendations of the [Greenhouse Gas Protocol](#) (GHG Protocol). Direct emissions from our own power plants, vehicles, waste incineration plants and production facilities (Scope 1) and indirect emissions from the procurement of electricity, steam and cooling energy (Scope 2) are determined at all environmentally relevant sites whose annual consumption exceeds 1.5 terajoules. In this connection, we have drafted Group regulations for the Group-wide recording of greenhouse gas emissions.

In line with the GHG Protocol, we report indirect emissions (Scope 2) according to both the location-based and market-based methods.

Bayer's greenhouse gas emissions fell further in 2021 compared to 2020. We succeeded in reducing our own Scope 1 and Scope 2 emissions by 11.5%, or around 410,000 metric tons, particularly by increasing the share of our electricity derived from renewable energies. Overall, we have already reduced our own emissions (Scope 1 and Scope 2) by 15.7% compared with the reference year 2019.

We address our climate protection activities in detail in our latest [Report to CDP](#) (formerly the Carbon Disclosure Project).

Greenhouse Gas Emissions (Scope 1 and 2)		
Million metric tons of CO ₂ equivalents	2020	2021
Scope 1: Direct emissions ¹	2.01	1.93
of which carbon dioxide (CO ₂)	1.96	1.90
of which ozone-depleting substances	0.012	0.011
of which partially fluorinated hydrocarbons (HFCs)	0.022	0.014
of which nitrous oxide (N ₂ O)	0.008	0.007
of which methane (CH ₄)	0.003	0.003
Scope 2: Indirect emissions ² according to the location-based method	1.75	1.56
Scope 2: Indirect emissions ² according to the market-based method ³	1.57	1.24
Total greenhouse gas emissions (Scope 1 and 2) according to the market-based method³	3.58	3.17
of which offset greenhouse gas emissions	0.2	0.3
Specific greenhouse gas emissions (kg CO ₂ e/€ thousand external sales) according to the market-based method ^{3, 4}	86.55	71.95

2020 figures restated

¹ In line with the GHG Protocol, we also report the direct emissions resulting from the generation of energy for other companies which is sold as a site service. In 2021, these emissions corresponded to 0.14 million metric tons of CO₂ equivalents.

² Typically, CO₂ accounts for 98% of all energy-related greenhouse gas emissions. When determining indirect emissions, our calculations are therefore limited to these greenhouse gases and we indicate all emissions in CO₂ equivalents.

³ For Bayer, the market-based method of the GHG Protocol most reliably reflects the values for Scope 2 emissions and the success of emissions reduction measures, so we apply emissions volumes calculated using this method when calculating the total and specific greenhouse gas emissions.

⁴ Specific Bayer Group emissions are calculated by adding together direct emissions and indirect emissions calculated using the market-based method of the GHG Protocol (Scope 2) then dividing the total volume by the external sales volume.

In 2021, Bayer was involved in European emissions trading with five plants in total. The CO₂ emissions of these plants amounted to almost 315,000 metric tons.

Due to the varying depth of value creation, direct and indirect greenhouse gas emissions (Scope 1 and Scope 2) are unequally distributed among our divisions. Our raw material extraction activities, including treatment and downstream processing, for the manufacture of the crop protection

intermediates of Crop Science are especially energy-intensive – this division therefore accounts for the greatest share of our greenhouse gas emissions.

Greenhouse Gas Emissions by Division (Scope 1 and 2)

Million metric tons of CO ₂ equivalents	2020	2021
Scope 1: Direct emissions ¹	2.01	1.93
of which Crop Science	1.65	1.61
of which Pharmaceuticals	0.19	0.18
of which Consumer Health	0.02	0.02
of which other ²	0.16	0.13
Scope 2: Indirect emissions ³ according to the market-based method ⁴	1.57	1.24
of which Crop Science	1.38	1.06
of which Pharmaceuticals	0.13	0.12
of which Consumer Health	0.06	0.05
of which other ²	0.004	0.003

¹ In line with the GHG Protocol, we also report the direct emissions resulting from the generation of energy for other companies which is sold as a site service.

² These include greenhouse gas emissions from the vehicle fleet and emissions caused by the enabling functions.

³ Typically, CO₂ accounts for 98% of all energy-related greenhouse gas emissions. When determining indirect emissions, our calculations are therefore limited to these greenhouse gases and we indicate all emissions in CO₂ equivalents.

⁴ For Bayer, the market-based method of the GHG Protocol most reliably reflects the values for Scope 2 emissions and the success of emissions reduction measures, so we apply emissions volumes calculated using this method when calculating the total and specific greenhouse gas emissions.

Value chain (Scope 3)

The GHG Protocol Corporate Value Chain (Scope 3) Accounting & Reporting Standard bindingly regulates the reporting of all indirect emissions from the value chain and separates these emissions into 15 categories. Emissions from eight Scope 3 categories are of material importance to Bayer and together account for our total Scope 3 emissions. We describe these in detail in the [Report to CDP](#).

The category “Purchased goods and services” accounts for the most significant share of our Scope 3 emissions, at 71%.

Greenhouse Gas Emissions in the Value Chain (Scope 3)

Million metric tons of CO ₂ equivalents	2020	2021
Scope 3: Indirect emissions from our upstream and downstream value chain (by materiality) ¹	9.20	8.94
of which indirect emissions from our upstream and downstream value chain to attain the SBT ^{2,3}	8.22	8.16
Progress in the reduction of Scope 3 emissions ^{4,5}	–	–7%

2020 figures restated

¹ Emissions from eight Scope 3 categories are of material importance to Bayer and together represent our total Scope 3 emissions: (1) purchased goods and services, (2) capital goods, (3) fuel- and energy-related activities, (4) (upstream) transportation and distribution, (5) waste generated from operations, (6) business travel, (7) employee commuting and (12) end-of-life treatment of sold products.

² Science Based Target

³ For the calculation of our reduction target for Scope 3 emissions in line with SBTi, 91% of total materially important Scope 3 emissions are considered. The following Scope 3 categories are covered: (1) purchased goods and services, (2) capital goods, (3) fuel- and energy-related activities, (4) (upstream) transportation and distribution and (6) business travel.

⁴ 2029 target: 12.3% reduction

⁵ All greenhouse gas emissions from air travel in 2021 were offset.

In accordance with the guidelines of the Science Based Targets initiative (SBTi), the calculation of our reduction target for Scope 3 emissions utilizes only the five major categories that make up the biggest portion of our Scope 3 emissions (91%). We also separately report the sum of these Scope 3 emissions in the following table. For more

information on initiatives to reduce Scope 3 emissions, please see Chapter 7.2 Climate Strategy.

Compared with 2020, we achieved a slight reduction in emissions in our value chain of 0.6% or around 50,000 metric tons. This already accounts for 7% of our reduction target for 2029 compared to the reference year.

7.5 Energy

Our energy needs have the greatest direct impact on our greenhouse gas emissions. Production accounts for the most significant share of our energy requirement, which depends on the production operations at the sites and the depth of our value chain (please see also Chapter 7.4 Greenhouse Gas Emissions).

Energy consumption

When calculating total energy consumption, we differentiate between primary and secondary energy consumption. The main source of primary energy consumed comprises fossil fuels that we use to generate electricity, steam and cooling energy for our own use and to a small extent for sale to other companies. Secondary energy consumption reflects the purchase of electricity, steam and cooling energy at our sites worldwide.

One of the targets we have set within the context of our climate strategy is to cover 100% of purchased electricity needs with renewable energies by 2030. To achieve this objective, we have produced a catalogue of criteria such as physical proximity to the production plant and [additionality](#). For more information, please see Chapter 7.2 Climate Strategy.

In 2021, around 24.7% of our purchased electricity was sourced from renewable energies. We concluded additional supply agreements for electricity from renewable energies in the United States, Brazil and Germany in 2021. We are thus on track to achieve our target of 100% in 2029.

Compared with 2020 (35.9 petajoules), Bayer’s total energy consumption fell by 2.9% to 34.8 petajoules in 2021. This includes both primary energy consumption, mainly of fossil fuels, and secondary energy consumption. This decline compared to 2020 is primarily due to interruptions in production as a result of Hurricane Ida at the sites in Soda Springs, Idaho, and Luling, Louisiana, in the United States. A reduction in the number of vehicles in the company fleet also contributed.

Energy Consumption

TJ	2020	2021
Primary energy consumption	17,836	18,071
Natural gas	10,911	10,682
Coal	566	608
Liquid fuels	2,901	2,653
of which for vehicle fleet/transport	2,480	2,194
Waste	416	499
Other ¹	932	1,068
Primary energy consumption for third-party companies	2,111	2,561
Secondary energy consumption	18,022	16,764
Electricity ²	12,166	11,059
of which electricity from power grid	11,451	8,325
of which electricity from renewable energies	715	2,734
Steam	4,485	4,381
of which steam from renewable energies	25	82
Steam from waste heat (process heat)	550	574
Cooling energy	691	632
Secondary energy consumption for third-party companies	131	118
Total energy consumption	35,858	34,835

2020 figures restated

¹ For example biomass

² The proportion of primary energy sources used in generating the electricity consumed depends on the respective electricity mix of our energy suppliers.

Primary and secondary energy consumption is usually dependent on the production volume: the more that is produced, the greater the energy consumption and also the associated greenhouse gas emissions. Energy management systems such as ISO 50001 help to identify potential energy savings both in production processes and when developing new production processes or converting existing ones. This not only conserves valuable energy resources, but also takes into account economic factors associated with long-term savings. In our [Report to CDP](#), we also describe the projects to save energy that were implemented at various sites.

Energy efficiency

Bayer reports energy efficiency as the ratio of energy used to external sales. Energy efficiency improved compared with 2020.

Energy Efficiency

kWh/€ thousand external sales	2020	2021
Energy efficiency	241	220

2020 figures restated

For more information on our energy efficiency measures, please see Chapter 7.2 Climate Strategy.

8. Environmental Protection and Safety

Protecting the environment and ensuring the safety of our employees and the people who live near our sites are among our highest priorities. We work continuously to reduce the environmental impact of our business activities and develop product solutions that benefit the environment. Bayer focuses on taking consistent precautions – to ensure safety in day-to-day work, in the operation of production facilities, and on work-related travel and transportation routes.

8.1 Management Approach

Responsibility for steering and monitoring health, safety and environmental protection (HSE) aspects across the Group lies with the Public Affairs, Science, Sustainability & HSE Enabling Function. As of February 2022, HSE has been assigned to the Chairman of the Board of Management, who also serves as Chief Sustainability Officer at Bayer. The Public Affairs, Science, Sustainability & HSE Enabling Function establishes responsibilities, targets, key performance indicators and framework conditions for the entire Group. These include the Group Regulation on [HSE Management and HSE Key Requirements](#), which forms an integral part of the global HSE management system. This Group regulation describes the basic approach for monitoring HSE processes at Bayer and defines core HSE requirements that need to be implemented worldwide. Detailed requirements for individual environmental protection and safety aspects are established in further-reaching Group regulations that are also binding (see graphic).

The continuous review and revision of Group regulations by the Public Affairs, Science, Sustainability & HSE Enabling Function, regular mandatory internal audits and external certification processes ensure that the systems at all sites meet the relevant requirements.

Management systems for environmental protection and safety issues are in place that are integrated into the business processes throughout the Group. Operational responsibility for health, safety and environmental protection lies with the individual divisions, which steer HSE via management systems, committees and working groups at our sites.

Environmental management at the sites also involves the development and implementation of site-related targets and programs to reduce our environmental impact. The following priorities apply:

- // Avoiding waste/emissions
- // Recycling in all cases where it is practicable to do so by reasonable means
- // Minimizing waste/emissions that cannot be avoided or recycled

We report all relevant HSE data of the Group, including all fully consolidated companies in which we have a share of more than 50%, collect data on occupational injuries and environmental incidents at all sites worldwide, and record environmental indicators at 217 environmentally relevant production, research and administration sites, compiling this in the Group-wide information system. We consider all sites to be environmentally relevant whose annual energy consumption is greater than 1.5 terajoules.

Ecological assessment for capital expenditures

Our HSE commitment extends beyond the scope of legal requirements. We perform a voluntary ecological assessment for capital expenditure projects exceeding €10 million. This includes an evaluation of direct and indirect greenhouse gas emissions. The goal is to involve stakeholders at an

early stage and adequately assess environmental impact and other sustainability dimensions.

This ecological assessment ensures uniform environmental and sustainability standards worldwide, taking into account Bayer's internal standards and the best available technologies. One example of this approach in 2021 was the planning of a new production site in Costa Rica, where Bayer aims to reduce greenhouse gas emissions to such an extent that this positively supports our pathway toward climate neutrality. We will also succeed in reducing greenhouse gas emissions in Leverkusen on the basis of an ecological assessment.

In the case of acquisitions, we examine compliance with the applicable environmental and occupational safety regulations as well as fundamental employee rights at the production sites in question. Through our HSE management systems we also avoid damage and disruptions to work and production.

HSE management systems

Based on the Group Regulation on HSE Management and HSE Key Requirements, all environmentally relevant Bayer sites must have in place an HSE management system that complies with recognized international standards (e.g. ISO 14001 or ISO 45001).

By the end of 2025, furthermore, 80% of our business activity should have coverage with external certification to the above standards.

Binding Group Regulations



Standards and Certifications

% of business activities based on energy consumption of environmentally relevant sites

	2020	2021
Certification to external standards		
ISO 14001 certification/EMAS validation	56	61
ISO 45001 certification/OHSAS 18001	45	50
ISO 50001 certification	22	31
Degree of coverage with certification to at least one of the above standards	60	65

HSE audits

Audits are an integral component of our global HSE management system. They help to ensure compliance with applicable regulations and to improve our performance worldwide through the management and mitigation of possible HSE risks. Bayer’s global HSE audit program comprises both general HSE audits and process and plant safety audits. The Group Regulation on Health, Safety and Environmental Audits defines the basic principles and methodology for selection, planning, implementation and post-processing using a risk-based decision-making process. Bayer’s audit approach is based on the international standard ISO 19011 “Guidelines for Auditing Management Systems” and provides the framework for carrying out audits.

