Merck KGaA
Darmstadt · Germany

CORPORATE RESPONSIBILITY REPORT 2014

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Strategy and management

Products

Suppliers

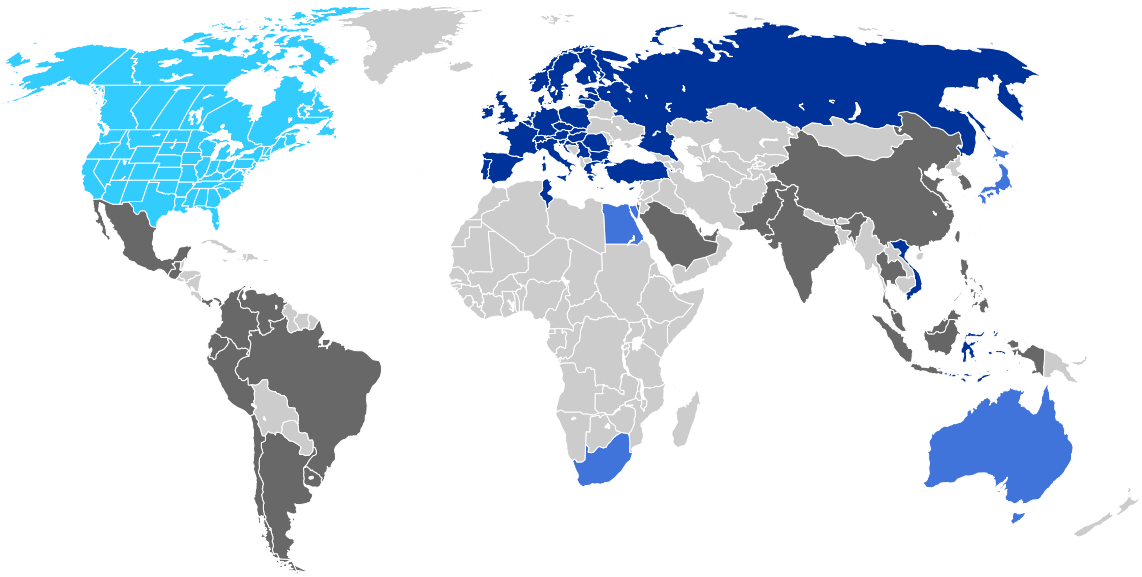
Employees

Environment

Society

Facts and figures

Company profile



North America
Sales: € 2,152.2 million
Employees: 5,092

Emerging Markets
Sales: € 4,250.2 million
Employees: 12,176

Europe
Sales: € 4,014.6 million
Employees: 20,537

Rest of World
Sales: € 874.5 million
Employees: 1,834

Merck KGaA, Darmstadt, Germany is a leading company for innovative, top-quality high-tech products in the healthcare, life science and performance materials sectors. The company has six businesses - Biopharmaceuticals, Consumer Health, Allergopharma, Biosimilars, Life Science, and Performance Materials - and generated sales of € 11.3 billion in 2014. Around 39,000 employees work to improve the quality of life for patients, to foster the success of customers, and to help meet global challenges. Merck KGaA, Darmstadt, Germany is the oldest pharmaceutical and chemical company in the world – since 1668, the company has stood for innovation, business success and responsible entrepreneurship. In 2014, Merck KGaA, Darmstadt, Germany was represented by a total of 218 companies across 66 countries, with 69 production sites located across 21 countries.

Structure of the Group

Merck KGaA, Darmstadt, Germany is a global player. Our product portfolio ranges from innovative pharmaceuticals and biopharmaceutical products, to specialty chemicals, high-tech materials, and life science tools. Until December 31, 2014 - the period covered by this report - the company used a reporting structure consisting of four divisions: The biopharmaceuticals division, Consumer Health, Performance Materials, and the life science division. The following profile likewise reflects this structure.

In line with our strategic direction effective January 1, 2015, the company has now been organized into three business sectors: Healthcare, Performance Materials and Life Science, which comprise the Group's six businesses. This structure will be used in the Group's reports as of January 1, 2015.

The biopharmaceuticals business discovers, develops, manufactures, and markets innovative pharmaceutical and biological prescription drugs to treat cancer, multiple sclerosis (MS), infertility, and growth disorders, as well as certain cardiovascular and metabolic diseases. Headquartered in Darmstadt, Germany, the biopharmaceuticals business offers leading brands in specialty medicine indications, such as Erbitux® for patients with cancer and Rebif® for patients with multiple sclerosis.

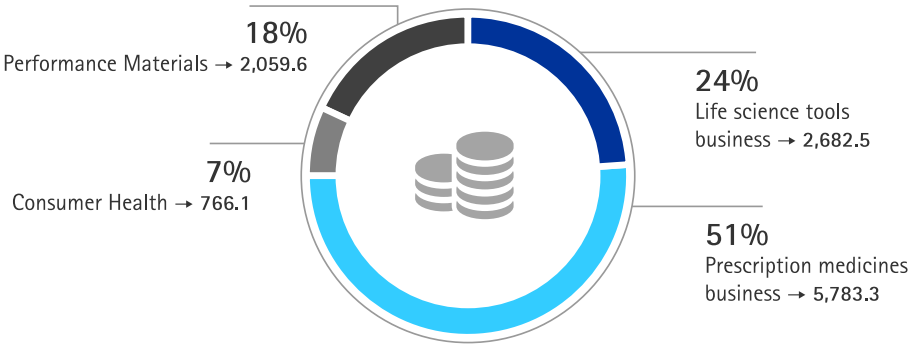
Consumer Health manufactures and markets over-the-counter pharmaceuticals, focusing on a number of well-known strategic global and regional brands such as

Neurobion®, Bion®3, Seven Seas®, Nasivin®, Femibion®, and Dolo-Neurobion®, as well as Floratil®, Sangobion®, Vigantoletten®, Apaisyl®, and Kytta®.

Performance Materials comprises the company's entire specialty chemicals business. The portfolio includes high-tech performance chemicals for applications in fields such as consumer electronics, lighting, coatings, printing technology, paints, plastics, and cosmetics. Our Performance Materials business was significantly strengthened by the May 2014 acquisition of AZ Electronic Materials (AZ), a leading supplier of high-tech materials for the electronics industry.

The life science business has a broad product and technology portfolio, offering innovative solutions for scientists and engineers in the life science industry. The life sciences comprise the fields of science that involve the scientific study of living organisms. The life science business' products and services are used in the research, development and manufacture of biotechnological and pharmaceutical drug therapies, as well as in research and application laboratories. Products and services from the life science business also extend to adjacent markets, such as the food and beverage industry.

Sales by division – 2014 (€ million/% of sales)



Corporate governance

Merck KGaA, Darmstadt, Germany is operated in the legal form of a Kommanditgesellschaft auf Aktien (KGaA, corporation with general partners) and is headquartered in Darmstadt, Germany. The general partner E. Merck KG, Darmstadt, Germany holds around 70% of the total capital of Merck KGaA, Darmstadt, Germany (equity interest); the shareholders hold the remainder, which is divided into shares (share capital). Merck KGaA, Darmstadt, Germany shares have been included in the DAX® 30, the blue chip index of the Deutsche Börse, since 2007. In September 2008, the company was added to the FTSE4Good Index, a sustainability index that evaluates the social, ecological and ethical conduct of companies.

Group strategy

Merck KGaA, Darmstadt, Germany focuses on innovative and top-quality high-tech products in the healthcare, life science and performance materials sectors. Our goal is sustainable, profitable growth, which we intend to achieve by growing organically and cultivating our existing competencies, as well as by making targeted acquisitions that complement and expand existing strengths. Building on leading products in all its businesses, the company aims to generate income that is largely independent of the prevailing economic cycles. Moreover, we are striving to further expand our strong market position in emerging markets in the medium to long term. In 2014, the Emerging Markets region accounted for 38% of Group sales.

More information about our Group strategy can be found in our Annual Report 2014.

HEALTH

Through our cross-business Access to Health approach, we aim to help improve sustainable access to high-quality health solutions for underserved populations and communities in low- and middle-income countries.

Fighting schistosomiasis

THE CHALLENGE

An estimated 249 million people worldwide suffer from the worm disease schistosomiasis, with more than 90% of those affected living in sub-Saharan Africa. This chronic parasitic condition is one of the most devastating neglected tropical diseases in terms of public health burden and economic impact.

249 million people affected

HOW WE'RE HELPING

Since 2007, Merck KGaA, Darmstadt, Germany has been partnering with the World Health Organization (WHO) in the fight against schistosomiasis in Africa. We have been donating praziquantel tablets to WHO with the common aim of eliminating the disease in Africa. To date, the company has donated more than 200 million tablets to WHO, and more than 54 million patients have been treated, primarily including children. We have pledged to increase the number of tablets donated to up to 250 million per year. This donation, worth around USD 23 million per annum, will enable 100 million children to be treated annually. At the end of 2014, we called for various NTD constituencies to form the Global Schistosomiasis Alliance in order to help eliminate this disease worldwide.

54 million children treated

Praziquantel is the only active ingredient with which all forms of schistosomiasis can be treated. In addition to this, praziquantel is also well-tolerated, which is why WHO has included it on its list of essential drugs. Merck KGaA, Darmstadt, Germany developed praziquantel in the 1970s as part of a joint research collaboration.

Rural Pharmacy

THE CHALLENGE

According to the World Health Organization (WHO), one-third of the world's population does not have regular access to health care. The majority of those affected live in rural areas of sub-Saharan Africa.

1/3 of the world's population
lacks access to medicines

HOW WE'RE HELPING

As part of its commitment to improving access to health care for these underserved populations, Merck KGaA, Darmstadt, Germany has developed the Rural Pharmacy. This is a 40-foot shipping container that can be transported to rural communities by truck and set up on site with a minimum of effort.

A 40-foot container
makes pharmacies mobile

The first of these rural pharmacies has been opened in Ghana and consists of a dispensary, a multipurpose room for vaccinations or medical counseling, and a medicine storeroom with a refrigerator. Solar cells on the roof ensure the constant power supply necessary to continuously refrigerate the medicines. It is also equipped with an atmospheric water generator to produce potable water from the humidity in the air.

Diabetes prevention

THE CHALLENGE

According to estimates, around 382 million people suffer from diabetes across the globe, with low- and middle-income countries accounting for a particularly large percentage of patients. In Africa, for instance, approximately 20 million people have diabetes, around one-third of whom remain unaware of their condition. On top of that, very few patients have adequate access to insulin, syringes, or the medical equipment needed to monitor their blood pressure. They often have a life expectancy of less than a year after being diagnosed.

382 million people affected

HOW WE'RE HELPING

Merck KGaA, Darmstadt, Germany is committed to improving the quality of diabetes treatment as well as raising awareness of this disease, especially in low- and middle-income countries. To help achieve this, we established the Capacity Advancement Program (CAP) across Africa, India and Indonesia, doing so in collaboration with ministries of health and academic institutions.

25,000 patients screened

Since launching this program in 2012, we have conducted more than 250 events to boost the profile of diabetes. On top of that, we have provided free diabetes screening and medical check-ups to more than 25,000 people in Kenya, Ghana, Uganda, and India. Additionally, more than 100,000 patient leaflets about diabetes have been distributed at training camps and supermarket chains in Kenya and Uganda. In 2014, around 2,000 pharmacy and medical students in Africa took part in a clinical diabetes management training program that is accredited in Europe. Through the Capacity Advancement Program, we are aiming to reach 15,000 pharmacy undergraduates and medical students in Africa, Asia, the Middle East, and Latin America by 2018.

Improving health care in rural India

THE CHALLENGE

Around 70% of the one billion inhabitants of India reside in rural areas and have no access to effective, affordable health care. Medical facilities are concentrated in India's megacities, which account for 80% of India's healthcare professionals as well as 70% of the country's hospital beds.

1,675 villages reached

HOW WE'RE HELPING

Through the Suswastha Project, a socially responsible business model, Merck KGaA, Darmstadt, Germany is seeking to improve health care for rural populations of India. At community-level weekly meetings, healthcare professionals educate patients about everyday health issues such as coughs and childhood ailments, teaching them ways to prevent these conditions. In addition to this, the program also provides patients with free check-ups and offers continuing education to help local physicians advance their medical capacities. Furthermore, we are partnering with the non-governmental organization FHI 360 as well as the Clinton Foundation, supporting amongst others their fight against diarrheal diseases.

500,000 patients have participated

Since the program's start in January 2013, more than 1,675 rural villages in India have benefited from the project, which has now reached half a million patients in total.

ENVIRONMENT

A number of our innovative chemical and life science products contribute to environmental protection. We strive to continuously enhance the sustainability footprint of our products while helping our customers achieve their own sustainability goals.

Energy efficient displays

THE CHALLENGE

The danger of serious climate damage has increased in recent years, and many natural resources are growing scarcer. As a result, people are becoming increasingly environmentally conscious, and more and more consumers are taking a product's power rating into account when deciding what to buy.

Displays consume 20% less energy
thanks to liquid crystals for PS-VA technology

HOW WE'RE HELPING

Merck KGaA, Darmstadt, Germany develops and markets products that help our customers save energy. Our liquid crystals for PS-VA technology (polymer-stabilized vertical alignment) provide television screens with high contrast while also consuming little energy. They also increase light transmittance, which helps to significantly reduce the amount of backlighting needed - the largest power consumer in a display. In comparison to VA technology, screens with our PS-VA materials consume up to 20% less energy. Furthermore, liquid crystals for PS-VA technology considerably improve image quality. In general, the faster the switching time, the better the image. The polymer-stabilized vertical alignment orients the liquid crystal molecules in a particular direction. The crystals can then tilt faster when they switch directions.