Through the overarching HSE audit approach, we include all units and apply the same concepts worldwide. When selecting sites for audit, the focus is particularly on production sites, relevant Bayer warehouses, sites with research and development units, and relevant seed treatment and processing units.

The frequency of audits is determined taking into account the risk category (based partly on the size of the site or the type of production activity), the performance evaluation (based partly on past audit results, for example) and risk-mitigating measures (e.g. existing ISO certifications), and

ranges from two to five years. Incident-based audits can be carried out in addition to this. The audit criteria comprise all applicable environmental protection and safety regulations and standards for the area being audited, including Bayer regulations, local HSE management system regulations, legally applicable standards, permit requirements and international standards (e.g. ISO 14001 or ISO 45001). If deficiencies in compliance with legal regulations are identified, additional compliance audits can be planned. Within the scope of these audits, action plans and responsibilities are established to fix the issues identified.

The respective site management, the division and the head of the Public Affairs, Science, Sustainability & HSE Enabling Function are notified of the audit findings. Supplementary to the global HSE and process and plant safety audits, sites and country organizations carry out their own internal HSE audits or self-inspections according to a specific risk-based approach. Since 2020, all global audit reports have been stored in a database.

8.2 Air Emissions

Air emissions are monitored and targets for their reduction pursued as part of our environmental management system at the sites. These emissions are also partly considered in the calculation of greenhouse gas emissions such as of ozone-depleting substances or nitrous oxide (laughing gas). Our approach to the issue of air emissions is also described in the Group Regulation on HSE Management and HSE Key Requirements. For more information on our greenhouse gas emissions and our energy consumption, please see Chapter 7. Climate Protection.

Emissions of ozone-depleting substances in 2021 fell from 4.3 to 3.9 metric tons owing to emissions reduction measures at the Vapi site in India. Emissions from the incineration of biomass such as VOCs, NO_x and SO_x were calculated using updated factors, leading to a reduction in emissions from incineration processes. Carbon monoxide emissions from a furnace in Soda Springs, Idaho, United States, had to be calculated using a higher emissions factor owing to local regulatory requirements.

Other Direct Air Emissions

1,000 metric tons	2020	2021
ODS ¹	0.0043	0.0039
VOCs ²	0.69	0.43
CO (carbon monoxide)	1.16	2.66
NO _x (nitrogen oxides)	4.16	3.57
SO _x (sulfur oxides)	1.32	1.28
Particulates	2.29	2.05

¹ Ozone-depleting substances (ODS) according to the Montreal Protocol, in CFC-11 equivalents

² Volatile organic compounds (VOCs) excluding methane

8.3 Water and Wastewater

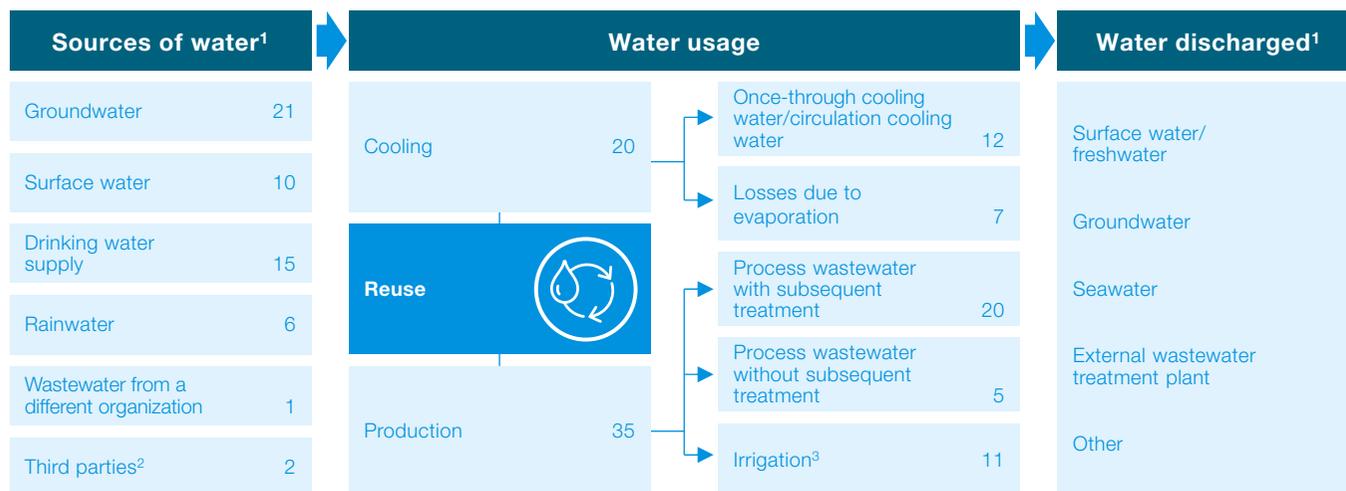
Responsible water usage is a cornerstone of our commitment to sustainable development and is described in the Group Regulation on HSE Management and HSE Key Requirements. Clean water in sufficient quantities is essential for the health of people, animals and plants. That is why it is crucial that industrial water usage will continue not to lead to local problems such as water shortages for the people living in the catchment areas of our production sites. In our [Water Position](#), we undertake to comply with international, national and local legislation to protect water resources, use them as sparingly as possible and further reduce emissions into water.

In our water stewardship strategy, we address a variety of factors connected with water, from operational water use and innovative products, such as drought-resistant crops with a reduced water requirement, to our commitment in the value chain and cooperation with partners. We support the CEO Water Mandate of the U.N. Global Compact with the goal of working with key stakeholders to develop sustainable strategies for water usage. Since 2021, furthermore, we have been a member of the Water Resilience Coalition (WRC), the goals of which substantiate and supplement the ambitions of the CEO Water Mandate at the private-sector level. We also participate in the Water and Climate Leaders group of the World Meteorological Organization (WMO) to improve the global political framework and enhance the perceived relevance of this issue among the public. We are currently further developing our water strategy to better address the opportunities and risks associated with water stewardship in the future, especially in view of changing climatic conditions.

In our annual response to the [CDP Water Disclosure](#), we report in detail on our handling of water and the company-specific water footprint. This equates to a progress report for the CEO Water Mandate. We received an A- rating in 2021.

Sites in water-scarce regions

We aim to identify potential for improvement particularly at sites located in water-scarce areas or in areas identified as being threatened by water scarcity, and use as little water there as possible. The regions in which water consumption exceeds the available renewable surface and groundwater resources were identified using the Aqueduct Water Risk Atlas of the [World Resources Institute](#) (WRI).

Water Use in the Bayer Group 2021 (million m³)

¹ The differences between volumes of water consumed and water discharged can be explained, for example, by quantities of water used as raw materials in products, unquantified losses due to evaporation, leaks and volumes of condensate generated through the use of steam as a source of energy. Detailed data on water discharged is shown in the corresponding table below.

² E.g. process water, water contained in raw materials used

³ Mainly agricultural irrigation

By the end of 2020, we had already established water management systems at all relevant sites in regions threatened by water scarcity. The relevant Bayer sites in this context are all locations with energy consumption of at least 1.5 terajoules per year that at the same time account for at least 0.1% of the Group's global water consumption.

The key characteristics of a sustainable water management policy are a balance between water consumption and availability, as well as the optimal conservation of water resources. Due to widely varying local situations, each water management system is designed individually on the basis of a detailed risk analysis that takes into account local circumstances and the main parameters of our water supply and disposal. The identified risks necessitate locally adapted

countermeasures such as the establishment of alternative supply sources, the improvement of wastewater quality or wastewater recirculation. These activities are accompanied by management measures such as regular employee training in water management or participation in round tables with regulatory authorities and residents.

We are aware that climate change will further exacerbate the problem of water scarcity in the future. To avert future risks for our production capacities and the local communities, we will establish by 2023 suitable water management systems at all relevant sites that will be threatened by water scarcity by 2030. We identify such sites using the base scenario of the [WRI](#).

For more information on water sources in water-scarce areas or in areas identified as being threatened by water scarcity, please see the table "Water Sourced in Water-Scarce Areas or Areas Threatened by Water Scarcity."

Water use

In 2021, total water use in the Bayer Group was 55 million cubic meters (2020: 57 million cubic meters). Some 5.8% of our total water use (55 million cubic meters) comes from water sources in water-scarce areas or in areas identified as being threatened by water scarcity (as defined by the World Resources Institute).

Water Sourced by Division

Million m ³	2020	2021
Total water sourced	57	55
of which Crop Science	45	45
of which Pharmaceuticals	11	8
of which Consumer Health	2	2
of which other ¹	0.05	0.05

¹ This includes water use attributable to the enabling functions and administration sites of the regions.

Water consumption by the Pharmaceuticals Division could be reduced through water-saving measures at the Orizaba Proquina site in Mexico.

Around 35.7% of all water used by Bayer is cooling water that is only heated in this process and does not come into contact with products. It can be returned to the water cycle without further treatment in line with the relevant official permits.

At our production facilities, we endeavor to use water several times and to recycle it. Water is currently recycled by various means at 42 sites, these being responsible for 46.3% of the total water used. These means include closed cooling cycles, reuse of treated wastewater, including to water fields, and recirculation of steam condensates as process water. The total volume of water recycled comes to more than 376 million cubic meters, meaning that the 55 million cubic meters of water originally sourced is used more than six times on average.

Water Sourced in Water-Scarce Areas or Areas Threatened by Water Scarcity¹

Million m ³	2020	2021
Total water sourced	57	55
of which in water-scarce areas or areas threatened by water scarcity ¹	3	3

¹ As defined by the World Resources Institute, Aqueduct Water Risk Atlas

Wastewater

We aim to minimize our emissions into water. Compliance with the relevant wastewater thresholds at our production sites worldwide is monitored by supervisory authorities and external assessors and is also reviewed at regular intervals during on-site audits by internal experts.

To further reduce or completely exclude the release of active ingredient traces into the environment, we implement additional wastewater treatment measures at the production sites that are established in a Group regulation. These measures include a hazard evaluation and HSE risk assessment of the wastewater to determine whether active ingredient concentrations need to be further reduced. In such cases, internal wastewater thresholds can be derived that offer sufficient risk mitigation and go beyond legally established limits.

The total volume of industrial and mixed wastewater was 25 million cubic meters in 2021, which is comparable to the previous year.

Volume of Treated Production Wastewater by Discharge Destination

Million m ³	2020	2021
Surface water	16.0	16.5
Groundwater	0.004	0.006
Seawater	0.1	0.3
Other (evaporation, irrigation, seepage)	2.7	2.3
External wastewater treatment plant	5.8	5.5
Total wastewater	25	25
of which in water-scarce areas or areas threatened by water scarcity	0.8	0.8

All wastewater is subject to strict monitoring before it is discharged into the various disposal channels. In 2021, 79.6% of our industrial and mixed wastewater worldwide was purified in wastewater treatment plants (Bayer or third-party facilities). In 2021, we again applied alternative means of disposing of product-containing wastewater such as incineration, distillation or chemical treatment and subsequent processing in a biological wastewater treatment facility. Following careful analysis according to official provisions, the remaining volume was categorized as not environmentally hazardous and returned to the natural water cycle.

Discharges of phosphorus into wastewater have risen by 34.0% owing to higher production utilization at the site in Camacari, Brazil. The shutdown of a facility at the site in Dormagen, Germany, led to a reduction in nitrogen discharges of 24.5%. Improved wastewater analytics at the site in Camacari, Brazil, reduced emissions of total organic carbon (TOC) by 17.0%.

Emissions into Water

1,000 metric tons	2020	2021
Phosphorus	0.38	0.51
Nitrogen	0.48	0.36
TOC ¹	1.54	1.28
Heavy metals	0.0026	0.0032
Inorganic salts	151	172
COD ²	4.61	3.83

¹ Total organic carbon (TOC)

² Chemical oxygen demand; calculated value based on TOC figures (TOC x 3 = COD)

Remediation and safeguarding of soil and groundwater contamination

In line with the Group Regulation on HSE Management and HSE Key Requirements, Bayer ensures the implementation of measures to prevent the contamination of soil and groundwater. This includes inspecting facilities for leaks, implementing effective secondary retention measures for storage tanks, and maintenance and inspection programs. The measures also encompass applying suitable leak identification devices for tanks, containers and pipes containing hazardous materials as well as the installation of sealed surfaces with a sufficient retention volume, for example in tank loading and unloading areas.

Bayer also actively performs remediation activities to mitigate environmental damage resulting from noncompliant waste management or accidents in the past. Dedicated processes have been established for this purpose that stipulate comprehensive investigation of sites and, where necessary, one or several of the following measures: remediation activities to clean up the impacted environment, safeguarding of contaminated sites so that they do not constitute a danger, and monitoring of the conducted remediation and safeguarding activities.

These are implemented based on statutory requirements and the latest technological standards. Such activities are also designed to avert possible financial or reputational damage to the company.

To manage contamination, we have established uniform standards in our Group regulation for the investigation and remediation of such sites. Our specialized teams work systematically together with external experts to support all affected sites in the planning, implementation and monitoring of remediation processes and measures, measure their progress, and execute and conclude these cases with a positive effect for people and nature.

To enable the implementation of environmental protection measures and the mitigation of contamination, provisions are established for the expected costs of the remediation of contaminated sites, the recultivation of landfills, the clean-up of environmental pollution at existing production or storage sites and similar measures. For more information on provisions, please see the [2021 Annual Report](#).

8.4 Waste and Recycling

We want to minimize material consumption and disposal volumes through systematic waste management. Waste separation, safe disposal channels and economically expedient recycling processes serve this purpose. In accordance with our Group regulations, all production sites are obliged to prevent, recycle and reduce waste and to dispose of it safely and in line with good environmental practices. Each of our sites must have an up-to-date waste register that includes the following details for each waste stream: the name and description of the waste, its source and volume and sufficient information on its composition, hazard classification and final treatment and disposal.

Waste volumes and recycling paths are impacted not just by production fluctuations, but also by building refurbishment and land remediation work.

Waste Generated 2021 (2020)

1,000 metric tons

Nonhazardous waste

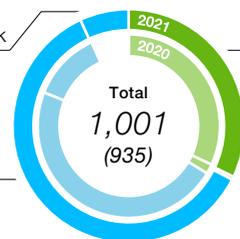
81 (64)
from construction work

604 (565)
from production

Hazardous waste¹

303 (301)
from production

13 (4)
from construction work



2020 figures restated

¹ Definition of hazardous waste in accordance with the local laws in each instance

Waste volume generated

Bayer ensures that waste is properly disposed of at its sites. We also carry out regular audits of external disposal facilities for this purpose.

The total volume of waste generated rose by 7.1% in 2021 compared to 2020. This was mainly attributable to seed production being increased at several sites in Latin America and larger volumes of plant byproducts then being disposed of. The volume of hazardous waste rose to 316,000 metric tons (2020: 305,000) owing to construction and remediation work at the site in Berlin, Germany. Hazardous waste from production, including hazardous waste from wastewater treatment plants, remained at the same level as last year, at 303,000 metric tons.

The volume of waste disposed of increased by 6.1%. Some 48.4% of this waste was successfully reused or recycled. The proportion of hazardous waste that was recycled was 15.7%.

Waste by Means of Disposal

1,000 metric tons	2020	2021
Total volume of waste disposed of¹	940	998
Nonhazardous waste disposed of	635	685
of which volume removed to landfill	123	78
of which volume incinerated	52	53
of which volume recycled ²	365	434
of which other ³	96	120
Hazardous waste disposed of	305	313
of which volume removed to landfill	16	12
of which volume incinerated	226	224
of which volume recycled	38	49
of which other ³	25	28

2020 figures restated

¹ Waste can also be stored at sites as an intermediate step. For this reason, the volume of waste disposed of can differ slightly from the volume of waste generated by Bayer.

² Recycling refers to processes through which waste is reused or treated for reutilization.

³ For example passed on to third parties (e.g. providers/waste disposal companies) for disposal or utilization for energy generation or composting

The volume of hazardous waste sent to landfill fell owing to the greater use of waste incineration at the Vapi site in India.

Due to the varying depth of value creation, waste volumes are unequally distributed among our divisions. Crop Science accounts for a greater proportion due partly to its more significant product volume.

Waste by Division

1,000 metric tons	2020	2021
Total volume of waste disposed of¹	940	998
of which Crop Science	771	811
of which Pharmaceuticals	145	170
of which Consumer Health	21	16
of which other ²	3	1

2020 figures restated

¹ Waste can also be stored at sites as an intermediate step. For this reason, the volume of waste disposed of can differ slightly from the volume of waste generated by Bayer.

² This includes waste attributable to the enabling functions and administration sites of the regions.

Disposal, recycling and processing

Legislation prohibits the recycling and processing/treatment of a large proportion of our materials, especially pharmaceuticals and crop protection products. In our divisions, we make use of the opportunities for recycling within the framework of legal regulations. Production-specific and substance-specific recycling is carried out in compliance with the individual requirements of a given production site. Packaging materials are recycled in line with national regulations as part of the country-specific infrastructure for waste disposal. In many countries with no legal regulation, the industry has set up a returns system in collaboration with other providers (please see Chapter 3.6 Crop Science, Disposal of containers and old inventories, discontinuation policy).

Material-based recycling plays an important role in Crop Science's manufacturing of active ingredients and intermediates, and is handled in line with the specific requirements at the respective production site. Solvents, catalysts and intermediates are processed and returned to the production process. Material recycling is taken into account as an important development criterion in the global process development for active ingredients and intermediates.

In the Pharmaceuticals and Consumer Health divisions, production-specific recycling is carried out in compliance with the specific requirements at a given production site. The disposal of pharmaceutical products is subject to strict safety criteria, which means that recycling is not possible for the portfolios of the Pharmaceuticals and Consumer Health divisions. Material-based recycling takes place at the Pharmaceuticals site in Bergkamen, Germany, in the form of the recovery of solvents used in production. A returns program for an iodinated X-ray contrast agent makes it possible to reprocess the iodine contained therein and introduce it to an industrial cycle (for more information, please see Chapter 3.8 Pharmaceuticals and Consumer Health).

8.5 Environmental Incidents

There were three environmental incidents that resulted in the release of substances into the environment in 2021 (2020: three). A sulfuric acid tank leaked at a site in the United States, resulting in small amounts of the acid penetrating the diked containment. At the Muscatine site in Iowa, United States, natural gas entered the environment when a combustion flare did not properly ignite to burn the gas. And at the Dormagen site in Germany, sodium hydroxide solution was mistakenly used for high-pressure cleaning instead of water and entered the environment. An external contractor employee was fatally injured. Most of the sodium hydroxide solution was collected and disposed of properly.

Factors that determine whether there is a reporting obligation for a particular environmental incident include, in particular, the nature and quantity of the substance, the amount of damages caused and any consequences for nearby residents. In line with our internal voluntary commitment, we report any leakage of substances with a high hazard potential from a quantity of 100 kilograms upward. For details of the environmental and transport incidents in 2021, please see Chapter 8.9 Transportation and Storage Safety.

8.6 Occupational Health and Safety

Safeguarding the occupational health and safety of our own employees, and that of the employees of contractors (commissioned outside companies) who are under the direct supervision of Bayer, entails preventing occupational accidents and occupational illnesses, assessing potential hazards, ensuring comprehensive risk management and creating a healthy working environment. Occupational safety management systems are implemented at our sites throughout the Group. In this connection, the same requirements, rules and training measures apply for employees of contractors as for Bayer employees (see regulation graphic for more information).

Within the context of our occupational health and safety management, Bayer employees and those of contractors receive extensive training in the prevention of accidents and safety incidents and promotion and maintenance of employee health. The measures range from safety briefings and special training courses on the safe handling of chemical substances to web-based training that highlights the advantages and possibilities of a work environment that promotes health. Overall, more than 83,481 employees completed health and safety training measures in 2021.

A significant proportion of the accidents and injuries suffered by our employees have behavior-linked causes. For example, accidents can occur when employees use smartphones while walking. Alongside technical and organizational measures, therefore, promoting safety-conscious behavior is an important starting point for preventing accidents and injuries. The measures we take and initiatives we introduce take into account globally recognized occupational health and safety principles. We also promote safety-conscious behavior among all our employees through the global Behavioral Safety initiative.

Occupational health and safety measures also include the monthly HSE Newsletter, which enables managerial staff to regularly incorporate HSE topics into the dialogue with the employees, as well as our global Health and Safety Day with its various activities and training measures.

In 2021, the digital transformation and the second year of the COVID pandemic provided new stimuli for the further development of our processes and available occupational health and safety measures. These included the new central intranet platform "House of Health," which gives all employees access to health-related topics.

The central data collection platform we launched in 2021 for integrated accident management enables the sites to exchange accident analysis information with one another digitally and thus more quickly derive corrective measures. The platform also makes it easier for our occupational health and safety experts to exchange information on work-related illnesses and injuries experienced by our employees. We aim to anticipate and avoid accidents at our sites through corrective and preventive measures.

Risk assessment and preventive measures

The workplaces of our employees and those of contractors under the direct supervision of Bayer are regularly subjected to a comprehensive health-related risk assessment and hazard analysis by Bayer experts that also covers possible exposure of employees to chemicals. Details of these measures are set out in a Group regulation.

Measures derived from this analysis to protect the health of our employees follow the STOP hierarchy: 1) substitution, 2) technical protective measures, 3) organizational protective measures and 4) personal protective measures. These measures and targeted studies are designed to prevent occupational illnesses.

In addition to the appraisals by experts, both our employees and those of contractors are urged to immediately report work-related hazards or dangerous situations to their supervisors or via the compliance hotline.

On top of country-specific regulations regarding mandatory examinations, we offer our employees regular medical examinations – in some cases on a mandatory basis – in all countries in which this is legally permissible.

Occupational health and safety in the second year of the COVID-19 pandemic

Occupational health and safety at Bayer was once again heavily impacted by the progression and development of the COVID-19 pandemic in 2021. As the health and safety of our employees are our top priority, the Corporate Crisis Team headed by the Chairman of the Board of Management adapted the existing rules and regulations to the changing risk situations.

All rules, instructions, FAQs and further information for employees are being continuously updated and made available on a central intranet platform for the duration of the pandemic. Our employees are notified at all times of the current status of applicable local measures. That has enabled us to reduce COVID-19-related risks for our employees at the workplace. We had registered only a very low infection rate by the end of 2021, even compared with the local areas surrounding our sites. We have also observed relatively high vaccination acceptance among our employees.

The globally implemented protection concepts and measures take into account the varying occupational tasks at the respective sites. We were able to maintain or quickly restart production at the sites and thus ensure the supply of products to our patients and customers. The following measures played a role in this regard:

- // Working from home wherever possible
- // "STOP entry": no access for employees showing symptoms of illness, safeguarded by a self-check questionnaire and body temperature checks at the site gates and entrances
- // Two-meter distancing rule; in areas where it was not possible to observe this distance, plastic dividers were installed and the use of facemasks during working hours was made mandatory
- // Hygiene rules for hand-washing and disinfection, and the general use of a facemask; we provided our employees with masks at an early stage in all countries where it was possible to do so according to national law
- // Vaccination offers at numerous sites for our employees, their family members and employees of contractors under the direct supervision of Bayer, as well as family members of such contractors

Mental health

As the COVID-19 pandemic has placed an additional burden on many people worldwide, including our own employees and their families, we paid special attention to the mental health of our employees in 2021.

Through target-group-appropriate information and programs, we are endeavoring to break down taboos surrounding the issue of mental health and are looking to counteract the development of mental illness more proactively in the future:

- // Development of the central intranet platform “House of Health,” with wide-ranging information and training offerings to address issues such as emotional health and resilience, as well as physical health and ergonomics
- // More than 600 different training courses, lectures and podcasts on maintaining good mental health, aimed at various target groups
- // Workshops for managerial staff on mental health and well-being

Occupational injuries and occupational illnesses

The basis of our reporting on occupational injuries is the Recordable Incident Rate (RIR), which covers all occupational injuries and illnesses suffered by Bayer employees and employees of contractors under the direct supervision of Bayer leading to medical treatment that goes beyond basic first aid. As a result, the RIR covers injuries and occupational illnesses both with and without lost workdays. In 2021, it rose to 0.37 cases per 200,000 hours worked, which is equivalent to 441 occupational injuries worldwide (2020: 390). The RIR thus came in below the defined target for 2021 of 0.39. In statistical terms, this means that one recordable incident occurred for more than every 534,000 hours worked. Recordable injuries with lost workdays constituted 249 of the total of 441 occupational injuries, meaning that the corresponding parameter, the Lost Time Recordable Incident

Rate (LTRIR), rose slightly from 0.20 in 2020 to 0.21 in 2021. The continued low number of occupational injuries was due in part to increased working from home, which was considerably expanded as a protective measure in connection with the COVID-19 pandemic.

Regrettably, two employees lost their lives in work-related accidents in 2021. An employee died in a road accident in Isando, South Africa. In Kansas City, Missouri, United States, an employee died after contracting COVID-19 – in this case it could not be ruled out that he became infected during work-time.

Recordable Occupational Injuries¹

	2020	2021
Number of occupational injuries	390	441
of which Bayer employees	335	375
of which employees of contractors under direct Bayer supervision	55	66
Overall rate of occupational injuries (RIR ²)	0.32	0.37
Rate of occupational injuries with lost workdays (LTRIR ³)	0.20	0.21
Fatal occupational injuries	6	6
of which Bayer employees	2	2
of which employees of contractors under direct Bayer supervision	4	4

2020 figures restated

¹ The figures include Bayer employees and employees of contractors whose accidents occurred under direct Bayer supervision.

² RIR = Recordable Incident Rate

³ LTRIR = Lost Time Recordable Incident Rate

Rate of Occupational Injuries (RIR) by Region¹

	2020	2021
Europe/Middle East/Africa	0.40	0.43
North America	0.47	0.69
Asia/Pacific	0.15	0.17
Latin America	0.23	0.18
Total	0.32	0.37

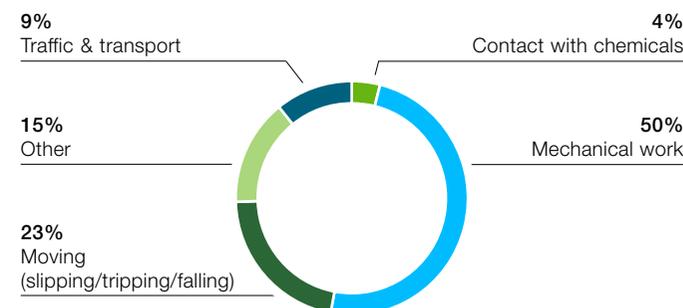
2020 figures restated

¹ The rate also includes employees of contracted outside companies whose injuries occurred on our company premises and under the supervision of Bayer.

To better assess the importance of a recordable accident in terms of specific injuries, an internal Bayer indicator was introduced in 2021 to determine the severity of an injury. We use a numeric value for this severity that results from a combination of categories. It represents an additional dimension to describe the extent of the injury and, on that basis, improve occupational safety.

In 2021, as in previous years, the number of injuries involving contact with chemicals was small (4%) in relation to the total number of occupational injuries.