UB-FFS technology
provides displays with 15% more light transmittance

The new UB-FFS technology (ultra-brightness fringe field switching) provides displays with up to 15% more light transmittance than its forerunner, FFS. In combination with other technological developments, UB-FFS lowers end device power consumption by as much as 30%. Furthermore, this new technology also provides superior image resolution and reduces battery size, thereby opening up new design possibilities for product designers.

Smart windows

THE CHALLENGE

Climate change and its consequences are already impacting life on Earth today. In the West, 40% of total energy consumption is attributable to buildings, a large portion of which goes to lighting (20%) and air conditioning (15%). With resources becoming ever scarcer and energy prices rising ever higher, companies and private individuals are seeking to boost the energy efficiency of both new as well as existing buildings.

40% of total energy consumption
is attributable to buildings

HOW WE'RE HELPING

Under the licrivision™ brand, Merck KGaA, Darmstadt, Germany is developing liquid crystal mixtures for new applications. For instance, we are working with architects, glass makers and facade manufacturers to create the windows of tomorrow. Our ambitious goal is to use smart windows to make buildings more energy-efficient, thus conserving resources and cutting costs. To this end, we have developed the Liquid Crystal Window Technology. How does this work? At the push of a button, these windows can be darkened within seconds - tinted in whatever color desired. Smart windows thus help regulate the temperature indoors while also setting interior design accents. This technology is made possible thanks to the special properties of our liquid crystals (LCs), which in this case are combined with customized dyes. When a low voltage is applied to the windows, the LCs allow electromagnetic waves, i.e. light, to either pass through, thus making the window transparent, or to be absorbed and blocked, thus darkening the window. In this way, smart windows help regulate the temperature indoors while also setting interior design accents and lowering HVAC costs.

Liquid crystals make windows smarter

In the Netherlands, we are currently operating a pilot plant for the manufacture of such smart windows, some of which are to be installed in the new Innovation Center under construction in Darmstadt, Germany.

Recycling and waste reduction

THE CHALLENGE

Biopharmaceutical production requires many single-use products such as filter cartridges and tubing. However, a lack of disposal options - along with the material properties of the product itself and stringent regulatory requirements - often make it difficult to recycle these items.

54,000 kg of plastic recycled

HOW WE'RE HELPING

Through environmentally sound recycling programs, including disposal of used products and packaging, the life science business is working together with its customers to help reduce the environmental impacts of its products and services.

189 metric tons
of product waste diverted

In 2012, Life Science partnered with a waste disposal company and five customers in the United States to jointly pilot a recycling program for biopharmaceutical single-use products. During the ten-month pilot phase, we recycled more than 54,000 kilograms of plastic, which was reprocessed and repurposed into items such as paint buckets and plastic pallets. Non-recyclable components were sent to a cement kiln and used as an alternative fuel source. In 2013, we expanded this program to include two additional customers. Overall, we diverted 189 metric tons of product waste in 2013 and 2014, 91 metric tons of which was plastic that was recycled.

Reducing our customers' impacts

THE CHALLENGE

Just like us, our customers are also striving to conserve resources and protect the environment, which means they expect products from Merck KGaA, Darmstadt, Germany that help them minimize their own environmental impacts.

91% reduction
in autoclave-associated carbon emissions

HOW WE'RE HELPING

The life science business has developed the Design for Sustainability (DfS) program, which aims to reduce the environmental impacts of our products across their entire life cycle, from manufacture to end of life. We furthermore work to maximize product performance and ease of use for our customers. Beginning with the concept definition phase, we identify potential environmental impacts, along with opportunities to make improvements.

47% less raw material needed

For instance, the life science business employed DfS principles in the design of its new EZ-Fit™ Manifold, which is used for microbiological water testing in the food and beverage industry. In comparison to the previous model, the EZ-Fit™ Manifold is easier to clean, which significantly reduces our customers' environmental impacts. This device uses 47% less raw material and its packaging consists of 100% recyclable corrugated board. In addition, the filtration heads can be easily removed and autoclaved on their own, unlike the previous model, which had to be completely sterilized. This feature results in an estimated 91% reduction in autoclave-associated carbon emissions.

CULTURE

Culture inspires people and opens up their minds to new possibilities. As a high-tech, research-based company, we therefore promote cultural projects worldwide and are engaged in educational projects – especially since education is key to making culture accessible.

Getting children excited about classical music

THE CHALLENGE

For children and adolescents, playing music together teaches them teamwork and builds their self-confidence. Yet many of them first come into contact with classical music only later in life – or never at all.

Cushion concerts for 800 children

HOW WE'RE HELPING

Our musical ambassador, the Deutsche Philharmonie Merck sponsored by Merck KGaA, Darmstadt, Germany, seeks to get children and adolescents excited about classical music and to nurture young talent. With this in mind, the Philharmonie thus held its first ever orchestra workshop in 2010. At this music camp, young musicians practice together with the Philharmonie members, gaining initial experience in a professional orchestra. The event concludes with a joint concert. In both 2013 and 2014, around 50 children and adolescents participated in our annual orchestra workshop. In addition to this, the Deutsche Philharmonie Merck sponsored by Merck KGaA, Darmstadt, Germany has also given four "cushion concerts" over the past two years, thereby reaching around 800 children.

50 children
played music with professional musicians

Promoting literature and building bridges

THE CHALLENGE

In certain parts of society, we as a research-based, high-tech company often encounter a growing sense of skepticism toward innovation and science, particularly in industrialized countries.

4 literary prizes worldwide

HOW WE'RE HELPING

Literature can inspire creativity, raise critical questions, and lead to innovation. Literature can also address scientific issues, thus furthering a deeper understanding of science and research. Merck KGaA, Darmstadt, Germany therefore grants and promotes four literary prizes worldwide.

77 authors recognized since 1964

For 12 years, we have been sponsoring the Premio Letterario of Merck KGaA, Darmstadt, Germany in Italy, which recognizes authors who build bridges between literature and science, thereby making them accessible to a wide audience. Building bridges between cultures is the focus of two literary awards that we grant in partnership with the Goethe Institut: the Kakehashi Prize of Merck Ltd. Japan, a subsidiary of Merck KGaA, Darmstadt, Germany in Japan and the Merck Tagore Award of Merck Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany in India. Since 1964, we have also been sponsoring the renowned Johann Heinrich Merck Award of Merck KGaA, Darmstadt, Germany for Literary Critique and Essay of Merck KGaA, Darmstadt, Germany, which is presented by the German Academy for Language and Poetry. Through this prize, we are helping build bridges between literature and literary criticism.

Fostering young scientists

THE CHALLENGE

Germany is experiencing a shortage of skilled, trained personnel - especially in the areas of mathematics, IT, science, and technology. This is partially due to the fact that too few children and adolescents are taking an interest in science.

3,500 students
conducted experiments in the Junior Lab

HOW WE'RE HELPING

With the aim of promoting young scientists, for more than 30 years Merck KGaA, Darmstadt, Germany has been a partner in "Jugend forscht", the largest and most successful young scientist competition in Germany. The company has been hosting this competition in the German Federal State of Hesse since 1996. In addition to "Jugend forscht", for many years we have also been supporting more than 60 schools in the region surrounding Darmstadt and Gernsheim in order to spark students' interest in science. For instance, our company not only provides materials for science classes - we also hold continuing education courses for teachers and offer classes field trips to our headquarters in Darmstadt, Germany. We are furthermore partnering with select schools to give teachers extensive support for science classes.

For more than 30 years,
we have been a partner in "Jugend forscht"

On top of this, since 2008 Merck KGaA, Darmstadt, Germany has also been running the Junior Laboratory in collaboration with the Technical University of Darmstadt. In more than 200 square meters of space, elementary and high school pupils of all ages can work on their own experiments and discover the world of chemistry, receiving guidance from university staff as well as university chemistry students. In 2014, around 3,500 pupils took advantage of the lab.

Strategy and management

Since the very beginning, corporate responsibility has been an integral part of our corporate culture. This is reflected in both our mission statement as well our Values. Our corporate responsibility strategy allows us to address the key issues impacting our business and stakeholders, which we identify by conducting regular materiality analyses using feedback from internal and external stakeholders. Our requirements for the responsible conduct of all employees are specified in numerous guidelines, and we use management systems to help steer key action areas.

Letter from Karl-Ludwig Kley

Dear Stakeholders and Friends of Merck KGaA, Darmstadt, Germany,

The world is changing rapidly, presenting mankind with ever new challenges, among them climate change, an aging population, broad access to health, and the digitization of society. Solutions must be found for all these issues.

It has long been clear that no one single player can solve all the challenges of our times. The issues are too complex to be handled by any one group on their own, whether that be policy makers, industry, civil society, or international organizations. The only answer is for us to join forces.

We view ourselves as a partner in shaping a better future. We take responsibility. Through our technologies and products, we are making a significant contribution to solving many global issues. As a company, we strive for sustainable success, not merely to maximize short-term profit. And we know that success can only be sustainable if it is achieved responsibly.

Responsible governance is thus the compass that guides our day-to-day actions and constitutes an integral part of our Group strategy. Since 2005, we have been supporting the United Nations Global Compact and its principles, which cover human rights, labor standards, environmental protection, and anti-corruption. In 2014, we underscored our dedication to sustainable supply chains in the chemical industry by joining the *Together for Sustainability* initiative.

In order to make our corporate responsibility activities more effective, we defined three strategic spheres of activity in 2014, those being environment, health and culture.

1. We are dedicated to improving access to health and are committed to providing underserved populations with access to effective, affordable health solutions, health prevention, diagnosis, and treatment.

   For instance, we have taken up the fight against the tropical disease schistosomiasis. Thanks to the praziquantel tablets we donate to the World Health Organization, 54 million children have already been treated thus far. We'll be increasing our contribution to up to 250 million tablets per year and will continue the donation until schistosomiasis has been eliminated in Africa.

   In the 2014 Access to Medicine Index, we once more increased our standing, moving up to sixth place. This shows that we are on the right path, one that we will continue to follow.

2. In everything we do, we strive to minimize our negative impacts on the environment. Many of the products in our portfolio actively contribute to environmental protection and help our customers use less water, power and raw materials.

   For instance, we are continually developing new formulations of liquid crystals that require less display backlighting, which significantly reduces the power consumed by electronic devices.

3. Being an innovative, high-tech company, we know that science and culture inspire one another, that they both form part of a healthy society. We promote cultural projects and education around the world in order to foster a passion for music, literature and science.

   Take for example the Premio Letterario of Merck KGaA, Darmstadt, Germany, a literary award that we present once a year in Italy to writers who in particular have built bridges between science and literature. We also sponsor the Johann Heinrich Merck Award of Merck KGaA, Darmstadt, Germany for Literary Critique and Essay of Merck KGaA, Darmstadt, Germany, which is presented by the German Academy for Language and Poetry to authors who build bridges between literature and empathetic understanding. Building bridges between cultures is the focus of two literary awards that we grant in partnership with the Goethe Institut: the Kakehashi Prize of Merck Ltd. Japan, a subsidiary of Merck KGaA, Darmstadt, Germany in Japan and the Merck Tagore Award of Merck Ltd., a subsidiary of Merck KGaA, Darmstadt, Germany in India.

We will only be able to overcome the challenges of the next several decades if we - meaning policy makers, industry and society - join forces. This is the reason we're contributing the experience and expertise we have at solving global issues. The company has been taking responsibility for nearly 350 years and will continue to do so – now and in the future.

Sincerely Yours,

Karl-Ludwig Kley
Chairman of the Executive Board of Merck KGaA, Darmstadt, Germany

Values and external initiatives

Merck KGaA, Darmstadt, Germany's corporate culture is characterized by responsible conduct – whether with respect to our products, our employees, the environment, or society. Responsibility has been an integral part of our approach for nearly 350 years and is one of our six Values.

These Values - courage, achievement, responsibility, respect, integrity, and transparency - form the foundation that underlies our actions. They guide us in our daily work, defining how we interact with our customers and business partners. We view open, honest communication internally and externally as an essential trust-building element. As a global company, we strive to create added value for consumers, our market partners and the community while also helping them lead better lives.

Our Group Mission Statement, our Values and the external initiatives we support give rise to requirements for responsible corporate governance that are integrated with both our Corporate Responsibility strategy as well as our Group-wide regulations. These guidelines include our Human Rights Charter and our Code of Conduct , as well as other specific corporate principles, policies and standards. This framework guides our employees in applying these requirements in the course of their day-to-day work, thus helping them live the company's commitment to corporate responsibility.