Notification of Accidents and Injuries 2021



Occupational illnesses are also included in the RIR and LTRIR figures, regardless of whether they are listed in national registers of occupational diseases. As lists of occupational diseases are not globally standardized – and in many countries do not exist at all – we document all occupational illnesses, provided they have been diagnosed and recognized by a physician. In 2021, 46 new cases of occupational illnesses were reported throughout the Bayer Group, 33 of them with lost workdays. These were related to COVID-19 and the musculoskeletal system, among other disorders, without a clear pattern of risk areas identifiable. The number of incidents corresponds to 0.2 occupational illnesses per one million hours worked.

8.7 Biosafety

In accordance with the guidelines of the World Health Organization (WHO) on biorisk management, we consider biosafety to comprise the principles, technologies and processes implemented to prevent unintended exposure to biological materials that could pose a risk to people or the environment. Misuse or theft of biological materials is also prevented by corresponding measures.

Biological material must be handled with suitable care to ensure that employees, residents and the environment are protected. This includes microorganisms, invertebrates, vertebrates, plants, cell cultures, genetically modified organisms, toxins and allergens. An assessment of the biosafety risk is necessary before biological materials can be used, particularly in R&D and production. These analyses are conducted by the employee responsible for biosafety in each case and verified together with an expert. All employees tasked with biosafety must undergo regular training.

Processes for carrying out assessments and other necessary measures are established in a Group Regulation on Biosafety that is oriented to the specifications of the WHO,

among others. Wherever local laws and regulations are more stringent than the standards laid out by the Group regulation, the more stringent variant takes precedence.

A group of biosafety experts from all divisions and regions cooperates within the Bayer Biosafety Panel. Under the auspices of the Public Affairs, Science, Sustainability & HSE Enabling Function, the panel is responsible for developing, reviewing and implementing Bayer's biosafety rules and regulations throughout the Group. It also advises and supports the biosafety community with which it maintains regular communication to ensure a uniform and high standard of biosafety throughout the company.

The same rules on biosafety apply in amended form for the new cell and gene therapy technology platform as for the rest of the Bayer Group (please see Chapter 2.4 Bioethics). The platform's partners have accepted the HSE Key Requirements and thus the issue of biosafety, and have undertaken to compile risk assessments on this issue. The biosafety experts maintain a steady dialogue with one another.

The implementation of legal and Bayer Group guidelines on biosafety is also overseen by the HSE audit program.

8.8 Plant Safety

We aim to design and operate our processes and production facilities in such a way that they do not pose any inappropriate risks to our employees, the environment or neighboring communities. This is conditional on an effective system to ensure plant safety being in place that enables operational risks to be identified, remedied and reduced and their effects mitigated. We are continuously working to further develop the safety culture, the expertise of employees and the globally applicable Group regulations on process

and plant safety, which also cover topics such as machine and laboratory safety and prescribe uniform processes and standards for evaluating risks and establishing suitable safety measures. We also implement training measures in this connection.

In this way we ensure that a uniform safety level is in place at the 40 Bayer sites at which volumes of hazardous substances significant for plant safety are stored or processed, while going beyond the legal requirements in most countries.

Processes and plants at Bayer are operated with a robust concept based on our Group regulations. This concept comprises instructions for safe operations, including startup and shutdown, maintenance, retrofitting procedures and response to malfunctions. Site emergency response plans define the measures to be undertaken in cases of urgency. These encompass procedural instructions for internal and external communication and reporting, including notification of responsible authorities and surrounding municipalities. The sites regularly conduct emergency exercises to assess the effectiveness of the deployments and introduce improvements if necessary. Joint exercises are conducted in cases where external personnel are crucial for emergency preparedness. The frequency of these exercises is determined based on the existing risk.

Responsibilities and verification

To ensure a high safety level at our facilities, we have defined clear responsibilities in our company that are assumed internally by various organizational units. Responsibility for the safe operation of production facilities lies with plant management. Experts from the Engineering & Technology Enabling Function are responsible together with the plant operators for conducting risk analyses and drawing up

safety concepts. Using systematic analytical methods, the process risks of our facilities are identified in interdisciplinary teams supervised by these experts. On this basis, the team develops robust protective concepts that take into account health, safety and environmental protection aspects. Everyone involved in this process completes a Group-wide plant safety training program. In addition, the safety experts must undergo a globally valid internal training and certification program that qualifies them to carry out risk analyses in the teams. The certification program ensures globally uniform quality standards in the development of safety concepts at our production facilities.

Ultimately, the Public Affairs, Science, Sustainability & HSE Enabling Function performs the necessary governance for process and plant safety in the Bayer Group. This function further develops the Group's safety management system and establishes the internal safety requirements, verifying their observance through special process and plant safety audits.

To maintain the high safety level of our facilities, the related safety concepts for each facility are examined every five years. Technical modifications are subject to a stringent change management process. Furthermore, maintenance and inspection programs are established for the safety facilities to ensure the necessary availability and functionality in case of need. Furthermore, all facilities and technical apparatus are serviced according to maintenance and inspection plans.

Plant safety is an integral component of the planning stages for capital expenditure projects. We carry out risk analyses during the various phases of a capital expenditure project.

At very early stages in the development of new production processes, we examine the applicability of the principles of inherently safer design and the feasibility of a sound safety concept. Finally, before a new production facility is brought on stream, our safety experts verify all defined safety measures and confirm their proper implementation by carrying out plant and equipment inspections.

Further development of plant safety

To maintain and strengthen safety awareness, we continuously update and improve the globally binding training program TOPPS (Top Performance in Process and Plant Safety). Participation is compulsory for all Bayer employees who are able to influence process and plant safety at production and auxiliary facilities and is documented in the training system. TOPPS training documentation is available in 15 languages.

We are further developing plant safety through our active participation in internal global and regional networks of experts and as a member of associations such as the European Process Safety Centre (EPSC), the Center for Chemical Process Safety (CCPS), Dechema ProcessNet and the German Chemical Industry Association (VCI). We also drive progress in this regard worldwide within the framework of standards.

Since 2019, we have used the globally standardized key performance indicator (KPI) Process Safety Incident Rate (PSI-R) as an indicator for plant safety. This is integrated into the Group-wide reporting system. Reporting of this indicator is based on the requirements of the International Council of Chemical Associations (ICCA). Process safety incidents

(PSIs) refer to incidents during which amounts of chemical substances or energy that exceed defined thresholds leak from their primary containment, such as pipelines, pumps, tanks or drums. The PSI-R indicates the number of process safety incidents per 200,000 hours worked. In 2021, the PSI-R was 0.08 (2020: 0.08). A total of 96 process safety incidents occurred in 2021 (Process Safety Incident Count, PSI-C).

In addition, we also indicate the Process Safety Incident Severity Rate (PSI-SR). We report this according to the grading system of the International Council of Chemical Associations (ICCA).

Process Safety Incidents¹

	2020	2021
Process Safety Incident Count (PSI-C) ¹	92	96
Process Safety Incident Rate (PSI-R) ^{1,2}	0.08	0.08
Process Safety Incident Severity Rate (PSI-SR) ^{1,3}	0.21	0.14

¹ According to ICCA (International Council of Chemical Associations)

² Number of PSI incidents per 200,000 hours worked

³ Degree of severity for all PSI incidents per 200,000 hours worked

To prevent substance and energy releases, the causes of PSIs are analyzed and relevant findings are communicated to potentially affected sites throughout the Bayer Group. The reporting thresholds are intentionally set at such a low level that even material and energy leaks that have no impact on employees, the local community or the environment are systematically recorded and reported. We pursue this preventive approach so that weaknesses can be identified and corrected before a more serious incident can occur.

8.9 Transportation and Storage Safety

Logistics at Bayer comprises not just the transportation and warehousing of goods, but also the steering and monitoring of flows of goods and logistics data for the Bayer Group.

Transportation and storage safety is part of the Bayer HSE management system and is implemented by a network of experts and users with practical experience who cooperate across the Group.

In this case, safety means having procedures in place that ensure that materials are handled, transported and stored according to the relevant regulations and their respective hazard potential. This also involves selecting suitable logistics and warehouse suppliers. Details are specified in the Group regulations on transportation safety, warehousing and health, safety and environment audits. The underlying standards comprise not just internal Bayer guidelines, but also the rules of the international crop protection association CropLife International and the European Guidelines on Good Distribution Practice of Medicinal Products for Human Use. Bayer's Group Regulation on Storage Safety (Warehousing) applies equally to internal warehouses and external warehouse sites and facilities.

Transportation safety plays a key role both in the transportation of our products on public routes and in loading, unloading, classification, labeling and packaging, particularly in the case of hazardous goods. We use both internal capacities and external logistics partners for storage and transport services. Our Procurement unit selects logistics partners according to strict safety, environmental and quality criteria, as described in the Safety and Quality Assessment System (SQAS) of the European Chemical Industry Council (CEFIC). On top of the legally required training courses, we offer

specific electronic training programs to convey specialist knowledge.

Around 5.4 million consignments were transported in 2021. Despite our extensive safety precautions and training activities, transport incidents nonetheless occur. These include accidents causing personal injury or significant damage to property, environmental impact resulting from the release of substances, or leakage of hazardous goods. Such accidents are recorded in detail and assessed on the basis of defined criteria.

31 of the 32 transport incidents in 2021 (2020: 17) constituted road transport accidents, with one being an accident at sea. None of the transport incidents was also an environmental incident. In all cases, the discharged substances were cleaned up and properly disposed of.

Transport and Environmental Incidents 2021

	Transport	Environment	Personal injury
Crop Science, Des Moines, United States, January 4 The rear of a truck caught fire and ignited the loaded trailer. The damaged product was cleaned up and properly disposed of.	X	-	-
Crop Science, Lubbock, United States, January 20 A vehicle overturned and 295 sacks filled with cotton seeds fell out. Local authorities were involved due to the overturning of the vehicle.	X	-	-
Crop Science, Kansas City, United States, January 27 An excessive amount of product was loaded into a tank truck. The product spilled onto the loading ramp and was captured in the tank farm containment unit.	X	-	-
Crop Science, Lubbock, United States, January 27 A truck's tandem axle caught fire, and the driver unhooked the truck from the trailer. The trailer, filled with cotton seeds, was destroyed by the	X	-	-

Transport and Environmental Incidents 2021

	Transport	Environment	Personal injury
fire. Local authorities were involved, and a traffic lane was blocked off.			
Crop Science, Kearney, United States, February 3 A tractor with a trailer became caught under a bridge. Local authorities were informed, and a traffic lane was blocked off until the vehicle could be freed.	X	-	-
Crop Science, Greensburg, United States, February 12 As a truck drove uphill, a load strap on one side of the truck's trailer came loose, causing part of the load to move and some of the seeds being transported to spill and cover the road. The road was blocked off for about an hour under police supervision. The seeds were cleaned up and properly disposed of.	X	-	-
Crop Science, Lubbock, United States, February 22 A truck overturned and lost its load in the process. A traffic lane was blocked off due to the spill. The product was cleaned up and properly disposed of. Local authorities were involved.	X	-	-
Crop Science, Waco, United States, March 10 A truck pulling a trailer went into a slide during poor weather conditions and landed in a ditch. The packages of seeds being transported were damaged. The road was blocked off, and local authorities were involved.	X	-	-
Crop Science, Plainfield, United States, March 29 While unloading a truck, the driver fell from the loading area and injured himself. The driver underwent medical treatment.	X	-	X
Crop Science, Kearney, United States, April 9 A truck overturned in an accident that damaged the tractor unit, trailer and product. The product was cleaned up and properly disposed of. The driver was uninjured. Local authorities were involved.	X	-	-
Crop Science, Ettrick, United States, April 23 On a serpentine road, a tanker collided with a truck carrying Bayer seeds that was traveling in the opposite direction. The truck left the road	X	-	X

Transport and Environmental Incidents 2021

	Transport	Environment	Personal injury
and overturned. Both drivers were injured and underwent medical treatment. The seeds were cleaned up and properly disposed of. Police officers, emergency medical personnel and local authorities were called in.			
Crop Science, Des Moines, United States, April 26 A truck suffered two flat tires, an event that caused the load of seeds to shift and spill. The seeds were cleaned up and properly disposed of. Local authorities were involved.	X	-	-
Crop Science, Malaysia, April 29 A truck's trailer caught fire, and a product pallet was damaged. Firefighters extinguished the blaze.	X	-	-
Crop Science, Evans Mills, United States, April 30 While a truck was maneuvering around a utility pole, its trailer became caught on the pole and pulled the pole from its foundation. The police were called, and local authorities involved.	X	-	-
Crop Science, Muscatine, United States, May 3 A trailer was damaged during the collision of two trucks. Police were called in and traffic lanes were blocked off.	X	-	-
Crop Science, St. Louis – Creve Coeur, United States, May 17 A ship loaded with two product tanks reported that one of the tanks had been damaged. No leak occurred, but the contents had to be re-loaded into another vessel for safety reasons before the product could be transported further by train.	X	-	-
Crop Science, Winnipeg, Canada, June 4 A transport trailer veered into the oncoming lane of traffic and collided with a truck. The truck was thrown into a ditch and caught fire. The transport trailer of a truck traveling behind the first vehicle also caught fire. Two people were injured, and one person was killed.	X	-	X
Crop Science, Columbia, United States, June 8	X	-	-