We support the following initiatives on responsible corporate governance:

- Merck KGaA, Darmstadt, Germany has been a member of the United Nations Global Compact since 2005 and is committed to complying with the compact's principles regarding human rights, labor standards, environmental protection, and anti-corruption. Our annual progress report illustrates how we are incorporating these ten principles into our business processes.
- In 2006, we signed the Responsible Care® Global Charter adopted by the International Council of Chemical Associations (ICCA). Within the scope of this voluntary initiative as well as its offshoot, the German Responsible Care® Program guidelines, we have committed ourselves to defining standards for product responsibility, environmental protection, health, plant safety, and security that go beyond mere legal obligations. The company was among the first companies to sign the revised version of the Responsible Care® Global Charter in 2014.
- Merck KGaA, Darmstadt, Germany signed the Code of Responsible Conduct for Business in 2010. This code is the result of an initiative of German companies that aims for member companies to firmly establish measurable standards with respect to fair competition, social partnership, merit, and sustainability.
- In 2014, Merck KGaA, Darmstadt, Germany joined the Together for Sustainability network, which is dedicated to improving the supply chain with respect to environmental, compliance and social standards.
- In addition to this network, we are also a member of the Chemie^3 initiative, a collaboration between the German Chemical Industry Association (VCI), the German Employers' Federation of the Chemical Industry (BAVC) and the German Mining, Chemical and Energy Industrial Union (IG BCE). The partners of this unique alliance aim to make sustainability a core part of the chemical industry's guiding principles and to jointly drive the sector's position within the German economy as a key contributor to sustainable development. The "Guidelines on sustainability in the German chemical industry" provide a framework consisting of 12 spheres of activity to promote sustainable company development, protect people and the environment, and ensure good, fair working conditions.

Human rights

Merck KGaA, Darmstadt, Germany is committed to upholding human rights within its sphere of influence and welcomes the "Guiding Principles for Business and Human Rights" adopted by the UN Human Rights Council in 2011. This set of principles creates a global framework for countries to fulfill their duty to protect human rights, as well as for businesses to respect them, illustrating how to do so.

Countries are obliged to establish a regulatory framework for the protection of human rights. For global companies, it is important that this be implemented across all countries in order to create uniform competitive conditions for all companies.

The duty of companies is to uphold and respect human rights; they absolutely must not violate any human rights in the course of their activities. Furthermore, companies must also act with the necessary due diligence, which includes identifying and managing risks.

In 2012, we conducted an extensive human rights risk assessment, which aimed to identify the human rights risks that arise from our activities as an international company. Based on the results of this assessment, we adopted a Group-wide Human Rights Charter at the end of 2013, which underscores our commitment to respecting and protecting human rights. This charter brings together and complements existing human rights regulations and guidelines, such as our Code of Conduct, our "Environment, Health and Safety Policy", and our "Charter on Access to Health in Developing Countries". The Human Rights Charter defines our company's expectations while increasing awareness of human rights within the company. It also allows us to more accurately assess Group-specific risks and to align our business operations with our Values.

In the course of drafting our Human Rights Charter, we asked external stakeholders for their opinion on our approach to human rights and then considered the situation from this external perspective. Among these stakeholders were business and human rights experts from various countries, trade unions, associations, and specialists in individual topics addressed in the charter.

We have informed our employees about the Human Rights Charter, but have not yet provided training on this charter.

The UN "Guiding Principles for Business and Human Rights" also require companies to perform human rights impact assessments (HRIA) to promptly identify any human rights problem areas. At the end of 2014, we conducted an HRIA in an emerging country. While we wish to further expand our strong market position in emerging economies, we are aware that these countries pose a higher risk of human rights violations. Through the HRIA, we aim to gain a better understanding of how our business operations and business relationships impact human rights, to ascertain whether the requirements of our Human Rights Charter are being fulfilled, and predict the risk of human rights violations. We furthermore wish to identify ways to prevent human rights violations.

After completing the HRIA and evaluating the results, we will check whether the findings from the assessment can be applied to other subsidiaries.

Merck KGaA, Darmstadt, Germany is a member of the German Global Compact Network within the Business & Human Rights Peer Learning Group, which aims to promote best practice sharing with regard to business and human rights.

Responsible Care®

The Responsible Care® Global Charter was adopted by the International Council of Chemical Associations (ICCA) in 2006 and is the basis for the guidelines of the German Responsible Care® Program. These two initiatives both aim to continually improve the chemical industry's track record in terms of product safety, environmental protection, health, plant safety, and security. Responsible Care® aims to achieve a level of voluntary cooperation with government bodies and other stakeholders that goes far beyond complying with statutory regulations. In 2014, Merck KGaA, Darmstadt, Germany was among the first companies to sign the revised version of the Responsible Care® Global Charter, which is currently being rolled out at an international level.

Our Responsible Care® activities are founded on internal guidelines such as our "Corporate EHS Policy" and the "EHS, Security and Quality Manual". In implementing the Responsible Care® Global Charter, we are currently focusing in particular on product safety, environmental protection and occupational safety.

Our product safety activities cover a range of measures. These include the implementation of regulatory requirements such as REACH in the EU, AREC in South Korea, TSCA in the U.S., and the worldwide GHS . We also engage in voluntary initiatives such as our Global Product Strategy and pursue sustainable product development. One example of this engagement is the life science business' Design for Sustainability program, which integrates sustainability across the product development process.

When it comes to environmental protection, we are currently focusing on climate change mitigation. We aim to cut our greenhouse gas emissions by 20% by 2020, relative to the 2006 baseline. Other key focus areas include water, wastewater and waste reduction. Process safety traditionally has high priority at the company as well.

Integrated occupational safety encompasses the prevention of workplace accidents, workplace-related illnesses and workplace-related health hazards. Our goal is to reduce the lost time injury rate to 2.5 by 2015.

Our subsidiaries are regularly audited to verify their compliance with statutory and Group-wide requirements, as well as to identify areas of improvement.

CR strategy and organization

Humanity is confronted with major global social issues such as climate change, aging populations, resource scarcity, and insufficient access to health in low- and middle-income countries.

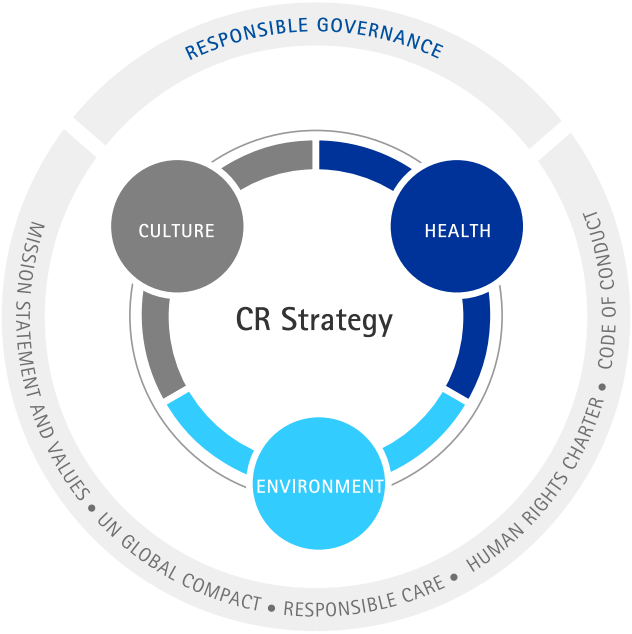
We are aware that, as a global player, our business operations impact our environment as well as the people around us. But we believe that we can help address global challenges through our innovative, high-caliber high-tech products for the health care, life science and performance materials sectors, as well as through responsible governance.

Today's global megatrends present us with both risks as well as opportunities. Average life expectancy continues to increase worldwide while birth rates continue to fall, a situation that is reflected in our portfolio of health solutions such as fertility treatments and cancer research. An estimated 1.3 billion people have no access to effective and affordable health care. Through our Group-wide Access to Health strategy, we take a comprehensive approach toward addressing access barriers in low- and middle-income countries. As a market and technology leader in the global liquid crystals business, the company is driving the development of state-of-the-art displays, thereby benefiting from the digitization megatrend. In addition, we are also developing products for energy-saving lighting and photovoltaics that can help mitigate climate change and resource scarcity.

We are furthermore constantly working to minimize ethical, financial and legal risks. In our interactions with vendors and other business partners worldwide, we are dedicated to complying with statutory and ethical standards and have implemented the necessary structures and systems to do so. Our environmental management processes aim to minimize our environmental impacts, in particular at our production sites. On top of this, we offer fair and attractive working conditions for our approximately 39,000 employees.

Our Group strategy is targeted to success, but equally respects the interests of employees, customers, investors, and society. It serves as the basis for our Corporate Responsibility (CR) strategy, which we reviewed and revised in 2014. Our entire range of CR activities can be summed up under the term "responsible governance", a concept that informs our day-to-day actions. At the end of 2014 we also examined our Group strategy and selected three strategic spheres of activity in which we particularly wish to engage. Our aim is to hone the company's competitive edge while helping to sustainably secure our future.

Corporate Responsibility at Merck KGaA, Darmstadt, Germany



Health

Through our Access to Health approach, which spans all our businesses, we aim to help improve sustainable access to high-quality health solutions for underserved populations and communities in low- and middle-income countries.

Stefan Oschmann, Vice Chairman of the Executive Board, has thus dedicated his two-year presidency of the International Federation of Pharmaceutical Manufacturers & Associations (IFPMA) to accelerating access to high-quality health solutions for people in low- to middle-income countries.

Environment

A number of our innovative chemical and life science products contribute to environmental protection. We strive to continuously enhance the sustainability footprint of our products while helping our customers achieve their own sustainability goals.

Read more in the chapter "Sustainable products" on p. 50

Culture

Culture inspires people and opens up their minds to new possibilities. As a high-tech, research-based company, we therefore promote cultural initiatives worldwide and are engaged in educational projects – especially since education is key to making culture accessible.

Cultural promotion is a core element of our engagement in society. After all, culture nurtures characteristics that are essential to our business activities as a high-tech company: creativity, enthusiasm for new discoveries, and the courage to transcend boundaries. Our cultural engagement focuses on music, literature and education.

Responsible governance is the foundation of our operating business. We work to minimize ethical, financial and legal risks, thereby ensuring the company's acceptance within society. We take responsibility for our products, the environment, and people, especially for our employees and the communities in which we operate.

Our products serve people's current and future needs. To us, safety and ethics matter just as much as business success. In the manufacture of our products, we seek to impact the environment as little as possible. Safety, environmental

protection and quality management are absolutely essential to this aim. We bolster our company's ability to act by recruiting, developing and motivating talented employees. We strive to help society function better and aim to set the example for ethical conduct.

Our CR strategy is defined by the Executive Board, which also decides on CR objectives and CR reporting.

The Group-wide CR Committee steers the implementation of our corporate responsibility strategy and consists of representatives from the businesses as well as from relevant Group functions such as EQ, HR, Compliance, and Procurement. In 2013, Karl-Ludwig Kley, Executive Board Chairman, became Chairman of the CR Committee. Since January 2015, the Group function Public Affairs and Corporate Responsibility has been reporting to Executive Board Vice Chairman Stefan Oschmann. Since this time, Oschmann has also headed the CR Committee.

The CR Committee reviews the CR strategy to ensure that it covers the topics relevant to the company and that it addresses potential areas where action is needed. We strive to identify challenges promptly in order to minimize risks, but also to seize the business opportunities that arise from societal change. During the preparation of our CR reports, we engage our stakeholders and conduct materiality analyses to ensure that all the relevant topics are addressed. The committee's tasks also include defining as well as regularly reviewing goals and measures that reflect our CR strategy. The committee ensures that initiatives of the businesses, Group functions, and subsidiaries are in line with our Group-wide CR strategy. Measures adopted by the committee are incorporated into our operations by line managers as well as by interdisciplinary project teams.

The CR Committee meets three times per year. In 2013 and 2014, the meetings primarily focused on CR strategy, access to health and human rights, as well as environmental and social standards along the supply chain, and the Design for Sustainability Program.

Materiality analysis

In order to identify the material non-financial topics relevant to our stakeholders as well as to our long-term business success, we once more conducted a materiality analysis as defined in the G4 Guidelines of the Global Reporting Initiative (GRI). This process involved identifying the important issues, prioritizing them, and validating them with our Corporate Responsibility (CR) Committee.

In the first step, we identified more than 70 current CR topics for the pharmaceutical and chemical industries. For this, we used various information sources, including our experience from previous materiality analyses and CR reports, the health care sector standards of the Sustainability Accounting Standards Board (SASB), analyses of capital market requirements, and the dialogues with various stakeholders.