Transport and Environmental Incidents 2021

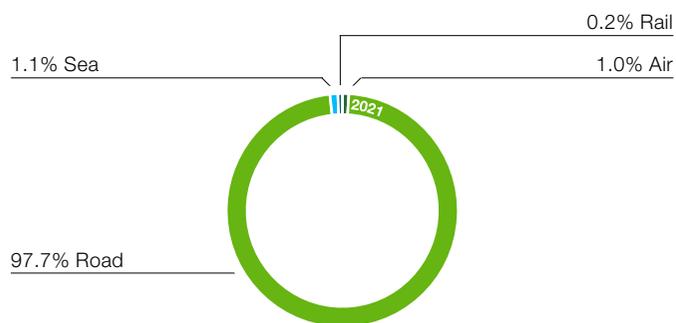
	Transport	Environment	Personal injury
A passenger car drove into a truck that had been parked for loading purposes and damaged the trailer. Local authorities were informed.			
Crop Science, Louisa County, United States, June 15 A tractor-trailer ran into the back of a passenger car that was standing still. The car then struck another vehicle. One person was injured and one killed in the accident. Local authorities were involved.	X	-	X
Crop Science, Luling, United States, July 3 A tank filled with sulfuric acid leaked, and a small amount of the acid reached the area outside the diked containment.	-	X	-
Crop Science, Hollandale, United States, July 9 A trailer's axle caught fire, and the trailer then caught fire as well. Local authorities blocked off the traffic lane. Some of the product burned, and some of it leaked.	X	-	-
Crop Science, St. Louis – Creve Coeur, United States, September 13 An excessive amount of product was filled into a vessel during a loading operation. It then flowed into a spill basin and was disposed of.	X	-	-
Crop Science, St. Louis – Creve Coeur, United States, September 14 A leak developed in one of five containers being transported in a truck's trailer. The product was cleaned up and disposed of.	X	-	-
Crop Science, St. Louis – Creve Coeur, United States, September 26 A tractor-trailer was hit by another truck with a trailer on a parking lot. Local authorities were involved.	X	-	-
Crop Science, St. Louis – Creve Coeur, September 27 While making a turn, an empty tank truck was hit by a minivan. Local authorities were involved.	X	-	-
Crop Science, Hyderabad Shameerpet RC, India, October 24	X	-	X

Transport and Environmental Incidents 2021

	Transport	Environment	Personal injury
A pedestrian was killed after being struck by a truck. Local authorities were involved.			
Crop Science, St. Louis – Creve Coeur, United States, November 1 A truck with a trailer overturned. The driver suffered minor injuries.	X	-	X
Crop Science, St. Louis – Creve Coeur, United States, November 18 A truck overturned due to strong winds during a storm.	X	-	-
Crop Science, St. Louis – Creve Coeur, United States, December 4 A truck driver drove too fast onto a ramp, causing the load to slide and the tractor-trailer to turn over onto its side.	X	-	-
Crop Science, St. Louis – Creve Coeur, United States, December 7 A truck loaded with seeds overturned. The seeds were cleaned up and properly disposed of.	X	-	-
Crop Science, Dormagen, Germany, December 9 During a cleaning job, a contractor employee used a 20% solution of sodium hydroxide as a flushing fluid instead of water while working with a high-pressure lance. Some of the sodium hydroxide solution was sprayed by the high-pressure lance, but most was released when a draining nozzle on the cleaning vehicle was opened. The contractor employee was killed.	-	X	X
Crop Science, Muscatine, United States, December 15 Natural gas was introduced into a process flaring system when the burner was not ignited. This resulted in the release of natural gas.	-	X	-
Crop Science, St. Louis – Creve Coeur, United States, December 20 A truck's trailer caught fire for unexplained reasons.	X	-	-
Crop Science, St. Louis – Creve Coeur, United States, December 23 A truck carrying a load of seeds was hit by a tractor. The road was blocked off, and local authorities were called in.	X	-	-

Transport and Environmental Incidents 2021

	Transport	Environment	Personal injury
Crop Science, St. Louis – Creve Coeur, United States, December 27 While a truck was turning into a narrow entrance, the vehicle's trailer overturned into a ditch.	X	-	-

Means of Transport

Utilizing digital technologies, we work continually to develop logistics strategies that take account of safety, environmental and cost aspects. Areas of environmental focus include the reduction of CO₂ emissions, for example by employing less air transport and adopting more logistics strategies that include railways and waterways.

8.10 Emergency and Crisis Management

We ensure safe working conditions and an environment where our employees can work safely and without fear and undertake international business travel without risk. In emergency and crisis situations, ensuring the safety of our employees, facilities, sites and neighbors is our top priority.

Through Group regulations on emergency planning, emergency response, safety and crisis management, as well as pandemic planning, Bayer has taken action at global and local levels to prepare the organization for extraordinary events (e.g. major damage events or crimes), and assess and process them based on standardized criteria. Subsequently, improvement potential is determined if necessary and integrated into existing concepts. Extraordinary events are registered according to a standard Group-wide procedure described in the Group Regulation on Safety and Crisis Management and reported to the Global Security Operation Center, which then initiates further steps such as effective information management. This enables us to identify risks facing the company at an early stage and introduce mitigating steps if necessary or provide assistance once incidents have already materialized.

Dealing with such incidents is primarily the responsibility of the local safety and crisis organization or the local emergency response team. For this purpose, organizational precautions with defined responsibilities and procedures have been implemented at the sites and in the countries. The responsible persons have been given appropriate training. Depending on how the situation develops, we involve business partners and the local community around the sites, such as city authorities or neighboring companies. Depending on the extent of damage, the Corporate Crisis Team as an overarching body assumes the further coordination and steering of crisis management and the restoration of operations.

For example, the Corporate Crisis Team headed by the Chairman of the Board of Management was activated in connection with the COVID-19 pandemic and kept in place in 2021. It defines the strategic direction of crisis management and is supported by specialized task forces. In addition, the local crisis teams convened in the country organizations as per the crisis response plans and took the necessary steps in accordance with the relevant global stipulations and local

laws. Our highest priorities are ensuring the protection and safety of our employees and safeguarding the supply of our products to patients and customers.

Crisis management is supported by the established Business Continuity Management System, which is based on the ISO 22301 standard. Business continuity plans contain predefined response options for the unavailability of personnel, buildings, machinery, IT systems or suppliers. The plans cover various emergency scenarios, such as a longer-term regional blackout or climate-change-related impacts on production sites. The management system comprises suitable IT measures such as safeguarding service provision or ensuring rapid restoration following a disruptive event. The plans are regularly updated and incorporated into training. By activating business continuity plans, we safeguarded the resilience of our business activities during the COVID-19 pandemic.

As part of its Enterprise Risk Management, for example, Bayer also regularly analyzes safety risks and implements suitable identification, prevention and processing measures, including employee training and information measures pertaining to cyber security, for example. Safety and crisis simulation exercises are also regularly conducted at site and Group levels. The number of employees and partners involved depends on the type of exercise. Each year, we work with our IT service providers to test the restoration of IT systems and data for one of our global data centers at a different site.

9. Charitable Giving and Foundations

Commitment to science, society and the common good has a long tradition at Bayer. Like our business activities, our social investment is guided by our purpose “Science for a better life” and our vision “Health for all, hunger for none.” Together with our network of partners, we support social projects around the world in the areas of health, nutrition and the environment and engage with communities to create long-lasting societal impact.

9.1 Management Approach

In countries where Bayer is present, our corporate giving takes the form of monetary, product or other in-kind donations. Close intra-Group cooperation between the Public Affairs, Science, Sustainability & HSE Enabling Function and our country organizations ensures a common strategic alignment. At the same time, this approach accounts for the different challenges and circumstances in each region where Bayer is active in terms of corporate giving.

The Group Regulation on Corporate Charitable Giving establishes clear criteria for the eligibility of recipients and the selection of projects. It also sets forth our strategy to create long-term impact in line with our purpose, vision and sustainability goals.

Our charitable donations are processed through a database that enables approval by responsible managers, compliance checks and full documentation – and thus ensures oversight

of the donations. It also offers a comprehensive and transparent overview of our social investment worldwide. In the case of donations exceeding €50,000, Bayer’s Board of Management has the final vote. To further improve the impact measurement of our corporate giving and ensure alignment with best practices, we joined the Business for Societal Impact initiative (B4SI) in 2021.

Through our corporate giving, we support social projects in the following focus areas:

Health for all, hunger for none

- // Food security, reduction of food loss, increase in food quality particularly for vulnerable groups in low- and middle-income communities
- // Access to self-care and healthcare programs for vulnerable groups in low- and middle-income countries
- // Maternal and child health, family planning
- // Public health

Science for a better life

- // Support for frontier research in life sciences, data science and environmental sciences
- // Development of science talents, supporting education programs in life sciences, data science and environmental sciences
- // Science and society

Environment

- // Climate change, biodiversity, and water and waste management

Through our corporate giving, we promote the system-changing power of social innovation, be it through local initiatives or global partnerships. A central aspect of Bayer’s corporate giving is therefore to support innovative solutions and capacity-building projects aimed at establishing knowledge, abilities and structures.

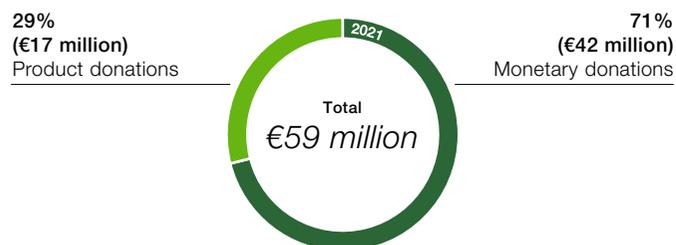
The Bayer foundations – the Bayer Cares Foundation, the Bayer Science & Education Foundation, Bayer Fund (United States) and Bayer Foundation India – are the philanthropic arms of Bayer. Their objective is to generate social impact in line with our vision of “Health for all, hunger for none” and our mission “Science for a better life” (see 9.3).

9.2 Our Giving in 2021

Inputs

In 2021, Bayer provided €42 million for charitable donations and social impact programs worldwide. In addition to the financial contributions, products costing €17 million have been donated to various organizations in individual countries. Most of these products are prescription drugs and OTC (over-the-counter) products from our Pharmaceuticals and Consumer Health divisions:

Monetary and Product Donations 2021



Outputs

Bayer's monetary donations in 2021 were distributed as follows:

Monetary Donations per Strategic Focus Area 2021



¹ Community engagement includes various social initiatives in the communities where Bayer operates, as well as sports & culture donations for local recreational, disabled and competitive sports, cultural events and support for young artists.

Health

A major focus of the projects in the area of health is access to family planning for women in low- and middle-income countries (LMICs) – in accordance with the SDGs and as a key element for empowering women and strengthening societal development. Specifically, Bayer has committed to

enabling 100 million women in LMICs to gain access to modern contraception by 2030 (please see the Sustainability Strategy and Focus on: Access to Healthcare chapters). This topic is not only fundamental for the health of girls and women, and ultimately infants as well, but also helps to break the cycle of poverty.

Together with the United Nations Population Fund (UNFPA), Bayer engaged in two partnerships in 2021. To support women in low- and middle-income countries, Bayer donated €3.5 million (€0.9 million in monetary donations and €2.6 million in prescription product donations, carrying value) to the UNFPA Supplies Partnership. Bayer also collaborates with UNFPA in Egypt and has entered into a five-year strategic partnership for self-determined family planning and reproductive health to support the Egyptian Ministry of Health and Population's campaign "Your Right to Plan."

Another partnership in the area of family planning was established with the German Red Cross (DRK): the objective of this partnership is to jointly develop a program for the DRK to deliver family planning in its humanitarian response to emergencies and protracted crises.

Bayer's corporate giving also helps in the fight against neglected tropical diseases such as African sleeping sickness, Chagas disease, taeniasis and river blindness (please see the Focus on: Access to Healthcare chapter). Bayer partners with the World Health Organization (WHO) and supported the WHO Roadmap 2030 with monetary and product donations to the amount of €1.8 million in 2021.

To reduce maternal and newborn mortality in rural Madagascar, Bayer also funded an integrated health systems approach delivered by the nonprofit organization Doctors for Madagascar. With the financial support of Bayer, the charity aims to improve the quality of care in primary care health

facilities and referral hospitals through training and infra-structural improvements. Furthermore, basic emergency maternal and prenatal care will be provided and financial barriers preventing access to essential health services will be decreased.

Nutrition

Our efforts in the area of food security focus on initiatives related to smallholder farmers. These include training measures and access to new technologies, agricultural inputs to increase yields, improved access by smallholder farmers to supply chains, and more financial autonomy for producers. To assist smallholder farmers in Asia, Africa and Latin America who are faced with additional challenges due to the COVID-19 pandemic, Bayer launched the Better Farms, Better Lives initiative in 2020. This initiative facilitates market access to agricultural products and health services in connection with the pandemic. In 2021, the initiative partnered with four local organizations to reach around 230,000 smallholder farmers in China, Ecuador, Nigeria and Bangladesh. We plan to continue the Better Farms, Better Lives initiative in 2022 and thus supplement our strategy for supporting smallholder farmers.

In the agricultural innovation arena, Bayer provided support to a value of €1 million to three innovative organizations in 2021. Saving Grains and The International Development Enterprise work on projects aimed at reducing post-harvest losses in Africa, and Producers Direct works on improving female smallholder farmers' access to digital markets in Peru and Uganda alongside international organizations such as the United Nations. We are also supporting the organization Babban Gona in Nigeria with fostering rural entrepreneurship, and myAgro in its reforestation and carbon-credit proof-of-concept project for smallholder farmers in Senegal and Mali.

Among the 2021 donations aimed at scaling-up long-term projects, we are funding Mercy Corps in supporting female smallholder farmers in Guatemala, among others, to increase their access to export markets for their agricultural products.

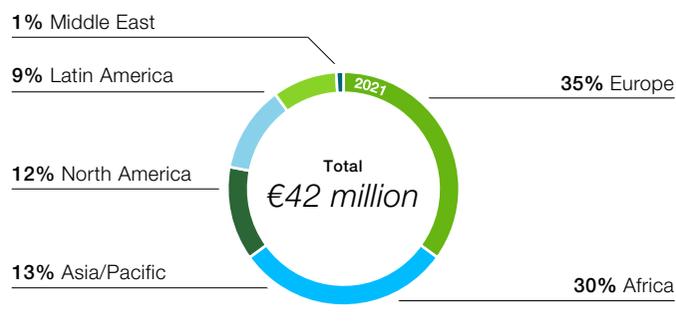
To expand access to essential vitamins and minerals for underserved communities, Bayer announced the launch of its first signature program, called the Nutrient Gap Initiative, in February 2021. As a first step, we decided to focus on pregnant women. For this reason, we established a partnership with Vitamin Angels in July 2020, the objective of which is to foster the adoption of prenats as the standard of care with a focus on pregnant women primarily in low- and middle-income countries. There are three areas of collaboration with Vitamin Angels: first, facilitation of the introduction of multiple micronutrient supplementation (MMS); second, joint advocacy through implementation science aimed at improving standards of prenatal care in these developing countries and supporting their transition from iron folic acid to MMS; and third, co-creation of a training curriculum on the value of prenatal supplements geared toward healthcare providers and community health workers.

In 2021, the program reached more than four million women and babies in its first year of implementation in 13 countries (please see the Sustainability Strategy chapter).

Summary

In 2021, more than 400 social projects worldwide were recorded. 63% of our contributions (cash and product) went to low- and middle-income countries to strengthen the capacity of underserved communities and to combat social inequality. With 88 countries targeted through our giving, the geographic split of our monetary donations is as follows:

Monetary Donations per Region 2021



In 2021, a total of €4.9 million was donated to address the effects of the COVID-19 pandemic by expanding capacities in the healthcare sector (product and monetary donations). Bayer funded and designed initiatives aimed at strengthening existing projects or establishing new programs in critical medical care, mainly in LMICs. Such initiatives were implemented in India, Brazil, Mexico, Sri Lanka, Russia, Malawi, Nepal, sub-Saharan Africa and other countries, and focused on providing oxygen and oxygen concentrators and personal protective equipment (PPE), as well as on implementing sanitation and vaccination awareness campaigns and funding intensive care units. Bayer's charitable partners in those efforts included Direct Relief, the German Red Cross, UNICEF,

Crown Agents and the SAME Foundation. In Vietnam, Bayer is supporting the global nonprofit organization PATH in its role as a technical advisor to local vaccine producers so as to advance the development of an accessible COVID-19 vaccine (using technologies innovated in the United States).

For more background information on Bayer's social impact projects, please see our [website](#).

9.3 Bayer Foundations

Bayer's foundations are the company's philanthropic arms. They make an important contribution to society in line with our vision and purpose. The four foundations have different focuses and governance bodies:

Bayer Science and Education Foundation

The Bayer Science and Education Foundation aims to enhance the impact of science as the basis for societal progress in line with Bayer's vision and mission. The foundation's activities are focused on three areas:

- // Equality in science to ensure that science can truly address the needs of all
- // Collaboration in science and interdisciplinary research as the basis for innovative solutions to address the complex global challenges in health and nutrition
- // Trust in science and technology as a crucial step to ensure effective implementation and acceptance of innovation

The foundation's activities encompass various programs including scientific awards, young talent scholarships, funding for scientific lectures and STEM education grants, as well as global gender equality and scientific capacity-building programs. A science council composed of five

external scientists advises the foundation and selects the Foundation Science Award winners. The foundation's Board of Trustees is responsible for organizational measures, strategic decisions and financial issues.

The foundation has a worldwide science network of globally recognized academic institutions, start-ups, biotech and larger companies, as well as other foundations and nonprofit and governmental organizations. The foundation's diverse offering ranges from programs with a focus on schools near Bayer's R&D sites to global awards in sub-Saharan Africa.

As the foundation strives for global equality in science, capacity building in sub-Saharan Africa is a key component of its work. In 2021, it partnered with the Alexander von Humboldt Foundation to support young science talents from sub-Saharan Africa with research scholarships in the areas of biodiversity and sustainable agriculture, along with topics relevant to development of the region. In addition, a molecular biology research hub for infectious diseases is being established in Nigeria.

The Ernst-Ludwig Winnacker Award was established in 2021 to enhance society's trust in science. This award is granted to individuals who play a key role in promoting science in public discourse and thus in counteracting misinformation.

Bayer Cares Foundation

The Bayer Cares Foundation aims to promote social innovation in the areas of access to health, sustainable agriculture and nutrition, and environmental protection. The geographic focus lies solely on sub-Saharan Africa. The strategic direction and financial decisions are determined by the foundation's independent Board of Trustees.

The foundation's activities comprise three main programs:

- // The Social Impact Startup Academy
- // The Women Empowerment Award
- // The Social Innovation Ecosystem Fund

To support initiatives at their exploration stage, the Social Impact Start-Up Academy offers an innovative action-learning program in collaboration with the Ingolstadt School of Management and Purdue University. Supported by Bayer mentors and innovation management tools, students analyze selected social entrepreneurs' business models and generate concrete ideas to boost their growth as an integral part of their Master's program.

Through its Women Empowerment Award and the connected growth accelerator, the Bayer foundation highlights the high-impact innovations of female entrepreneurs in sub-Saharan Africa. This in turn underlines the leadership role played by women as drivers of positive societal change.

Among the five winners of the inaugural Women Empowerment Award in 2021 were Flare, a Kenyan emergency response provider, and Kaaro Health, which aims to ensure primary healthcare is available within one kilometer of every Ugandan village.

The Social Innovation Ecosystem Fund, financed by the Bayer Cares Foundation, invests directly in systemic change to drive progress in smallholder farming and healthcare. The goal is to support market-creating innovations that empower underserved populations to lift themselves out of poverty.

In 2021, the Social Innovation Ecosystem Fund entered into its biggest collaboration to date, namely with Mercy Corps AgriFin. In cooperation with the Bill and Melinda Gates Foundation, Mercy Corps AgriFin works to develop vibrant, digitally connected ecosystems of service providers who can effectively serve smallholder farmers. Partners aim to develop, test and scale digitally enabled bundles of services to drive a 50% increase in farmers' income, productivity and resilience to climate change. The initiative is striving to reach five million smallholder farmers across sub-Saharan Africa, of which at least 40% will be women.

Bayer Fund (United States)

Bayer Fund is the philanthropic arm of Bayer in the United States. It makes charitable investments to strengthen the communities where Bayer's customers and employees live and work. Bayer Fund's primary focus is to improve the quality of life in under-resourced urban and rural communities in the areas of nutrition security, STEM education, health and community development. Bayer Fund is a non-profit, tax-exempt organization that is a separate legal entity from Bayer and is governed by articles of incorporation filed in the state of Missouri and laws that set the basic principles of operation. The entity is managed and steered by Bayer representatives.

In 2021, Bayer Fund provided grants to more than 3,000 nonprofit organizations. Recipients were high-impact programs that use comprehensive, sustainable approaches supporting, first, access to nutritious foods; second, programs for those affected by cancer and cardiovascular disease; third, in-school academic STEM programs for students from kindergarten to grade 12; and fourth, youth development in the areas of STEM skills and performing arts. Programs include the [Fresh Rx program](#), which prescribes fresh, local food to expectant mothers with low incomes so as to support them during pregnancy and enable families to cultivate a healthy household. Another example is the [Carnegie Science Center's STEM program](#), which provides underserved communities with access to education.

Bayer Foundation India

Bayer Foundation India (formerly Bayer Prayas Association) focuses on identifying new opportunities for people in rural areas, developing women-centric approaches, supporting emergent neighborhoods and developing innovative technology-based solutions to bridge healthcare gaps. Bayer Foundation India is registered as a nonprofit organization and in 2021 was mainly active in the areas of rural development, preventive healthcare and education and community engagement.

To help combat the second COVID-19 wave in India in 2021, Bayer Foundation India provided oxygen concentrators to primary health centers and set up oxygen concentrator banks at two locations. The foundation supported COVID/intensive care unit beds at hospitals in several cities and supplied these facilities with protective equipment such as masks and gloves. A special hotline was set up to provide mental health support to healthcare workers and the farming community. This support also included measures to accelerate COVID-19 vaccination through community mobilization, awareness sessions and the reinforcement of COVID-appropriate behaviors in several Indian states.

**Further
Information**

Selected Benefits for Employees (by Country)

As part of our Total Rewards Package we offer our employees various benefits respecting local market needs and conditions. The following overview highlights the most relevant plans concerning leaves, health and insurances in countries with more than 735 employees; it is not a complete list of all benefit programs in place. Many local benefits reflect the cultural background in a country or the legal requirements. Not every benefit is available in every location within a country or to every employee (e.g. working remotely is not available for employees working in production).

Countries/ Benefits	FTE (2021)	Maternity leave ¹	Paternity leave ¹	Childcare ²	Lactation options ³	Elderly care ⁴	Sabbatical (unpaid leave)	Education/Exam leave	Leave for social/ other volunteering	Other leaves ⁵	Flexible working hours ⁶	Working remotely ⁶	Worktime reduction (full-/part-time) possible ⁷	Health and wellness programs ⁸	Sports and recreation ⁹	Employee assistance programs ¹⁰	Health insurance ¹¹	Life/Accident insurance	Disability insurance
Germany	22,815	X	X	X	-	X	X	X	-	X ¹²	X	X	X	X	X	X	X	X	-
U.S.A.	17,964	X	X	X	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X
China	8,153	X	X	-	X	-	X	-	X	X	X	X	-	X	X	X	X	X	X
Brazil	5,373	X	X	X	-	-	-	-	-	X	X	X	-	X	X	X	X	X	X
India	4,344	X	-	X	-	-	-	-	-	X	X	X	-	X	X	-	X	X	-
Mexico	4,125	X	X	X	X	-	-	-	-	X	X	X	-	X	X	X	X	X	-
France	2,817	X	X	X	-	-	-	-	-	X	X	X	X	X	X	-	X	X	-
Japan	2,556	X	X	X	X	X	-	-	X	X	X	X	X	X	X	-	X	X	X
Spain	2,159	X	X	-	X	-	X	X	-	X	X	X	X	X	X	-	X	X	X
Argentina	2,024	X	X	X	-	-	-	X	-	X	X	X	-	X	X	-	X	X	-
Russia	1,764	X	X	-	X	-	-	X	-	X	X	X	X	X	X	-	X	X	X
Italy	1,621	X	X	-	-	X	X	X	-	X	X	X	X	X	-	-	X	X	X
Switzerland	1,431	X	X	X	X	X	X	X	-	X	X	X	X	X	X	X	X	X	X
Philippines	1,385	X	X	-	X	-	-	X	-	X	X	X	-	X	X	-	X	X	X
Poland	1,340	X	X	-	X	-	-	-	-	X	X	X	-	X	X	X	X	X	-
Canada	1,190	X	X	X	-	X	-	-	-	X	X	X	-	X	X	X	X	X	X
Turkey	1,056	X	X	-	X	-	-	X	-	X	X	X	-	X	X	-	X	X	-
Indonesia	1,024	X	X	-	X	-	X	-	-	X	X	X	-	X	X	-	X	X	X
Finland	1,006	X	X	-	-	-	-	-	-	X	X	X	-	X	X	-	X	X	-
Netherlands	979	X	X	-	X	-	X	X	-	X	X	X	X	X	X	X	X	X	X
Costa Rica	962	X	X	-	-	-	-	-	-	X	X	X	-	X	-	-	X	X	X
Belgium	947	X	X	-	-	X	-	X	-	X	X	X	X	X	-	X	X	X	X
UK	780	X	X	-	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X
Australia	738	X	X	-	X	-	X	-	X	X	X	X	X	X	X	X	X	X	X

¹ Length of parental leave (maternity/primary or paternity/secondary) and financial support vary by country; fully paid, partly paid (company and/or government funded), unpaid leave (paternity leave) or combination possible; at least in compliance with statutory requirements; in some countries adoption leaves or additional unpaid leave for childcare possible

² Details vary by country, may include company-owned childcare facilities (Kindergarten), contracts with childcare facilities, discounted childcare, financial support to childcare, childcare during holidays/back-up childcare

³ Details vary by country, may include lactation rooms on-site, lactation/breast-feeding time

⁴ Details vary by country, may include leave for taking care of close relatives, back-up care

⁵ Details vary by country, may include paid or unpaid leave for family duties, marriage, military or civic duties, pilgrimages, emergency situations, compassionate leave

⁶ Details vary by country, may not be offered to employees in production facilities or field staff

⁷ Details vary by country, may include worktime reduction due to childcare or due to age

⁸ Details vary by country, may include health examinations, checkups, vaccination, personal health assessment, health coaching, free or subsidized vaccination

⁹ Details vary by country, may include on-site sport facilities or classes, subsidized gym or gym classes, newsletter on health, fitness and mental health

¹⁰ Details vary by country, may include counseling service (personal or telephone) for employees who need assistance (e.g. personal issues, family, job-related, financial), in some countries also available for family members

¹¹ Details vary by country, includes basic health insurance, where no public health insurance system is in place, additional topics may be covered e.g. dental, vision, hospitalization, pharmacy; in some countries dependents are also covered

¹² Germany: various programs including: "Family and work": possible termination of contract for seven years with guarantee of reemployment; BayZeit: exemption from work for at least one month (care of children or close relatives or qualification measures); FreiZeit: option to buy a week of free time in addition to vacation from the Company Bonus (managerial employees)

Independent Auditor's Report on a Limited Assurance Engagement Concerning Sustainability Information

To Bayer Aktiengesellschaft, Leverkusen, Germany

Engagement

As requested, we have performed a limited assurance engagement on the information contained in the Sustainability Report 2021 of Bayer Aktiengesellschaft, Leverkusen, Germany, for the period from January 1 to December 31, 2021 (hereafter referred to as "Sustainability Report").

Our engagement does not include links to the Annual Report and web pages of the Group, interviews and personal statements.

Responsibilities of the Executive Directors

The executive directors of Bayer Aktiengesellschaft are responsible for the preparation of the Sustainability Report in accordance with the principles stated in the Sustainability Reporting Standards of the Global Reporting Initiative provided in the "Core" option (hereafter referred to as "GRI Standards").