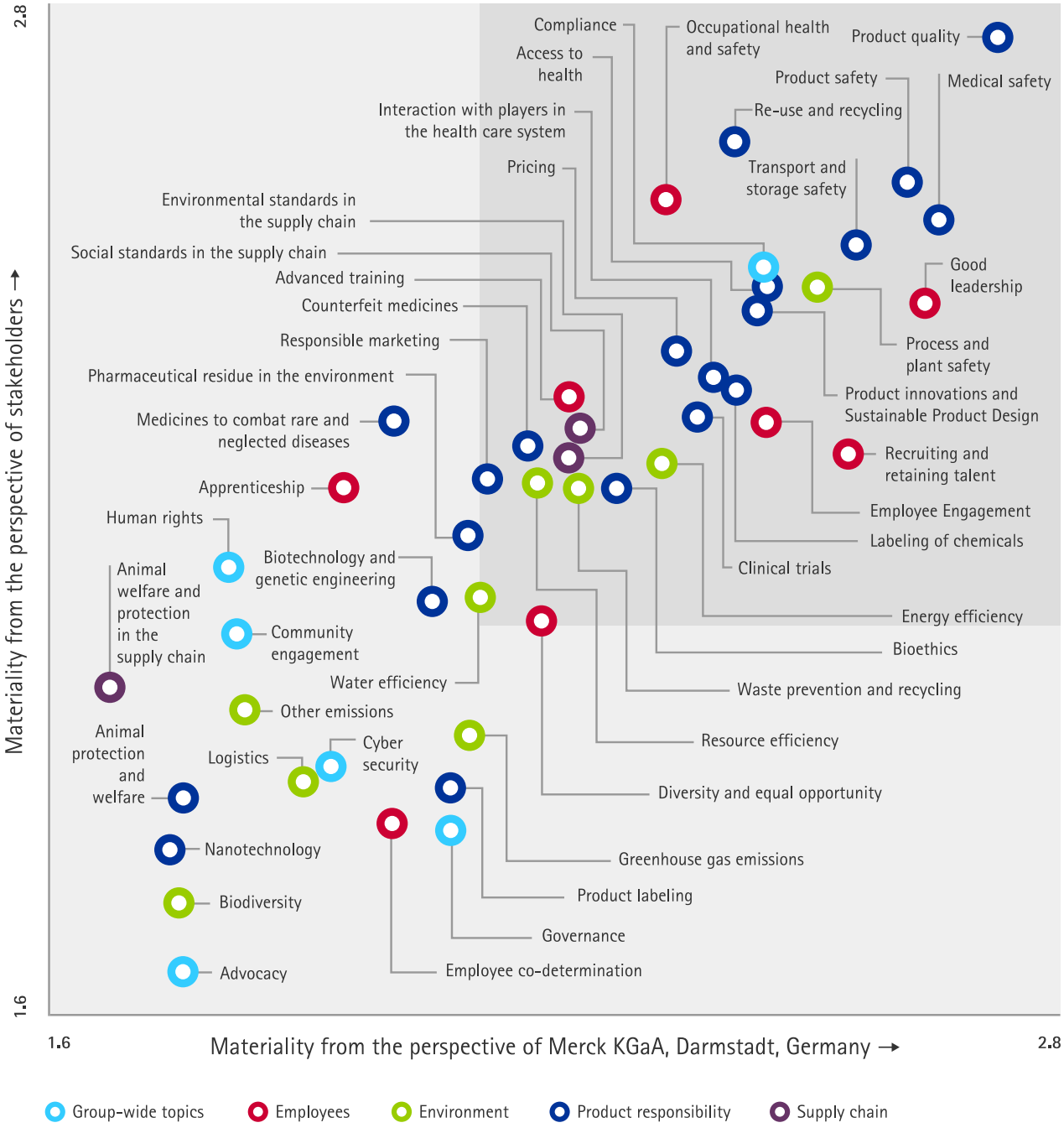
We discussed the options internally and narrowed it down to 46 issues, which became the focus of an online international survey conducted on some of our stakeholders. We asked participants to rank how relevant the 46 topics are to Merck KGaA, Darmstadt, Germany, as well as to rate the company's performance with regard to them. Around 120 people from across 30 countries took part in the survey; two-thirds were internal stakeholders and one-third were external stakeholders. Among them were rating agencies, suppliers, scientists, researchers, and employees involved in corporate responsibility, as well as representatives from the political arena, non-governmental organizations, and federations. In assessing the results, we gave equal consideration to the responses of all stakeholders.

In particular, participants rated product responsibility as being especially important, and they overwhelmingly rated Merck KGaA, Darmstadt, Germany's performance in this area as good to very good. Combined with other analysis results, the stakeholders' responses showed us what they think of our CR performance, as well as which aspects they consider relevant to us. The stakeholders' responses were also utilized in our 2014 Materiality Analysis.

During a materiality workshop, representatives from the CR Committee validated the top-ranked issues, discussed the strengths and weaknesses of the management system the company uses to steer topics, and identified areas that we need to address. This resulted in 27 issues that are material to Merck KGaA, Darmstadt, Germany, which are also the focus of this CR Report. These coincide for the most part with topics that we identified in previous materiality analyses. This report describes our management approach to these 27 issues of particular importance to our stakeholders and company, and provides details on measures, achievements, challenges, and goals for some of them.

The results of the materiality analysis are presented in the 2014 materiality matrix.

Materiality matrix



Because our stakeholders expect transparent reporting on more than just these 27 topics, our report includes other topics as well, which will be re-assessed in future materiality analyses.

The following table shows where topics identified as material are relevant along the value chain: upstream in our supply chain, in the course of our activities, or downstream, i.e. customers and patients.

The table furthermore indicates to which of Merck KGaA, Darmstadt, Germany's businesses and external stakeholders the topic applies. The topics are linked to the respective chapters in this report.

Material topics	Relevance along the value chain					
	Upstream activities	Internal activities by business sector			Downstream activities	Material for the following stakeholders
		Healthcare	Life Science	Performance Materials		
Group-wide topics						
Compliance on p. 33	✓	✓	✓	✓	✓	Capital market community, customers, suppliers / service providers, NGOs / civil society, policy makers, business associations, scientists and researchers
Product responsibility						
Medicines to combat rare and neglected diseases on p. 61		✓			✓	Capital market community, customers, suppliers / service providers, NGOs / civil society, policy makers, business associations, scientists and researchers
Counterfeit medicines on p. 121		✓			✓	Capital market community, customers, suppliers / service providers, NGOs / civil society, policy makers, business associations, scientists and researchers
Bioethics on p. 68		✓	✓		✓	Capital market community, customers, suppliers / service providers, NGOs / civil society, policy makers, business associations, scientists and researchers
Disposal and recycling of chemicals, single-use products and other products on p. 113			✓	✓	✓	Capital market community, customers, suppliers / service providers, NGOs / civil society, policy makers, business associations, scientists and researchers
Interaction with players in the health industry on p. 78		✓			✓	Capital market community, customers, suppliers / service providers, NGOs / civil society, policy makers, business associations, scientists and researchers
Labeling of chemicals on p. 43			✓	✓	✓	Capital market community, customers, suppliers / service providers, NGOs / civil society, policy makers, business associations, scientists and researchers

Table continued

Material topics	Relevance along the value chain					
	Upstream activities	Internal activities by business sector			Downstream activities	Material for the following stakeholders
		Healthcare	Life Science	Performance Materials		
Clinical trials on p. 70	✓	✓				Capital market community, customers, suppliers / service providers, NGOs / civil society, policy makers, business associations, scientists and researchers
Pricing on p. 63		✓			✓	Capital market community, customers, suppliers / service providers, NGOs / civil society, policy makers, business associations, scientists and researchers
Product innovations and sustainable product design on p. 50		✓	✓	✓	✓	Capital market community, customers, suppliers / service providers, NGOs / civil society, policy makers, business associations, scientists and researchers
Product quality on p. 41		✓	✓	✓	✓	Capital market community, customers, suppliers / service providers, NGOs / civil society, policy makers, business associations, scientists and researchers
Product safety on p. 41		✓	✓	✓	✓	Capital market community, customers, suppliers / service providers, NGOs / civil society, policy makers, business associations, scientists and researchers
Transport and storage safety on p. 79	✓	✓	✓	✓	✓	Capital market community, customers, suppliers / service providers, NGOs / civil society, policy makers, business associations, scientists and researchers
Drug safety on p. 41		✓			✓	Capital market community, customers, suppliers / service providers, NGOs / civil society, policy makers, business associations, scientists and researchers
Access to health on p. 58		✓			✓	Capital market community, customers, suppliers / service providers, NGOs / civil society, policy makers, business associations, scientists and researchers
Employees						
Employee engagement on p. 100		✓	✓	✓		Customers, suppliers / service providers, NGOs / civil society, policy makers, business associations, scientists and researchers
Occupational health & safety on p. 102		✓	✓	✓		Capital market community, customers, suppliers / service providers, NGOs / civil society, policy makers, business associations, scientists and researchers

Table continued

Material topics	Relevance along the value chain					
	Upstream activities	Internal activities by business sector			Downstream activities	Material for the following stakeholders
		Healthcare	Life Science	Performance Materials		
Good leadership on p. 91		✓	✓	✓		Capital market community, customers, suppliers / service providers, NGOs / civil society, policy makers, business associations, scientists and researchers
Recruiting and retaining talent on p. 95		✓	✓	✓		Customers, suppliers / service providers, NGOs / civil society, policy makers, business associations, scientists and researchers
Diversity and equal opportunity on p. 92		✓	✓	✓		Capital market community, customers, suppliers / service providers, policy makers, business associations, scientists and researchers
Advanced training and continuing education on p. 95		✓	✓	✓		Capital market community, customers, suppliers / service providers, NGOs / civil society, policy makers, business associations, scientists and researchers
Environment						
Waste prevention and recycling on p. 113		✓	✓	✓	✓	Capital market community, customers, suppliers / service providers, NGOs / civil society, policy makers, business associations, scientists and researchers
Energy efficiency on p. 109		✓	✓	✓		Capital market community, customers, suppliers / service providers, NGOs / civil society, policy makers, business associations, scientists and researchers
Process and plant safety on p. 108		✓	✓	✓		Capital market community, customers, suppliers / service providers, NGOs / civil society, policy makers, business associations, scientists and researchers
Greenhouse gas emissions on p. 109		✓	✓	✓		Capital market community, customers, suppliers / service providers, NGOs / civil society, policy makers, business associations, scientists and researchers
Supply chain						
Social standards in the supply chain on p. 85	✓					Capital market community, customers, suppliers / service providers, NGOs / civil society, policy makers, business associations, scientists and researchers
Environmental standards in the supply chain on p. 85	✓					Capital market community, customers, suppliers / service providers, NGOs / civil society, policy makers, business associations, scientists and researchers

Guidelines and management systems

We have specified our requirements for the responsible conduct of all employees in numerous guidelines in order to ensure that they all know the relevant rules and apply them in the workplace.

Our Group-wide guideline system contains all company policies and explains which ones apply to which parts of the company. They range from the charters and principles in effect for the entire company, to specific standards and procedures that apply to either our sectors and businesses or our individual sites.

Such documents include our Code of Conduct, our "Human Rights Charter" and our "Charter on Access to Health in Developing Countries".

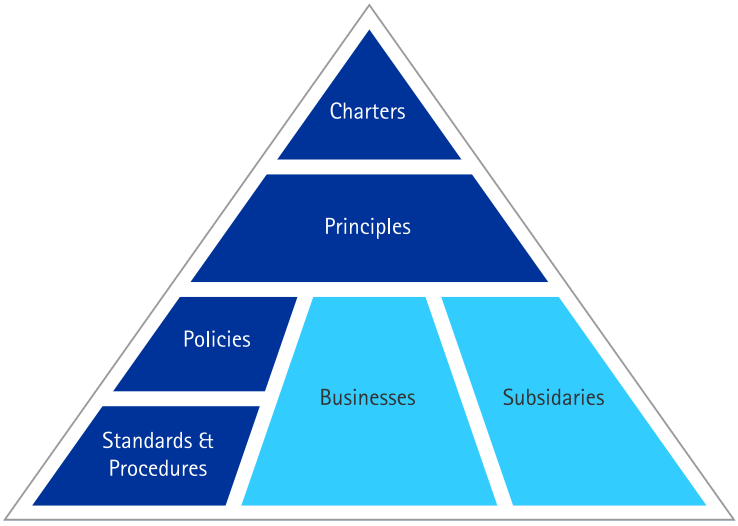
Examples of internal policies include: the Group-wide "Corporate EHS Policy", which establishes the framework for principles, strategies and organizational structures for environment, health and safety; our "Animal Welfare Policy", which describes the treatment of laboratory animals throughout the company; and our "Corporate Security Policy", which stipulates procedures to protect the company's intellectual and material assets.

In addition, we also have numerous business-specific policies, such as the biopharmaceuticals business' "Interactions with Patients and Patient Organizations", as well as our "Safety Policy" for chemical products. Through this safety policy, we have established global processes for defining, driving and implementing product safety and have created the necessary management structures to do so.

Our standards take the provisions from charters, principles and policies and translate them into concrete terms for employees in charge of operational processes.

The guidelines are kept up-to-date by the relevant departments and are available on the intranet. Managers are responsible for implementing them in their respective areas of responsibility. We educate and train our employees on the guidelines that pertain to them. In this way, we ensure that they are familiar with both the overarching rules from the charters and principles, as well as the concrete specifications that affect their individual range of activities.

Group-wide guideline system



The guideline system is an integral part of our management systems, which are used to define and steer goals, actions and responsibilities in key action areas. Our management systems are based on standards such as the internationally recognized ISO 9001 for quality management, GxP guidelines for good working practices in the pharmaceutical industry, and ISO 14001 for environmental management. Our ISO 14001 environmental management system and ISO 9001 quality management systems are certified at regular intervals by an independent auditing firm. Merck KGaA, Darmstadt, Germany holds group certificates for its quality and environmental management systems.

Compliance

Responsible entrepreneurship means first and foremost legally compliant conduct. All of Merck KGaA, Darmstadt, Germany's activities have to comply with statutory rules and regulations worldwide. Violations might not only entail legal prosecution, but could also seriously harm the company's corporate reputation, meaning its standing as a business partner or employer. Therefore, compliance with statutory rules and regulations has top priority for us. Compliance for our company also means acting in accordance with the ethical principles defined in the Merck KGaA, Darmstadt, Germany Values. We strive to do "good" business, which means operating profitably while still meeting high ethical standards.

Globally mandatory guidelines

The Merck KGaA, Darmstadt, Germany Code of Conduct is a compulsory set of rules for the company's entire workforce. Our employees have been provided with a copy of the Code of Conduct, and new employees are handed a copy with their letter of offer.

The Code of Conduct explains the principles for dealings with business associates, general partners, co-workers, and employees, as well as the communities in which we operate. Thus, it supports all employees in acting ethically – not only in their interactions with one another, but also outside the company. Our Human Rights Charter supplements the Code of Conduct with global human rights principles, such as the core labor standards of the International Labour Organization (ILO). In July 2014, we furthermore adopted a new anti-corruption guideline for the Group.

We expect our business partners worldwide to adhere to our guidelines and principles as well. While Supplier Management ensures that suppliers conduct their business according to the rules and regulations, Global Business Partner Risk Management handles the relationships with distribution-related associates such as distributors and wholesalers.

Group Compliance oversaw the integration of AZ Electronic Materials (AZ), which was acquired in 2014, and trained AZ employees on compliance as well as on our compliance guidelines. Since January 2015, AZ employees have been fully integrated into Merck KGaA, Darmstadt, Germany's compliance measures.

Our Compliance organization

Through our compliance organization, we ensure adherence to statutory regulations as well as to the company's own internal rules and regulations. The Compliance Group function, which features a Group Compliance Officer and other specialists, is responsible for maintaining and enhancing the compliance program. At our subsidiaries, local and regional compliance officers are responsible for implementing the compliance measures. Besides expanding the global Compliance organization, we have also appointed a Compliance Officer for the life science business and one for our Healthcare business sector. This will augment the compliance expertise available when entering new business fields and ensure that our businesses comply with statutes and regulations. The approximately 60 Compliance Officers worldwide fall under the Group Compliance Officer. Group Compliance provides them with guidance as well as training documents, along with other support. They report regularly to the Group Compliance Officer, who in turn reports to the Executive Board at least once a year, updating the Board on compliance activities, compliance risks and serious compliance violations. The Executive Board updates the company's supervisory bodies at least once a year on the key compliance issues.

Selecting business partners

Merck KGaA, Darmstadt, Germany applies a risk-oriented approach to the selection of sales-related business partners such as distributors, agents, and wholesalers. In essence, the greater we estimate the risk to be with regard to a certain country, region, type of service, etc., the closer and more carefully we examine the company before doing business with them. For risk assessments, we use tools such as the Corruption Perception Index (CPI) maintained by Transparency International, as well as background information from various databases. We also take into account whether the business partner in question has a compliance program.

Our "Global Business Partner Risk Management Guideline" governs the selection process for business partners as well as the system-based documentation of relevant information and the evaluation thereof. Through this comprehensive process, we are both minimizing our risk as well as taking into account the modified requirements resulting from new anti-corruption legislation such as the UK Bribery Act.

This Group-wide mandatory guideline stipulates eight principles that must be taken into account when selecting new business partners and that also apply to existing business relationships. For instance, the policy stipulates that the company shall only do business with partners who comply with all applicable laws, who do not engage in bribery, who adhere to environmental, health and safety guidelines, and who refuse to tolerate discrimination. Furthermore, we require them to demonstrate a commitment to internationally recognized human rights and labor standards, as well as to the compliance standards defined in our Code of Conduct.

Business partners must accept and adhere to these principles if they wish to enter into a business relationship with Merck KGaA, Darmstadt, Germany. We also conduct such audits on existing business partners, usually when it's time to renew a contract.

If the audits come up with red flags, we may reject potential business partners or terminate the relationship. However, our business associates are frequently willing to modify their structures and processes to meet our stringent compliance requirements. Since implementing the process in 2013, more than 1,000 business partners have already undergone this audit.

Compliance audits

The Internal Auditing Group function regularly reviews compliance-relevant matters at our facilities. Their audits focus on the existence and quality of compliance guidelines, processes and structures. In addition, Internal Auditing also checks our sites for violations of our Code of Conduct and reviews workplace aspects of the Human Rights Charter. The topic of corruption is also part of our standard audit program. Altogether, 30 audits were conducted in 2013 to check for corruption, with 36 in 2014.

On top of this, 27 sites across 22 countries were audited on workplace aspects of the Human Rights Charter in 2013, and 32 sites across 28 countries were audited in 2014. The audits found no violations.

Compliance training

We place a high priority on regular compliance training, which is provided as classroom and online courses. Employees of all levels, as well as independent contractors and supervised workers such as temps, are trained on topics related to the Code of Conduct such as corruption, competition law and conflicts of interest.

In 2013 and 2014, we used our e-learning system to train 29,360 people on our Code of Conduct, educating them on the consequences of compliance violations. This training also taught ways to avoid compliance violations.

In 2013 and 2014, a total of 40,188 people took 117,509 online courses on a variety of compliance topics. A large portion of these classes focused on corruption. In 2013 and 2014, we trained 31,687 people on how to prevent corruption.

Several courses on special topics are offered specifically for employees above a certain Global Grade, such as the course on competition law that was rolled out in 2014. In addition to online courses, numerous classroom courses on compliance are held worldwide in order to provide employees with effective training on local issues in particular.

We review and revise training plans regularly, adapting them to new developments. For instance, in 2014 we developed online courses to accompany the implementation of our new anti-corruption guidelines. Since 2013, we have been training employees, especially those in distribution, on our expanded business partner selection process as well as our "Global Business Partner Risk Management Guideline". Due to the significance and complexity of the subject, this training is generally offered as a classroom course.

SpeakUp Line

All employees are called upon to report compliance violations to their supervisor, Legal, HR, or other relevant departments. Employees can also report violations via the SpeakUp Line central reporting system, doing so in their respective national language. Available as a telephone hotline or a web-based application, they can report the incident free of charge and anonymously from anywhere in the world. In addition to our employees, business partners who have undergone the Business Partner Risk Management Process can also report misconduct via the SpeakUp Line.

The reports received are reviewed by the Group Compliance Officer and submitted to the Compliance Committee, who will then coordinate the necessary investigation into the matter. This committee consists of senior representatives from Internal Auditing, Compliance, Group Security, Data Security, and Human Resources. They monitor the handling of reported cases and initiate appropriate corrective measures as needed. Disciplinary actions are also taken, when necessary, against employees who have violated a compliance rule. These actions may range from a simple warning up to dismissal of the employee, depending on the severity of the violation.

On top of the SpeakUp Line, we have also set up a central advice hotline within the Group Compliance Office. Our employees can call this number to get advice on ethical and compliant conduct.

The number of compliance-relevant reports as well as the number of actual compliance violations have remained for the most part unchanged over the last several years. Via the SpeakUp Line and other channels, we received a total of 22 compliance-related reports in 2013 that resulted in an investigation, with 26 such reports in 2014. We confirmed nine cases of compliance violations in 2013 and eleven in 2014. The majority of these violations resulted from the misconduct of individual employees and represented minor, isolated incidents that led to commensurate disciplinary action. During the 2013-2014 period, six cases total entailed managerial employees who were involved in improper business practices, or had knowledge thereof. These cases mostly dealt with improper distribution and marketing methods to boost sales, as well as inappropriate interactions with medical professionals. In all cases, disciplinary action was taken against the managers responsible for the infractions.

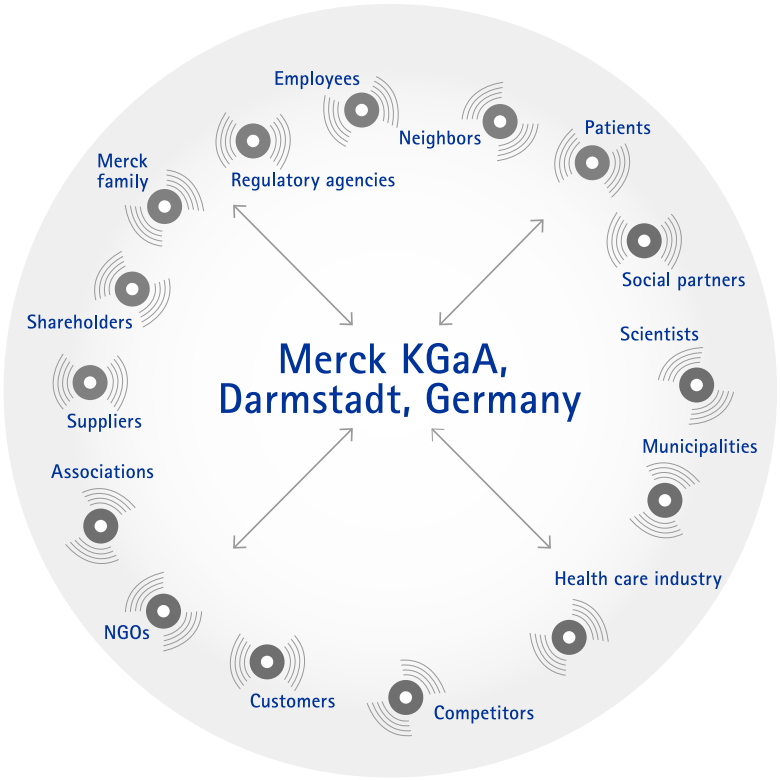
Outlook

The importance of compliance in business processes will continue to grow, especially in the pharmaceutical industry. For Europe, the transparency initiative of the European Federation of Pharmaceutical Industries and Associations (EFPIA) stipulates that, effective 2016, companies will have to publish all donations made to physicians that are not connected to research. Our Compliance organization has worked with the relevant businesses to implement measures that satisfy this disclosure obligation. This includes the creation of an internal guideline that stipulates the approval process and documentation requirements for donations made to physicians.

Stakeholder dialogue

Our business operations intersect the interests of many people, which makes continuous engagement with our stakeholders absolutely essential. We particularly engage with those people and groups who are impacted by our decisions and activities - or who help determine them. Our stakeholders include employees, customers, business partners, the Merck family, investors, regulatory agencies, associations, neighbors in the vicinity of our sites, and non-governmental organizations (NGOs). Our stakeholder engagement takes many forms, such as stakeholder surveys, issue-specific dialogues, informational forums, round table discussions, industry coalitions, and advocacy work. This exchange enables us to demonstrate how we live our Values, as well as to illustrate the corporate responsibility (CR) strategy we pursue. It also provides us an opportunity to express our appreciation for our stakeholders. We strive to sustain and build trust and – wherever possible – harmonize divergent interests. Our top priority is to ensure the company's acceptance within society.

Our stakeholders



Stakeholder surveys

We regularly survey our employees, customers, business partners, and other relevant stakeholder groups about the CR issues they consider to be important to Merck KGaA, Darmstadt, Germany now and in the future, asking them to assess our performance on these priority issues. We also wish to know the questions our stakeholders have regarding corporate responsibility at the company so that we can address them in our CR Report. Most recently, we conducted such a survey on our stakeholders in 2014 in conjunction with the materiality analysis for our 2014 CR Report, involving around 120 stakeholders from across 30 countries.

Issue-specific dialogues

In the course of our business activities, we deal with a wide range of issues and interface with various communities. In the process, our departments usually interact directly with stakeholders. Depending on the subject and whether the issue is of local, national or international relevance, this may take the form of workshops and seminars, or even roundtables held at major conventions. Beyond this, Merck KGaA, Darmstadt, Germany is also involved in industry networks and participates in professional conferences.

For instance, in September 2014, Merck KGaA, Darmstadt, Germany partnered with the German Chemical Industry Association (VCI), the German Mining, Chemical and Energy Industrial Union (IG BCE) and the German Employers' Federation of the Chemical Industry (BAVC) to host a conference in Darmstadt (Germany) entitled "Deutschland braucht Chemie. Nachhaltigkeit – Voraussetzung für Wachstum und Wohlstand?" (Germany needs chemistry. Sustainability - a prerequisite for growth and prosperity?). Attended by more than 700 people, this sustainability conference was held as part of the "DA stimmt die Chemie" event series, a collaboration between the company and the Technical University of Darmstadt that is taking place from September 2014 to June 2015. In July 2014, we organized an expert workshop with representatives from the worlds of politics, business and society to prepare for the conference, which focused on the chemical sector's contribution to sustainable development. In addition to this, participants also discussed the definition of a company's responsibility for its products, as well as the balance between ecology, economy and social responsibility.

Furthermore in the 2013-2014 period, we also hosted Access Dialogues to engage industry representatives, international organizations, and other stakeholders on the topic of access to health. These dialogues focused on access to health innovations, the protection of intellectual property, and challenges posed by the supply chain in developing countries. Within our Capacity Advancement Program, more than 200 dialogue events have been held since 2012, which seeks to raise the profile of diabetes in Africa and Asia through education and support for the health systems there.

In October 2014, more than 100 health experts from Africa attended the company's Africa Luminary in Darmstadt. This conference focused on advancing medical capacities in the fields of diabetes, oncology and infertility, as well as optimizing supply chain integrity, pharmacovigilance, and the fight against counterfeit medicines. During 2013 and 2014, we also participated in various conferences on schistosomiasis and malaria, part of our commitment to fight neglected tropical diseases. Among these were the Harvard Symposium on Malaria and Tuberculosis in November 2014 as well as the eleventh Malaria Meeting in November 2013 in Aachen (Germany), which gave rise to a new partnership with Saint George's University in the United Kingdom.