These responsibilities of the executive directors of the Company include the selection and application of appropriate methods for sustainability reporting and the use of assumptions and estimates for individual disclosures which are reasonable under the given circumstances. In addition, the executive directors are responsible for such internal control as they have determined necessary to enable the preparation of a Sustainability Report that is free from material misstatement, whether due to fraud or error.

The accuracy and completeness of environmental data in the Sustainability Report is subject to inherent boundaries, which result from the nature and type of data collection, data aggregation and respective necessary assumptions.

Independence and Quality Assurance of the Independent Practitioner

We have complied with German professional regulations on independence and other professional conduct requirements.

Our auditing firm applies the national legal regulations and professional pronouncements – in particular the Professional Charter for German Public Auditors and German Sworn Auditors (Berufssatzung für Wirtschaftsprüfer und vereidigte Buchprüfer) as well as the Quality Assurance Standard: *Quality Assurance Requirements in Audit Practices (IDW QS 1)* promulgated by the Institut der Wirtschaftsprüfer (IDW) – and accordingly maintains a comprehensive quality assurance system that includes documented regulations and measures relating to compliance with professional conduct requirements, professional standards and relevant statutory and other legal requirements.

Responsibilities of the Independent Practitioner

Our responsibility is to express a conclusion on the information of the Sustainability Report based on our work performed within our limited assurance engagement.

We conducted our work in accordance with the International Standard on Assurance Engagements (ISAE) 3000 (Revised): Assurance Engagements Other than Audits or Reviews of Historical Financial Information (ISAE 3000 (Revised)), issued by the IAASB. This standard requires that we plan and perform the assurance and engagement so that we can conclude with limited assurance that no matters have come to our attention to cause us to believe that the information contained in the Sustainability Report of Bayer Aktiengesellschaft for the period from January 1 to December 31, 2021, has not been prepared, in all material respects, in accordance with the GRI Standards. The procedures performed in a limited assurance engagement are less in extent than for a reasonable assurance engagement; consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained, had a reasonable assurance engagement been performed. The choice of assurance work is subject to the practitioner's professional judgment.

Within the scope of our limited assurance engagement, which we performed between October 2021 and February 2022, we notably performed the following procedures and activities:

- // Gaining an understanding of the structure of the sustainability organization and of the stakeholder engagement

- // A remote site audit for Bergkamen, Berlin, Dormagen, Frankfurt, Knapsack, Leverkusen, Grenzach and Wuppertal (all Germany), Antwerp (Belgium), Muttenz (Switzerland), Vapi (India) as well as Itai, Sao Jose dos Campos, Campo Verde, Paracatu and Uberlandia (all Brazil), Zarate (Argentina), Orizaba (Mexico) and Berkeley, Constantine, Farmer City, Grinnell, Illiopolis, Kansas City, Kearney, Kunia, Luling, Muscatine, Rock Springs, Soda Springs, St. Louis-Chesterfield and Waco (all USA) as part of an investigation into the processes for collecting, analyzing and aggregating selected data at Bayer sites
- // Inquiries of relevant personnel involved in the preparation of the Sustainability Report about the preparation process and about the internal control relating to this process
- // Identification of potential risks of material misstatements concerning the information contained in the Sustainability Report
- // Analytical evaluation of the information contained in the Sustainability Report
- // Comparison of disclosures with corresponding data in the consolidated financial statements, the annual financial statements and the combined management report
- // Assessment of the presentation of the information

Practitioner's Conclusion

Based on the work performed and the evidence obtained, nothing has come to our attention that causes us to believe that the information contained in the Sustainability Report 2021 of Bayer Aktiengesellschaft for the period from January 1 to December 31, 2021, has not been prepared, in all material respects, in accordance with the GRI Standards provided in the "Core" option.

Our conclusion does not include links to web pages of the Group, interviews and personal statements.

Purpose of the Assurance Report

We issue this report as stipulated in the engagement letter agreed with Bayer Aktiengesellschaft (including the "General Engagement Terms for Wirtschaftsprüfer und Wirtschaftsprüfungsgesellschaften (German Public Auditors and Public Audit Firms)" promulgated by the Institut der Wirtschaftsprüfer (IDW) in the version dated January 1, 2017). The limited assurance engagement has been performed for the purposes of Bayer Aktiengesellschaft and the report is solely intended to inform Bayer Aktiengesellschaft about the result of the assurance engagement. Consequently, this report may not be suitable for any purpose other than the aforementioned. Consequently, the statement is not intended to serve as a basis for (asset) decisions by third parties. Our responsibility is to Bayer Aktiengesellschaft, Leverkusen, alone, and we do not accept any responsibility to third parties. Our audit opinion is not modified in this respect.

Munich/Germany, February 28, 2022

Deloitte GmbH
Wirtschaftsprüfungsgesellschaft

Prof. Dr. Beine
Wirtschaftsprüfer
(German Public Auditor)

Sebastian Dingel

GRI Content Index with the 10 Principles of the U.N. Global Compact

For fiscal 2021, we are again applying the GRI Standards. This report has been prepared in accordance with the GRI Standards: Core option. If there is insufficient information available on a GRI disclosure, we have explained this. The GRI Content Index additionally includes the corresponding UNGC principles.



GRI Content Index

UNGC Principles	GRI Standards	Page and/or link	Comment
	GRI 101: Foundation 2016		
	GRI 102: General Disclosures 2016		
	Organisational Profile		
	GRI 102-1: Name of the organisation	18	
	GRI 102-2: Activities, brands, products and services	18/19; AR 29	
	GRI 102-3: Location of headquarters	18	
	GRI 102-4: Location of operations	18; AR 30	
	GRI 102-5: Ownership and legal form	18; AR 23	
	GRI 102-6: Markets served	18/19	
	GRI 102-7: Scale of the organisation	18, 93; AR 133	
6	GRI 102-8: Information on employees and other workers	75/76, 82	
	GRI 102-9: Supply chain	64	
	GRI 102-10: Significant changes to the organisation and its supply chain	71; AR 8/9, 71/72, 155	
7	GRI 102-11: Precautionary principle or approach	23, 26/27, 40, 70, 87, 99/100, 103/104	
	GRI 102-12: External initiatives	4–6, 20, 25/26, 28, 39–41, 60–62, 65/66, 69, 78, 85/86, 95, 107	
	GRI 102-13: Membership of associations	26, 41, 44, 86, 103/104	
	Strategy		
1–10	GRI 102-14: Statement from senior decision-maker	3	
	GRI 102-15: Key impacts, risks, and opportunities	5–16, 18, 26–31, 87–89	

GRI Content Index

UNGC Principles	GRI Standards	Page and/or link	Comment
Ethics and Integrity			
1–6, 7, 10	GRI 102-16: Values, principles, standards, and norms of behaviour	18, 20, 22–25, 65, 69, 73	
1–6, 7, 10	GRI 102-17: Mechanisms for advice and concerns about ethics	24/25, 70/71	
Governance			
	GRI 102-18: Governance structure	18, 20; AR 16	
	GRI 102-19: Delegating authority	20, 23, 27, 73, 84, 93	
	GRI 102-20: Executive-level responsibility for economic, environmental, and social topics	18, 20/21, 23, 27, 73, 84, 93, 100	
	GRI 102-21: Consulting stakeholders on economic, environmental, and social topics	16, 21, 27/28; AR 15/16, 20, www.bayer.com/asm	
	GRI 102-22: Composition of the highest governance body and its committees	78; AR 116/117, 279–281	
	GRI 102-23: Chair of the highest governing body	20; AR 20	
	GRI 102-24: Nominating and selecting the highest governance body	AR 14–16, 18, 116	
	GRI 102-25: Conflicts of interest	AR 117	
	GRI 102-26: Role of highest governance body in setting purpose, values, and strategies	20/21, 27, 84; AR 14–16	
	GRI 102-27: Collective knowledge of highest governance body	78; AR 13, 15, 116/117	
	GRI 102-28: Evaluating the highest governance body's performance	AR 14, 16, 118	
	GRI 102-29: Identifying and managing economic, environmental, and social impacts	20/21, 23, 27, 84	
	GRI 102-30: Effectiveness of the risk management processes	20, 27	
	GRI 102-31: Review of economic, environmental, and social topics	20/21, 23, 84; AR 13–16	
	GRI 102-32: Highest governance body's role in sustainability reporting	27; AR 17, 25	
	GRI 102-33: Communicating critical concerns	16, 20, 27/28; AR 15/16, 20, www.bayer.com/asm	
	GRI 102-34: Nature and total number of critical concerns	AR 13–16, 20, www.bayer.com/asm	
	GRI 102-35: Remuneration policy	6, 16/17, 21/22, 24, 27, 84; AR 235, 240, 246/247, 252, 262/263, www.bayer.com/vAR	
	GRI 102-36: Process for determining remuneration	AR 15/16, 18, 234, 237	
	GRI 102-37: Stakeholders' involvement in remuneration	AR 234, 237	
	GRI 102-38: Annual total compensation ratio	AR 267/268	
	GRI 102-39: Percentage increase in annual total compensation ratio	AR 267/268	
Stakeholder Engagement			
	GRI 102-40: List of stakeholder groups	29	
3	GRI 102-41: Collective bargaining agreements	83	

GRI Content Index

UNGC Principles	GRI Standards	Page and/or link	Comment
	GRI 102-42: Identifying and selecting stakeholders	29	
	GRI 102-43: Approach to stakeholder engagement	20, 27–31, 37, 47, 59, 72, 81	
	GRI 102-44: Key topics and concerns raised	28–31	
	Reporting Practice		
	GRI 102-45: Entities included in the consolidated financial statements	4; AR 154	
	GRI 102-46: Defining report content and topic boundaries	4, 28/29	
	GRI 102-47: List of material topics	28, 118–124	
	GRI 102-48: Restatements of information	4	
	GRI 102-49: Changes in reporting	None	
	GRI 102-50: Reporting period	4	
	GRI 102-51: Date of most recent report	2021-02-25	
	GRI 102-52: Reporting cycle	Annually	
	GRI 102-53: Contact point for questions regarding the report	Masthead	
	GRI 102-54: Claims of reporting in accordance with the GRI Standards	4, 116	
	GRI 102-55: GRI Content index	116–124	
	GRI 102-56: External assurance	114/115	
	Material Topics		
	Economic		
	GRI 201: Economic Performance 2016		
7	GRI 103: Management Approach 2016 (including 103-1, 103-2, 103-3)	19, 35/36, 78, 87–89, 107	
	GRI 201-1: Direct economic value generated and distributed	19, 107	
7, 8, 9	GRI 201-2: Financial implications and other risks and opportunities due to climate change	5/6, 9, 15, 35/36, 87–89; www.bayer.com/tcfd , www.bayer.com/CDP-Climate	
	GRI 201-3: Defined benefit plan obligations and other retirement plans	79; AR 182–190	
	GRI 202: Market Presence 2016		
6	GRI 103: Management Approach 2016 (including 103-1, 103-2, 103-3)	73, 78/79	
6	GRI 202-1: Ratios of standard entry level wage by gender compared to local minimum wage	79	We do not report on the margin between standard entry salary according to gender and local minimum wage because this data is not available to us. Nor do we plan to collect it. We compensate employees on both permanent and temporary employment contracts in excess of the statutory minimum wage in the respective countries, paying a living wage regardless of gender.

GRI Content Index

UNGC Principles	GRI Standards	Page and/or link	Comment
6	GRI 202-2: Proportion of senior management hired from the local community	78	
	GRI 203: Indirect Economic Impacts 2016		
	GRI 103: Management Approach 2016 (including 103-1, 103-2, 103-3)	5–7, 10–14, 19, 26, 60–63, 107	
	GRI 203-1: Infrastructure investments and services supported	5–7, 10–14, 60–63, 107–111	
	GRI 203-2: Significant indirect economic impact	7, 19, 26, 34	
	GRI 204: Procurement Practices 2016		
	GRI 103: Management Approach 2016 (including 103-1, 103-2, 103-3)	64	
	GRI 204-1: Proportion of spending on local suppliers	64	
	GRI 205: Anti-corruption 2016		
10	GRI 103: Management Approach 2016 (including 103-1, 103-2, 103-3)	22–25	
10	GRI 205-1: Operations assessed for risks related to corruption	23/24	Complete coverage is crucial for compliance/anti-corruption in the first instance. Areas at risk are monitored more frequently than others. As major businesses and parts of companies are subject to shorter audit cycles and smaller units to longer cycles, we do not report at the business unit level. Nor do we report on the identified significant corruption risks, as such information would constitute a business secret.
10	GRI 205-2: Communication and training about anti-corruption policies and procedures	24/25	We do not report quantitatively on training for the Board of Management and Supervisory Board because data on this is not available in accordance with the requirements of the GRI. Anti-corruption training for employees is implemented globally. We are checking the information by region for the 2022 reporting year.
	GRI 206: Anti-competitive Behavior 2016		
	GRI 103: Management Approach 2016 (including 103-1, 103-2, 103-3)	22–25	
10	GRI 206-1: Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	AR 211, 214/215	
	GRI 207: Tax 2019		
	GRI 103: Management Approach 2016 (including 103-1, 103-2, 103-3)	26	
	GRI 207-1: Approach to tax	26	
	GRI 207-2: Tax governance, control, and risk management	26	
	GRI 207-3: Stakeholder engagement and management of concerns related to tax	26	
	GRI 207-4: Country-by-country reporting		We do not report any country-by-country information, since this data is not available for 2021. We are examining the possibilities for collecting the corresponding data.
	Environment		
	GRI 302: Energy 2016		