The life science business discusses sustainable business strategies within the Sustainability Stakeholder Advisory Group (SSAG). In 2014, the life science business conducted a global customer service and usage survey; it held a stakeholder meeting with suppliers, distributors, customers, non-governmental organizations, and scientists in order to get their feedback on our sustainability strategy, as well as on the sustainability criteria that govern our products. We took this feedback and used it to define new criteria for our Design for Sustainability Program, integrating these criteria with our product development process. The new criteria included product recyclability and the availability of a recycling program.

Discussion and information forums

At our major sites, we have set up discussion and information forums for local residents. Through the public planning forum held annually at our headquarters in Darmstadt since 1994, we aim to provide residents with the opportunity to obtain information and discuss our development at the site. During the 2013-2014 period, we provided information particularly on our "Fit for 2018" transformation and growth program, as well as new developments resulting from our ONE Global Headquarters initiative in Darmstadt. We also discussed landfill remediation, groundwater issues, the daycare center, and visitor parking area remodeling, along with energy, communication and crisis management.

In expanding our biotech production facilities in Corsier-sur-Vevey, Switzerland, we initiated a dialogue with NGOs and local authorities to ensure the greatest possible transparency during the entire project life cycle, from planning to completion. For the project, the company committed to applying high environmental and safety standards that exceed statutory requirements. Even after completing construction, we will continue to hold this annual meeting, which enables us to engage stakeholders in regular discussions as well as to verify that the stipulated measures are being properly implemented. In 2014, the meeting focused on the status of landscaping activities and updates to the mobility plan, as well as our water balance and water release performance.

Industry interest groups and advocacy work

We actively participate in the political process and advocate our views by engaging policy makers in a direct dialogue as well as by engaging in advocacy work.

Below are several examples of major national and international industry associations in which we are members and hold positions:

- The German Chemical Industry Association e.V. (VCI)
- The European Chemical Industry Council (CEFIC)
- The German Association of Research-based Pharmaceutical Manufacturers e.V. (vfa)
- The European Federation of Pharmaceutical Industries and Associations (EFPIA)
- The International Federation of Pharmaceutical Manufacturers & Associations (IFPMA)

Examples of positions held by members of our Executive Board include:

Karl-Ludwig Kley, Chairman of the Executive Board:

- Federation of German Industry (BDI), Vice President
- German Chemical Industry Association e.V. (VCI), Vice President

Stefan Oschmann, Vice Chairman of the Executive Board:

- International Federation of Pharmaceutical Manufacturers & Associations (IFPMA), President
- European Federation of Pharmaceutical Industries and Associations (EFPIA), Vice President
- Paul Ehrlich-Stiftung, Member of the Board of Trustees

Belén Garijo, Member of the Executive Board, CEO Healthcare:

- PhRMA (Pharmaceutical Research and Manufacturers of America), Member of the Board

Kai Beckmann, Member of the Executive Board:

- Federal Employers' Association for the German Chemical Industry e.V. (BAVC), Member of the Board
- Employers' Association for the Chemical and Related Industries in the State of Hesse e.V. (HessenChemie), Member of the Board
- Darmstadt Rhein Main Neckar Chamber of Industry and Commerce (IHK), Member of the Board
- Fraunhofer Institute for Computer Graphics Research (IGD), Member of the Advisory Board

Bernd Reckmann, Member of the Executive Board, CEO Chemicals:

- German Chemical Industry Association (VCI), Chairman of the Hessian Chapter

- Technology and Environment Committee of the German Chemical Industry Association e.V. (VCI), Chairman
- German Association of Biotechnology Industries (DIB), Member of the Board
- Board of Trustees of the Chemical Industry Fund (FCI) within the German Chemical Industry Association (VCI), Member of the Board

Within the Chemie^3 and Responsible Care® initiatives, Merck KGaA, Darmstadt, Germany is also working in particular to develop and implement sustainability standards in the pharmaceutical and chemical industries. On top of this, the company is active in numerous socially engaged organizations, such as the Goethe Institute, the Remembrance, Responsibility and Future Foundation, and the World Environment Center (WEC). We also participate in initiatives and projects whose other participants share our standards of entrepreneurial conduct. For instance, we support the "Code of Responsible Conduct for Business".

Merck KGaA, Darmstadt, Germany does not make financial contributions to holders of or candidates for political office, political parties or related organizations. This is stipulated in our Code of Conduct. In the United States, EMD Political Action Committees (PACs) have been set up as a conduit for our employees to make donations in support of political candidates and organizations. These are not donations from the company, but rather from individual employees. The contributions donated are reported to the U.S. Federal Election Commission and are fully disclosed.

Products

Our success and our future are founded on innovative products that benefit people and help them live a better life. Our products are highly trusted worldwide – whether our innovative medicines of chemical or biological origin, our over-the-counter products, our liquid crystals for LC displays, our pigments for the coatings, plastics and printing industries, products for the cosmetics industry, or biopharmaceuticals and lab solutions for the life science industry. Responsibility for our products will always be at the core of our corporate responsibility. Here, we are driven by our ethical standards as well as our high expectations for safety and environmental compatibility.

Product safety

Our products must be safe and should not pose a danger to patients, customers or the environment. We therefore examine product safety across the entire life cycle, continuously taking steps to make improvements. Patients and customers receive extensive informational material with our products so that they understand them as fully as possible and can use them safely.

Read more about the safety of our drugs on p. 41

Read more about the safety of our chemical products on p. 43

Safety of our drugs

Patient safety is our number one priority. Proactive safety strategies thus drive our decision-making and we strive to mitigate risks for all our medicinal products.

Before an active pharmaceutical ingredient (API) is used in humans, we conduct extensive pre-clinical trials that test for aspects such as efficacy and toxicity. After this, the API is tested in humans within the scope of clinical trials that investigate the API's efficacy and adverse effects. The trial results are then used to assess the drug's benefit-risk ratio, weighing the benefits of the treatment against its risks. We create benefit-risk profiles for all our medicinal products to ensure that a positive benefit-risk balance is in place for all medicinal products marketed by us. In 2014, we updated our benefit-risk analysis practice by implementing an improved systematic process.

Information from clinical trials provides an important basis for a drug to be approved by the regulatory authorities. After receiving marketing approval, we continue to conduct benefit-risk evaluations on the drug since the number of patients using it increases exponentially – to thousands or millions worldwide. We thus gain a deeper understanding of the safety profile of our drugs.

At the biopharmaceuticals business, the Global Drug Safety unit is responsible for continuously monitoring the safety profiles of our drugs (pharmacovigilance). Global Drug Safety processes safety information from various sources such as clinical trials, adverse reaction reports and scientific literature in order to ensure up-to-date safety information for patients and their healthcare providers during the entire life cycle of our drugs, from development to the end of marketing authorization.

Pharmacovigilance information is compiled from doctors and patients in all countries in which our medicinal products are marketed. Medical specialists and pharmacovigilance teams ensure that information on adverse effects is correctly compiled, tracked, and communicated. The data for all of our drugs is medically evaluated by the Global Drug Safety functions, who adapts the benefit-risk evaluations as necessary. In line with regulatory requirements, changes to the benefit-risk evaluation and potential safety risks are reported to the responsible authorities, as well as to doctors and patients.

Global Drug Safety at the company's headquarters and the drug safety units within our subsidiaries continuously review changes in the pharmacovigilance regulations worldwide – for products in both the development as well as the marketing phase. New regulations are continuously integrated into our Group-wide processes, thus allowing us to ensure that regulatory requirements and statutory regulations are adhered to. Since the European Medicines Agency (EMA) released its "Guidelines on good pharmacovigilance practices" (GVP) in 2012, we have reviewed any new or updated GVP Modules and implemented them in our internal pharmacovigilance processes. In 2014, the European Medicines Agency published the new GVP Module on risk mitigation, as well as the revised GVP Modules on Individual Case Report Management and on Periodic Safety Update Report Management. We have integrated the new and revised requirements from these GVP Modules into our processes.

Health authorities regularly conduct pharmacovigilance inspections to review our adherence to regulatory requirements as well as to our own internal drug safety standards. The German Federal Institute for Drugs and Medical Devices (BfArM) and the Paul Ehrlich Institute (the Federal Institute for Vaccines and Biomedicines) - Germany's two pharmaceutical regulatory agencies - conducted a pharmacovigilance inspection on the biopharmaceuticals business Global Drug Safety in February 2015. Conducted on behalf of the European

Medicines Agency, this inspection did not yield any critical observations. We are analyzing the non-critical observations that were identified and implementing both corrective as well as preventive measures. In addition to this, we have implemented a worldwide audit program based on the GVP audit module that includes our global activities, as well as affiliates, vendors, and license partners engaged in our pharmacovigilance activities.

The Medical Safety and Ethics Board (MSEB) bears responsibility for drug and medical safety at the biopharmaceuticals business – across the entire life cycle of our drugs, from development to the end of marketing authorization. The Chairman of the MSEB is the Chief Medical Officer (CMO), who also makes the final call on decisions. The board convenes once a month, or on an ad hoc basis as required. In addition to the chairperson, the MSEB consists of experienced physicians, scientists and legal representatives from the biopharmaceuticals business. Its tasks include assessing benefit-risk evaluations, reviewing risk management, and dealing with safety-related communication. Furthermore, it reviews proposals for first-in-man (FIM) clinical studies as well as for updates to the safety warnings on package inserts and labeling. During the life cycle of a medicinal product or medical device, medical, ethical or safety issues that need guidance or a decision from the CMO can be escalated to the MSEB.

In collaboration with other companies as well as organizations from the public sector (e.g. health authorities, academia), the company is involved in PROTECT (Pharmacoepidemiological research on outcomes of therapeutics by a European consortium), a global research project of the Innovative Medicines Initiative (IMI) launched in 2009. This project aims to further develop and optimize instruments and methods for the benefit-risk evaluation of drugs. The project team established a framework for benefit-risk profiles, which is described in a benefit-risk guide.

Our Quality Training Management standard applies to all employees whose work is related to the quality and safety of a drug or clinical trial. This standard describes how to conduct training workshops and seminars at both the Group level as well as locally within the subsidiaries. Compliance with these requirements is regularly reviewed during the audits of the quality system.

All employees that work in drug development are regularly trained on their drug development expertise and topics related to compliance with ICH, GCP, the respective standard operating procedures, etc. Employee training is provided via a validated learning management system. Depending on their role, a certain training module may be mandatory or optional for the employee. Line managers are responsible for checking whether employees have received all training required by their role.

Good manufacturing practice

In producing pharmaceuticals, quality assurance is a key aspect because deviations can impact patient health and safety. In order to ensure that pharmaceuticals meet the standards set for identity, purity, potency and safety, they must be manufactured according to current Good Manufacturing Practice (cGMP) . Consequently, as a manufacturer we must have appropriately trained employees as well as suitable facilities, processes and procedures. Compliance with cGMP guidelines is mandatory and monitored by the health authorities.

Product approval and distribution

Merck KGaA, Darmstadt, Germany continuously works to guarantee product availability for its customers. Our requirements for the quality and effectiveness of the distribution process are uniform worldwide. We perform rigorous and frequent checks on our distribution network; these aim to ensure that our partners are adhering to our quality and safety requirements as well as ensure their full compliance with global Good Distribution Practices (GDPs).

Product labeling

The package insert informs patients how to correctly use a product. The package inserts furthermore inform patients about the risks and adverse effects associated with taking the drug. The inserts are regularly reviewed and updated to ensure that they are up to date with the latest

information, particularly in terms of safety-relevant information. If the benefit-risk ratio of a product has changed, the MSEB endorses risk mitigation measures. If the risk mitigation measures mean changing the label, this change is then submitted to the labeling decision board. The labeling decision board endorses new labels or label updates in the reference product information (Company Core Data Sheet). The core safety information contained in these reference documents is then implemented in national labeling documents.

In accordance with external requirements, we provide all our drugs with information on safe use and, if applicable, on content - particularly with regard to substances that might produce an environmental or social impact - as well as disposal.

Safety of our chemical products

Many chemical products of the Merck KGaA, Darmstadt, Germany product portfolio are classified as hazardous and their proper use is a prerequisite for the safety of humans and the environment. Therefore, we provide our customers with extensive, up-to-date information on safely using our products.

Numerous regulatory requirements exist to ensure that chemical products not pose any danger to humans or the environment. When it comes to the import or production, marketing, handling, recycling and disposal of our chemical products, it is crucial that we comply with these regulations. In order to satisfy both national and international safety product requirements, the company has set up corporate, business-specific and local guidelines and signed broader industry self-commitments like the Responsible Care® Global Charter.

Corporate Regulatory Affairs, a unit within the company's Environment, Health, Safety, Security, Quality (EQ) Group function, and local regulatory affairs units are accountable for compliance with relevant product safety regulatory requirements. Corporate Regulatory Affairs is responsible for all operational regulatory activities within the company, such as hazard exposure and risk assessment, hazard communication via safety data sheets (SDS), and chemical product registration. Its goal is to ensure global consistency and harmonization of hazard communication to our customers.

With our Group-wide "Product Safety Chemicals" policy, we have established global processes for steering and implementing product safety, as well as the corresponding management structures. This policy covers all relevant national and international regulations for the chemical industry, including: the Globally Harmonized System of Classification and Labeling of Chemicals (GHS) and its implementation in regional and national legislation (such as the CLP Regulation in the EU and HazCom 2012 in the United States), the EU chemicals Regulation REACH, the U.S. Toxic Substances Control Act (TSCA), and the German Federal Law on protection from hazardous substances (ChemG). This policy also incorporates statutory standards that relate to the transport of, for instance, hazardous chemicals, biocides, cosmetics, chemicals used in food, and animal feed. It is regularly updated to reflect new regulatory requirements.

To continuously monitor changing regulatory requirements around the globe, as well as initiate and steer necessary implementation projects (such as GHS and REACH), we have put in place the Group Product Safety Committee (GPSC). It reports directly to the Executive Board Member Bernd Reckmann, who is responsible for chemicals product safety. Besides managing regulatory affairs, members of the GPSC represent Merck KGaA, Darmstadt, Germany's individual businesses, each having specific responsibilities for matters such as legal questions, production and quality management, and marketing. The GPSC also supervises SAP EHSM (our product safety database and expert system), as well as internal and external communication processes.

To ensure independent detection of critical compliance gaps, in 2013 and 2014 we set up a corporate governance function that reports directly to the head of Corporate Regulatory Affairs. The operational units within Corporate Regulatory Affairs are then responsible for appropriate mitigation measures after discussion with all stakeholders relevant for us. One example is the U.S. GHS Compliance Program. Because Merck KGaA, Darmstadt, Germany had acquired product portfolios in the USA that lacked some safety information, we initiated a multinational program

in 2012 to push regulatory coverage and bring the portfolios up to our renowned standards. Our target is not only to close existing compliance gaps, but to also be the frontrunner in implementing the new GHS requirements under HazCom 2012 in the USA, which will take effect in June 2015. Merck KGaA, Darmstadt, Germany is already well prepared for chemical products imported into and produced in the United States. By the end of 2014, our major production sites there had started delivering GHS-labeled chemical products.

Safety analyses during product development

In the company, we utilize various instruments to ensure that the development process yields products that are safe to use. This includes different hazard, exposure and risk assessments. We subject all product innovations to a formal Environment, Health and Safety analysis that investigates aspects such as human health and environmental impacts. The Corporate Regulatory Affairs unit provides support and advises our employees on safety assessments during the product development phase.

Transparent information to boost product safety

Proper hazard communication for chemical products via safety data sheets or labels is a prerequisite for the safety of humans and the environment. For all of our products, we provide extensive information on safe use. We deliver our hazardous chemicals with safety data sheets that comply with current local regulatory requirements, available in 35 languages. Although not required by law, we provide safety data sheets for non-hazardous substances as well as ensure that our customers have all currently available information. Non-hazardous substances only used in small volumes in lab applications are provided with a safety data sheet replacement letter.

Merck KGaA, Darmstadt, Germany keeps multiple hundreds of thousands of safety data sheets updated and continuously launches numerous new products, which means we have achieved a very high level of automation in the hazard communication process. Within the Group, six regulatory affairs hubs around the globe share dedicated responsibilities in hazard communication processes. These hubs report to Corporate Regulatory Affairs, which drives the work processes throughout the Group. Thanks to our regulatory expertise and stable processes, we receive around one complaint per week on incorrect hazard communication.

All information related to the safe use of our products is also accessible on our website, which furthermore features an application called ScIDeEx®. This tool enables customers to check whether a chemical can be safely used under the conditions in which they plan to utilize it. The current version, ScIDeEx® 3, is based on the latest model of ECETOC TRA version 3.1, a program that is recognized by the European Chemicals Agency (ECHA).

In our 2014 stakeholder survey, labeling of chemicals was identified as a material issue for Merck KGaA, Darmstadt, Germany. With regard to chemical product labeling, the company's regulatory goals include establishing, optimizing, and harmonizing global hazard communication processes, which will allow us to efficiently support businesses and customers with globally harmonized labels and GHS-compliant safety data sheets. We implemented a dedicated function within Corporate Regulatory Affairs that is accountable for global label management, thus reflecting the importance of this topic for the company.

We are committed to product safety that goes beyond the legal requirements and support the goals of the Global Product Strategy, an international initiative of the chemical industry. In this vein, we provide product safety summaries that are available on the website of the International Council of Chemical Associations (ICCA).

REACH registration

Merck KGaA, Darmstadt, Germany completed the second phase of the REACH implementation process in June 2013 and had registered all substances we produce or import in quantities ranging from 100 to 1,000 metric tons per year – around 70 substances – with the European Chemicals Agency (ECHA). The next step, part of the third phase, is for us to register all substances produced or imported in

quantities ranging from one to 100 metric tons by the beginning of June 2018. We have already started this process and are on schedule with our activities.

Due to the Strategic Approach of International Chemicals Management (SAICM), REACH-like requirements will take effect in South Korea (Act on the Registration and Evaluation of Chemicals, abbreviated AREC). Based on our expertise with the EU REACH implementation, we will be well equipped to handle these requirements as well.

Nanotechnology

Nanotechnology is a highly innovative field of development that researches and uses structures that are 50,000 times thinner than a human hair. This technology makes it possible to produce materials with completely new properties, benefits and functions for a wide variety of applications.

Nanotechnology offers many opportunities for our company. In our Life Science and Performance Materials business sectors, we can use nanoscale materials to develop products with new functions and properties – thus, for instance, making resource and energy use more efficient. In our Healthcare business sector, we partner with external companies to explore the use of nanomaterials to improve therapeutic options. Within the scope of joint European research projects, we are also investigating the suitability of nanoparticles as vehicles for active pharmaceutical ingredients.

However, the special structure of nanoparticles can also entail risks. We assess these risks and utilize the new technology only with the greatest care. We take into account Group-wide requirements for safety as well as environmental and health protection, employing our existing processes and systems for product safety. We follow the precautionary principle and take nanomaterial safety issues seriously. In 2014, we updated our Group-wide "Use and Handling of Nanomaterials" policy; this document governs the handling of nanomaterials, whether used in pharmaceutical and chemical laboratories, production plants, filling plants, or warehouses.

In manufacturing and processing products, we strictly adhere to compliance with all statutory regulations and other applicable standards, such as the guidelines of the German Federal Institute for Occupational Safety and Health (Bundesanstalt für Arbeitsschutz und Arbeitsmedizin – BAuA) as well as the German Chemical Industry Association (Verband der Chemischen Industrie – VCI). We also provide our customers with information on the proper handling of nanomaterials, for example during transport, processing, storage, and disposal.

Both internally and externally, we are constantly engaged in an exchange regarding the opportunities and risks of nanotechnology. Our internal nano-coordination group consists of analysts, researchers, toxicologists, safety experts, and experts from other relevant areas of the company. We also maintain a continuous dialogue with other companies, associations and regulatory agencies, through channels such as the nano-coordination group of the VCI's Technology and Environment (Technik und Umwelt) committee, and the Responsible Production and Use of Nanomaterials group, a joint technology working group of DECHEMA (Society for Chemical Engineering and Biotechnology) and the VCI.

Training seminars

In 2013 and 2014, we conducted product safety seminars in various countries around the world. Here, we focused not only on our core markets but also offered training in developing countries. We aim to increase awareness as well as provide best practice advice and information on using hazardous chemical products safely and easily. This includes lab safety rules such as the handling of flammable solvents and storage of various chemicals in warehouses or safety cabinets. We are planning to hold such seminars in the future as well.

Goals: Safety and quality of chemical products

Goal	Action	By?	Status in 2013 and 2014	Status
Establish a globally uniform hazard and risk communication system for all relevant chemicals of the company in the supply chain, incorporating the principles of prevention	**Implementation of REACH:** Register substances produced in quantities ranging from 1-100 metric tons per year (phase 3 of REACH implementation) and register non-phase-in substances	Mid-2018	By the end of 2014, we had registered 15% of all phase 3 substances.	–
	Implementation of GHS/CLP: Classify mixtures and sets according to the CLP regulation	Mid-2015	All mixtures have been classified according to CLP since mid-2013.	●
	Implementation of the Global Product Strategy (GPS): Provide Product Safety Summaries within GPS for all hazardous substances registered under REACH	End of 2020	We have already completed Product Safety Summaries for 17 substances registered under REACH; we are working on nine additional Product Safety Summaries.	+
	Projects for hazard communication: Update safety data sheets for non-hazardous materials	End of 2020	We have safety data sheets for around 20% of all non-hazardous substances and continually review them. Around 40% of the non-hazardous substances have replacement letters.	–
	Increase the number of safety data sheets prepared to a globally uniform standard	End of 2020	Around 90% of all safety data sheets are based on our Group-wide GHS standard.	–
	Implementation of US GHS/HazCom 2012: Classify pure substances, mixtures and sets in the United States according to HazCom 2012 criteria	Mid-2015		+

Legend: ● Achieved – In progress ○ Not achieved + New goal

Product-related crime

Across the globe, the pharmaceutical and chemical industry is confronted with product-related crime. Counterfeit medicines in particular pose a major challenge, while also representing a serious threat to public health. According to the World Health Organization (WHO), a considerable proportion of the medicines for sale in developing health care systems are illegal, counterfeit or substandard. Interpol estimates this at up to 30%. This issue is aggravated by a lack of adequate quality control in the protection, security and drug approval systems. Due to the sale of products through unlicensed internet pharmacies and online underground business-2-business platforms, the percentage of substandard and/or counterfeit medicines is growing rapidly in industrialized nations as well.

Because criminal organizations are becoming increasingly professionalized, pharmaceutical manufacturers are facing ever-growing requirements to track and monitor their products. Effective protection systems and market monitoring are becoming increasingly important for both the products themselves as well as the distribution channels.

Merck KGaA, Darmstadt, Germany develops and manufactures products of the highest quality. We take action against product-related crime to prevent harm from coming to customers and patients, as well as to

protect our reputation as a company. Here, we are developing a strategy of collaborating with law enforcement, fostering internal and external networks, and establishing product security measures. We have created policies, standards and processes that cover all businesses of the company worldwide.

Group-wide network

The Group function Corporate Security is the internal and external point of contact for all anti-counterfeiting activities of the company and is also in charge of steering and coordinating these activities. Corporate Security follows the company's internal "Crime relating to products" guideline, which describes the goals and strategy for handling product-related crime. All activities to fight product-related crime take place under the supervision of the Chief Security Officer and the Head of Environment, Health, Safety, Security and Quality. Furthermore, at all the biopharmaceuticals business sites we have deployed local anti-counterfeiting correspondents; these employees act as the interface between local regulatory and law enforcement authorities, domestic associations, Group functions, and our businesses. We gauge our measures according to the number of incidents reported, the severity of the incidents, and the rollout of product security features.

The Merck KGaA, Darmstadt, Germany Anti-Counterfeiting Operational Network (MACON) is headed by Corporate Security and is responsible for monitoring and implementing all global anti-counterfeiting measures for our products. The network consists of experts from various units such as Legal/Trademarks, Product Security, Export Control, Supply Chain, and Quality Assurance. Its tasks include coordinating preventive measures, sharing information, securing evidence, conducting investigations and developing and implementing security systems. Where appropriate, the network collaborates with the relevant regulatory authorities and law enforcement agencies.

MACON reviews and handles approximately 70 cases of product-related crime per year, including inquiries from authorities that arise during backtracking investigations. In 2013 and 2014, we focused our activities on the internal coordination and support of two major criminal investigations conducted by law enforcement against major organized crime groups.

Educating our employees and business partners

The fight against product-related crime and counterfeit products is an integral part of our risk management system. In order to minimize risks, we provide training to employees of our subsidiaries, as well as to business partners in the countries in which we lack our own legal entity. In 2013, we held multi-day workshops and training seminars in China and Germany. During a global workshop, our security personnel from the United States, Mexico, Latin America, and eastern Asia were brought together to develop ideas to continuously improve our internal control measures. Product-related crime also featured as a topic during our Africa Conference 2014. During 2013 and 2014, we conducted security audits at partner companies in Brazil, Mexico, India, Russia, Italy, and Germany.

Four different categories of product-related crime

Product counterfeiting: We define a counterfeit product according to WHO standards as "A product that is deliberately and fraudulently produced and/or mislabeled with respect to its identity and/or source to make it appear to be a genuine product".

This includes products:

- with incorrect concentrations of active ingredients
- with incorrect active ingredients
- without any active ingredients
- with dangerous impurities
- with modified/altered packaging and/or wrong brand names
- with an authentic active agent, but not produced under GXP conditions
- that have expired

Illegal diversion of products: This term refers to the diversion of either chemical or pharmaceutical products from within the legitimate supply chain for illegal export, for use in the production of illegal drugs, weapons or explosives, or for any other illegitimate purpose.

Black market crimes: This refers to the sale of counterfeit and/or diverted products via illegal channels (e.g. the Internet), or for illegal purposes

Misappropriation of products: This includes theft from production sites and warehouses, or while in transit.

Authenticity and tracking

Besides implementing internal quality control systems and strictly adhering to all export and trade guidelines, we also combat counterfeit products through innovative solutions tailored to specific markets and target groups. These measures aim to help our customers and patients determine for themselves the identity or authenticity of a pharmaceutical product. Here, we are applying multiple approaches in parallel.