GRI Content Index

UNGC Principles	GRI Standards	Page and/or link	Comment
7-9	GRI 103: Management Approach 2016 (including 103-1, 103-2, 103-3)	15, 85, 91-95	
7, 8	GRI 302-1: Energy consumption within the organisation	85, 91	
8	GRI 302-3: Energy intensity	92	
8	GRI 302-4: Reduction of energy consumption	91; www.bayer.com/CDP-Climate	
	GRI 303: Water and Effluents 2018		
7, 8	GRI 103: Management Approach 2016 (including 103-1, 103-2, 103-3)	9, 50, 58/59, 93-97	
7, 8	GRI 303-1: Interactions with water as a shared resource	95-97	
7, 8	GRI 303-2: Management of water discharge-related impacts	95, 97	
8	GRI 303-3: Water withdrawal	96/97	
8	GRI 303-4: Water discharge	96/97	
8	GRI 303-5: Water consumption	96	
	GRI 304: Biodiversity 2016		
7-9	GRI 103: Management Approach 2016 (including 103-1, 103-2, 103-3)	5-7, 16, 33, 35, 47, 50-54, 85, 93-95	
8	GRI 304-1: Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	53	
7-9	GRI 304-2: Significant impacts of activities, products, and services on biodiversity	5-7, 33, 35, 47, 50-54, 85	
	GRI 305: Emissions 2016		
7-9	GRI 103: Management Approach 2016 (including 103-1, 103-2, 103-3)	5-7, 9, 14-17, 34-36, 65, 84-91, 93-95, 106	
7, 8	GRI 305-1 Direct (Scope 1) GHG emissions	90	
7, 8	GRI 305-2: Energy indirect (Scope 2) GHG emissions	90	
7, 8	GRI 305-3: Other indirect (Scope 3) GHG emissions	90/91; www.bayer.com/CDP-Climate	
8	GRI 305-4: GHG emissions intensity	90	
8,9	GRI 305-5: Reduction of GHG emissions	15, 90/91	
7, 8	GRI 305-6: Emissions of ozone-depleting substances (ODS)	95	
7, 8	GRI 305-7: Nitrogen oxides (NOX), sulphur oxides (SOX) and other significant air emissions	95	
	GRI 306: Waste 2020		
8	GRI 103: Management Approach 2016 (including 103-1, 103-2, 103-3)	6, 14, 52, 59, 93-95, 98/99	
8	GRI 306-1: Waste generation and significant waste-related impacts	98/99	
8	GRI 306-2: Management of significant waste-related impacts	6, 14, 52, 59, 93-95, 98/99	
8	GRI 306-3: Waste generated	98	
8	GRI 306-4: Waste diverted from disposal	98/99	
8	GRI 306-5: Waste directed to disposal	98	

GRI Content Index

UNGC Principles	GRI Standards	Page and/or link	Comment
	GRI 307: Environmental Compliance 2016		
8	GRI 103: Management Approach 2016 (including 103-1, 103-2, 103-3)	22, 93–95	
8	GRI 307-1: Non-compliance with environmental laws and regulations	AR 14, 211, 215	
	GRI 308: Supplier Environmental Assessment 2016		
7, 8	GRI 103: Management Approach 2016 (including 103-1, 103-2, 103-3)	39, 64–68, 86, 104	
7, 8	GRI 308-1: New suppliers that were screened using environmental criteria	65–67	As the reported procedure for evaluating our suppliers (including according to environmental criteria) includes the new suppliers, we do not report the percentage of new suppliers separately.
7, 8	GRI 308-2: Negative environmental impacts in the supply chain and actions taken	66–68	
	Social		
	GRI 401: Employment 2016		
6	GRI 103: Management Approach 2016 (including 103-1, 103-2, 103-3)	73, 79, 82	
6	GRI 401-1: New employee hires and employee turnover	75/76	
	GRI 401-2: Benefits provided to full-time employees that are not provided to temporary or part-time employees	79, 113	
6	GRI 401-3: Parental leave	82	
	GRI 402: Labour/Management Relations 2016		
3	GRI 103: Management Approach 2016 (including 103-1, 103-2, 103-3)	81	
3	GRI 402-1: Minimum notice periods regarding operational changes	81	
	GRI 403: Occupational Health and Safety 2018		
1	GRI 103: Management Approach 2016 (including 103-1, 103-2, 103-3)	19, 76, 82/83, 93–95, 99–103	
	GRI 403-1: Occupational health and safety management system	93–95, 99	
	GRI 403-2: Hazard identification, risk assessment, and incident investigation	83, 99/100	
	GRI 403-3: Occupational health services	100	
	GRI 403-4: Worker participation, consultation, and communication on occupational health and safety	83, 100/101	
	GRI 403-5: Worker training on occupational health and safety	99, 101, 103	
	GRI 403-6: Promotion of worker health	76, 82/83, 101	
	GRI 403-7: Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	39, 102–104, 106	
	GRI 403-8: Workers covered by an occupational health and safety management system	93–95	The Group Regulation on HSE Management and HSE Key Requirements applies to all Bayer employees and all contractors directly supervised by Bayer. Our global HSE management system is audited internally. We do not report on the number and percentage of workers covered by a

GRI Content Index

UNGC Principles	GRI Standards	Page and/or link	Comment
			management system according to an internationally recognized standard since we use the energy consumption of environmentally relevant sites as a reference parameter.
	GRI 403-9: Work-related injuries	101/102	We do not report separately on work-related injuries with serious consequences. These are included in the data.
	GRI 403-10: Work-related ill health	101/102	
	GRI 404: Training and Education 2016		
6	GRI 103: Management Approach 2016 (including 103-1, 103-2, 103-3)	28, 73, 76–81	
6	GRI 404-1: Average hours of training per year per employee	80	
	GRI 404-2: Programmes for upgrading employee skills and transition assistance programmes	28, 73, 76–81	
6	GRI 404-3: Percentage of employees receiving regular performance and career development reviews	80/81	
	GRI 405: Diversity and Equal Opportunity 2016		
1, 6	GRI 103: Management Approach 2016 (including 103-1, 103-2, 103-3)	17, 73, 77–79	
6	GRI 405-1: Diversity of governance bodies and employees	74, 76–78; AR 116–118	
6	GRI 405-2: Ratio of basic salary and remuneration of women to men	78	
	GRI 406: Non-discrimination 2016		
6	GRI 103: Management Approach 2016 (including 103-1, 103-2, 103-3)	22, 73	
6	GRI 406-1: Incidents of discrimination and corrective actions taken	24	We do not report on the number of incidents of discrimination. We report on the total number of notifications registered with the compliance hotline. We internally record the precise reason for the grievance, track how it is followed up and take corresponding action in line with our Group regulation. More detailed information on this would constitute a business secret.
	GRI 407: Freedom of Association and Collective Bargaining 2016		
2, 3	GRI 103: Management Approach 2016 (including 103-1, 103-2, 103-3)	65–72, 83	
2, 3	GRI 407-1: Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	66/67, 69–71, 83	
	GRI 408: Child Labour 2016		
2, 5	GRI 103: Management Approach 2016 (including 103-1, 103-2, 103-3)	65–72	
2, 5	GRI 408-1: Operations and suppliers at significant risk for incidents of child labour	66/67, 69–72	
	GRI 409: Forced or Compulsory Labour 2016		
2, 4	GRI 103: Management Approach 2016 (including 103-1, 103-2, 103-3)	65–72	
2, 4	GRI 409-1: Operations and suppliers at significant risk for incidents of forced or compulsory labour	66/67, 69–71	
	GRI 412: Human Rights Assessment 2016		
1, 2	GRI 103: Management Approach 2016 (including 103-1, 103-2, 103-3)	65–71, 93	

GRI Content Index

UNGC Principles	GRI Standards	Page and/or link	Comment
2	GRI 412-1: Operations that have been subject to human rights reviews or impact assessments	70	
1	GRI 412-2: Employee training on human rights policies or procedures	71	
2	GRI 412-3: Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	65/66, 93	
	GRI 413: Local Communities 2016		
1	GRI 103: Management Approach 2016 (including 103-1, 103-2, 103-3)	29/30, 36–38, 81, 93–95, 102–104, 106/107, 110/111	
1	GRI 413-1: Operations with local community engagement, impact assessments, and development programmes	29/30, 81, 107, 110/111	
1	GRI 413-2: Operations with significant actual and potential negative impacts on local communities	36–38, 93–95, 102–104, 106	
	GRI 414: Supplier Social Assessment 2016		
1–6	GRI 103: Management Approach 2016 (including 103-1, 103-2, 103-3)	23, 64–72	
1–6	GRI 414-1: New suppliers that were screened using social criteria	65–67	As the reported procedure for evaluating our suppliers (including according to social criteria) includes the new suppliers, we do not report the percentage of new suppliers separately.
1–6	GRI 414-2: Negative social impacts in the supply chain and actions taken	66–68, 71/72	
	GRI 415: Public Policy 2016		
10	GRI 103: Management Approach 2016 (including 103-1, 103-2, 103-3)	20/21, 25/26, 42, 44, 86	
10	GRI 415-1: Political contributions	25	
	GRI 416: Customer Health and Safety 2016		
	GRI 103: Management Approach 2016 (including 103-1, 103-2, 103-3)	20/21, 39–47, 55–58	
	GRI 416-1: Assessment of the health and safety impacts of product and service categories	21, 39–47, 49, 55–58	
	GRI 416-2: Incidents of non-compliance concerning the health and safety impacts of products and services	48/49; AR 7/8, 14–16, 18, 211–215	
	GRI 417: Marketing and Labelling 2016		
7	GRI 103: Management Approach 2016 (including 103-1, 103-2, 103-3)	21, 25, 39/40, 42–47, 55, 57	
7	GRI 417-1: Requirements for product and service information and labelling	21, 25, 39/40, 42–47, 55, 57	
	GRI 417-2: Incidents of non-compliance concerning product and service information and labelling	AR 7/8, 14/15, 215	
	GRI 417-3: Incidents of non-compliance concerning marketing communications	AR 211, 215	
	GRI 418: Customer Privacy 2016		
	GRI 103: Management Approach 2016 (including 103-1, 103-2, 103-3)	22–25, 106	
	GRI 418-1: Substantiated complaints concerning breaches of customer privacy and losses of customer data	24	We do not report on the number of breaches of customer privacy and losses of customer data. We report on the total number of notifications registered with the compliance

GRI Content Index

UNGC Principles	GRI Standards	Page and/or link	Comment
			hotline. We internally record the precise reason for the grievance, track how it is followed up and take corresponding action in line with our Group regulation. More detailed information on this would constitute a business secret.
	GRI 419: Socioeconomic Compliance 2016		
	GRI 103: Management Approach 2016 (including 103-1, 103-2, 103-3)	21–25	
	GRI 419-1: Non-compliance with laws and regulations in the social and economic area	AR 103, 147/148, 161, 191, 211, 215–216	

AR = [Bayer Annual Report 2021](#)

Glossary

A

Additionality

Offsetting projects aimed at reducing greenhouse gases must ensure that their reduction, prevention or storage of emissions occurs additionally. This means that the project's climate protection measure would not have occurred without the expected revenue from the sale of emissions certificates. The technical term for this is the additionality of emissions reductions. Furthermore, the emissions reduction measure must be conducted on an ongoing basis.

B

Biocides are substances and products that control pests such as insects, mice and rats, as well as algae, fungi and bacteria.

Bt (Bacillus thuringiensis) is a bacterium that can be found primarily in soil, as well as on plants and in insect cadavers. The Bt toxins produced by the bacterium are used for biological pest control in agriculture and forestry, as well as to control disease-transmitting mosquitoes.

C

Corruption Perceptions Index (CPI)

is the world's most renowned corruption indicator. It is compiled by the International Secretariat of the NGO Transparency International and has listed countries according to their perceived levels of public sector corruption since 1995. The CPI 2020 comprises 180 countries.

CRISPR-Cas is a new molecular-biological method of specifically modifying genetic material. It enables individual DNA building blocks to be inserted, removed or modified. This process basically works with all organisms. It is used in animal and plant breeding, and in biotechnology.

E

Ecosystem Fund

The term "Ecosystem Fund" refers to a sum of grants or other funding opportunities created for organizations that address key global societal challenges. This includes incentivizing participation in expanding and shaping an ecosystem through cross-sector and multi-stakeholder collaboration, in order to enhance the positive impact of the provided funds, such as the Bayer Cares Foundation's Social Innovation Ecosystem Fund.

Ecosystem services are the benefits people obtain from ecosystems. Ecosystem services upon which crop production depends include, for instance, soil fertility, soil erosion prevention, nutrient cycling, soil organic matter provision, pest control, water regulation and pollination.

G

GHG (Greenhouse Gas) Protocol

The Greenhouse Gas Protocol is an internationally recognized tool for recording, quantifying and reporting greenhouse gas emissions. Its standards cover all emissions along the value chain. Bayer aligns itself to the Corporate Standard for direct (Scope 1) and indirect (Scope 2) greenhouse gas emissions and also to the Corporate Value Chain Accounting and Reporting Standard (Scope 3), which covers further indirect emissions along the value chain. Dual reporting was introduced for indirect (Scope 2) emissions. Indirect emissions have to be reported using both the location-based and the market-based methods. The location-based method uses regional or national average emissions factors, while the market-based method applies provider- or product-specific emissions factors based on contractual instruments.

H

Herbicide-tolerant plants are resistant to the mechanism of action of a herbicide.

L

LMICs (low- and middle-income countries)

According to the World Bank, these include low- and middle-income economies (low/lower middle/upper middle) with a GNI per capita maximum income ranging from US\$1,036 /4,035/ to US\$12,535 (based on 2019 figures, calculated according to the World Bank Atlas method).

R

3Rs principle in animal welfare (replace, reduce, refine)

Replace: prior to each project, Bayer checks whether an approved method is available that does not rely on animal studies and then applies it. Reduce: in case no alternative method exists, only as many animals are used as are needed to achieve scientifically meaningful results based on statutory requirements. Refine: Bayer ensures that animal studies are performed in a way that minimizes any suffering to the animals.

S

Significant locations of operation

A selection of countries that accounted for more than 80% of total Bayer Group sales in 2021 (Argentina, Australia, Brazil, Canada, China, France, Germany, India, Italy, Japan, Mexico, Russia, Spain, Switzerland, the United Kingdom and the United States).



Masthead

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