- We use security markings with protected color travel pigments of our own manufacture on our product packaging and labels. Called Security-M, this enables users to easily verify the authenticity of our products. These security features are considerably harder to counterfeit than the holograms that are frequently used. In 2013, our Quality Council decided to further roll out Security-M on our products.
- We employ identification and shipment tracking systems such as Track and Trace, which has already been fully implemented in the United States and is currently being expanded to other markets.
- Since December 2014, the biopharmaceuticals business has been serializing all of its major brands in the United States, which thus allows physicians, pharmacists and patients to verify their medicines. Furthermore, the biopharmaceuticals business has launched Check My Meds. By using this free smartphone app, patients in the United States can verify the serial number of their medicines.
- In the Mobile Anticounterfeiting System (MAS) project in Nigeria, we are partnering with a supplier to detect counterfeit medicines through a mobile phone/text message-based identification system. Patients scratch off a barcode that is affixed to the product packaging and send it to the MAS via text message; they then immediately receive a message telling them whether the number on the product is authentic or not. These projects have fostered public and patient awareness on the issue of counterfeit medicines and further increased the trust in our products.

We have made strong progress in systematically implementing the requirements of the EU Falsified Medicines Directive, such as the application of a unique serial number to our pharmaceutical packaging. Furthermore, we are participating in corresponding pilot initiatives of the German and European pharmaceutical industries. Similar efforts are underway in the U.S., where the Food and Drug Administration (FDA) requires drug companies to include a unique serial number on each package of drugs dispensed by 2017.

In addition to this, a comprehensive auditing system for distributors and contract manufacturers ensures that Good Manufacturing and Good Distribution Practices (GMP/GDP) are adhered to. This system is based on the EMA ICH Q10 pharmaceutical quality assurance standard.

For our customers in the pharmaceutical industry, we offer Candurin® pearl effect pigments, which feature unique color properties that make tablets and capsules more difficult to counterfeit.

We have established an internal control system to monitor and track chemicals that can be misused to produce illegal weaponry, explosives, and narcotic drugs, collaborating closely with regulatory and law enforcement authorities. Our system flags suspicious orders and/or orders of suspicious products. We will only release products once we have verified the existence of an end-user declaration. Furthermore, we also proactively report suspicious orders to the relevant authorities. In doing so, we are adhering to a commitment made by the German Chemical Industry Association (VCI) and to the "Guideline for Operators" published by the EU Commission. We also participate in export control proceedings and, in certain cases, provide reports to law enforcement agencies.

Minilab for on-site testing

Merck KGaA, Darmstadt, Germany funds the non-profit Global Pharma Health Fund (GPHF), which supplies a portable analysis kit (the GPHF-Minilab™) to check the quality of medicines on 75 drug compounds. With the Minilab, counterfeit medicines can be detected quickly, easily and cheaply, even in developing health care systems. Further information can be found under Society on p. 121.

Multifaceted engagement and stakeholder dialogue

We are fighting product piracy in partnership with organizations such as EFPIA, IFPMA, and VFA. We also support industry-wide initiatives and collaborate closely with regulatory authorities and law enforcement at a national, regional, and international level.

A particular area of emphasis is our work with the Pharmaceutical Security Institute (PSI); this organization is dedicated to protecting public health by sharing information on counterfeit pharmaceuticals as well as initiating enforcement actions through the appropriate authorities. When product-related crimes are committed, we collaborate with the law enforcement agencies and customs authorities in the respective countries, with Interpol, with the World Customs Organization, with health authorities, and with our peer industry. Merck KGaA, Darmstadt, Germany is also a member of Rx-360, a consortium of global pharmaceutical manufacturers and suppliers that aims to prevent counterfeit products through the introduction of global quality control systems.

Goals: Product-related crime

Goal	Action	By?	Status in 2013 and 2014	Status
Protect customers and patients from harm by product-related crime	Update our international regulations with a focus on product safety for all relevant products	End of 2016		+
	Monitor the dark figures in certain countries	End of 2016		+
	Support regional activities	End of 2016		+
	Pilot a project to improve product safety in high-risk regions of Africa using software-based solutions	End of 2016		+
Increase awareness of strategic importance of counterfeit pharmaceuticals	Expand scope of employee training and increase internal reporting on counterfeits	End of 2015		+
	Host a conference of the Pharmaceutical Security Institutes (PSI) with industry representatives	End of 2015		+

Legend: Achieved In progress Not achieved + New goal

Sustainable products

Responsibility for our products is at the core of our corporate responsibility. We therefore strive to minimize the impact that our products have on people and the environment during their development, manufacture, and distribution, as well as during and after their use. This includes providing comprehensive information on responsible, safe and proper use of these products. It is, however, also crucial to conserve resources and minimize emissions and waste in our manufacturing processes, as well as to help our customers to do so.

Through our products, we are helping to overcome global challenges such as climate change and energy scarcity. Our Performance Materials portfolio contains numerous examples of such products. Among others, we are developing innovative solutions for energy-saving displays and lighting, as well as materials for the photovoltaics industry.

- Liquid crystals (LCs) provide computer monitors and televisions with high picture quality while also consuming little energy. Our materials for PS-VA (polymer-stabilized vertical alignment) technology help to significantly reduce the amount of backlighting needed, which is the largest power consumer in these devices. With the PS-VA technology, displays use 20% less energy than the precursor technology.
- Under the licristal® brand we have developed energy saving Ultra-Brightness FFS (UB-FFS) technology, which ensures a 15% increase in light transmission in displays. The benefits include less energy consumption and greater design flexibility for product developers (e.g. longer battery life and higher picture resolution).
- LCs are utilized in smart windows: They allow more solar heat to enter during the winter and less in the summer, thereby improving the energy efficiency of buildings.
- Organic light-emitting diodes (OLEDs) make it possible to produce energy-efficient displays with brilliant colors and sharp picture quality. We have a partnership with Epson, a Japanese printer manufacturer. Our common goal is the mass production of large-area OLED displays using ink-jet printing. During the 2013-2014 period, this partnership made excellent progress. In Japan, the company has installed the world's first pilot production plant for OLED inks. Several display companies are setting up ink-jet pilot printers to proof mass production concepts for large scale OLED displays.

- Modern light sources such as light-emitting diodes (LEDs) and organic light-emitting diodes are key technologies that will make it possible to decrease the energy consumption of lighting.
- Our printable structuring materials are enabling the photovoltaics industry to manufacture solar cells in a more environmentally sound way while improving their efficiency. In addition, we are further developing new materials and technologies for new types of solar cells. This includes innovative process materials for upcoming high efficiency silicon-based solar cells and new materials for next generation photovoltaics, such as organic solar cells and dye-sensitized solar cells. These materials will enable flexible, semi-transparent and lightweight solutions significantly broadening the application range of photovoltaics.
- AZ Electronic Materials has developed products such as PFOS-free antireflective coatings and photoresists that contain not a trace of hazardous chemicals.

The "Displaying Futures" initiative, launched in 2011, creates space for interaction, interdisciplinary exchange and mutual inspiration for display and material producers, designers, architects, artists, scientists and experts from other fields. The aim is to develop scenarios beyond pure technical approaches that show how human needs for communication and mobility are constantly changing, thereby impacting the properties of displays. At the Displaying Futures Symposium in Shanghai, experts answered questions on how display systems impact architecture as well as people's lives.

In dialogue with our customers from the cosmetics industry, we develop proposals for cosmetic formulations that meet strict sustainability criteria and are in line with the current trend towards more natural cosmetics. Several of our products have been certified by ECOCERT, an independent organization that represents high international standards for environmentally sustainable products, and certifies that raw materials used in cosmetics and food applications are produced in an ecological way. In 2013 and 2014, approximately 40 of our products received this certification, which accounts for about 20% of our pigments and cosmetics portfolio.

Examples

The life science business portfolio consists of thousands of products with different characteristics and varying challenges with regard to sustainability. The following examples illustrate how we minimize our products' impact on people and the environment, and help our customers achieve their own sustainability goals:

- Our greener solvents show improvements of certain characteristics over the alternatives commonly used for a given application. These products may be safer, with reduced hazard or lower volatility, or may have reduced environmental impacts, increased biodegradability or be easier to recycle.
- Our bioethanol offers a non-synthetic alternative to synthetically produced chemicals. Bioethanol was the first greener solvent we made available to customers, and we continue to work to provide additional renewable material-based solvents as well as products with lower toxicity. Production of bioethanol is a less toxic process than typical ethanol manufacturing. Our EMPLURA® product line of solvents is also being expanded to include products derived from renewable resources such as corn cobs and sugar cane bagasse.
- The new Extran® AP 33 antifoam agent has the same effectiveness as its predecessor, but we eliminated formaldehyde and nitrilotriacetic acid. Further updated Extran® products (MA05, AP16 and AP17) do not contain nitrilotriacetic acid either.
- The products we sell are also raw materials that our pharmaceutical customers use in their processes. We recognize that pharmaceuticals in the environment are a concern for our customers, and to help address this, we are focused on improving the bioavailability of drugs. To further collaborate with our customers and expand our capabilities in bioavailability enhancement, we opened a new R&D Center for Formulation in Darmstadt, Germany. There, we are partnering with the pharmaceutical industry to develop new and innovative materials and delivery systems that better enable them to develop drugs that can be more readily absorbed and thus less excreted.
- We are also actively working to develop technologies that address global challenges like climate change and energy scarcity. For example, our bench-top Guava HT series flow cytometer is helping to drive biofuel research and development. Our customers use Guava instruments to determine which species will achieve maximum diesel production. Guava instruments are also being used in the production of ethanol from sugar, where they test the viability of bacteria that are used to digest sugars and produce gases that are refined into ethanol.

Sustainability starts at the product development stage

The cornerstone of our products' sustainability lies in the development phase. We have implemented various guidelines such as our Group-wide "Product Safety Chemicals Policy" in order to reduce potentially negative effects. In our Performance Materials business sector, we adhere to the "Halogen-free Policy" of our customers and have implemented the "Green Product Policy". Among other things, this forbids the use of acutely toxic, mutagenic, or otherwise severely hazardous substances that remain present in the end product. We furthermore ensure that our products adhere to national and international regulations such as REACH and RoHS, as well as fulfill other industry- and customer-specific requirements.

In addition, we have developed systems within the company that incorporate sustainability criteria into the product development process. In our chemicals business, the Accolade project management system provides researchers with a "tool box" for the entire product life cycle.

Accolade addresses issues relating to technology, quality, regulatory requirements, and patents, enabling researchers and product developers to compare and make decisions on uniform criteria to improve the sustainability of products.

At the life science business, our Design for Sustainability (DfS) program is integrated within the product development process. DfS aims to reduce the environmental and health impacts of our products across their entire life cycle, from manufacture to use through to disposal. We strive to maximize performance and ease of use for our customers. Our design teams incorporate sustainability considerations early in the design process. They use a scorecard to assess a product's main environmental hotspots throughout its entire life cycle, driving improvement across six main focus areas: materials, energy & emissions, waste, water, packaging, and usability & innovation. The life science business uses the DfS criteria to measure progress towards our 2015 product sustainability goal of driving product sustainability improvement in 10% of the product families we offer.

Design for Sustainability

The life science business has already employed DfS principles in the design of several products. Real life examples show how Design for Sustainability has been put into practice.

- Clarisolve® Depth Filters, used in cell culture processing, were launched in 2013. With reduced pre-flushing requirements of the product as an important goal of the design, we completed a life cycle assessment to quantify this reduction and other environment-related improvements. The results show that significant progress has been achieved, especially for the use phase of the product. Compared to the alternative product (Millistak+® Pod Depth Filter) used by customers to produce one batch, Clarisolve® is characterized by 63% reduction in use-phase energy consumption, by a 46% reduction in use-phase water consumption (1,800L per batch), and by a 24% reduction in solid waste mass at the user facility.
- In 2013, the EZ-Fit™ Manifold for laboratory filtration was launched. During the design process, the DfS approach was followed, which improved handling and reduced the environmental impacts compared to its predecessor, the Hydrosol Manifold. The EZ-Fit™ Manifold uses 47% less raw material and its packaging consists of 100% recyclable corrugated board. Because the filtration heads can be easily removed for cleaning, very little space is needed in the autoclave to clean the heads relative to the space needed to clean the whole device. This results in a 91% reduction in autoclave-associated carbon emissions. After the product's 10 year validated lifetime, it can be easily disassembled, and over 95% of its parts are recyclable.
- The design of the Snap i.d. 2.0 Protein Detection System reduces waste for the end user and cuts emissions from shipping. We managed to reduce consumable materials by 91%, GHG emissions for distribution in the United States by 99%, weight of packaging per weight of product by 93%, and solid waste mass at user facilities by 99%.

Analysis as a prerequisite for improvement

In order to reduce the unwanted effects of our products, we must understand our products across their life cycle, which is why we perform corresponding analyses. In some cases, we investigate the complete life cycle ("cradle to grave"); in other cases, we focus on parts of the cycle through the "cradle-to-gate" approach, meaning that we analyze the R&D phase of a product up to the point of delivery to the customer. Sometimes we concentrate on particular aspects, such as greenhouse gas emissions, water consumption, or packaging. The results of the analyses show us where we have potential for improvement. Our experts from R&D, Product Management, Quality, Procurement, and other units can use these data as a basis to develop specific measures and initiatives across the entire product life cycle; they furthermore engage in an exchange of relevant best practices and ideas. We share the results of our analyses with our customers as well.

We have also calculated the product carbon footprint for pearl-luster pigments and liquid crystal mixtures as well as the product water footprint for liquid crystal mixtures using the "cradle-to-gate" approach. Our customers utilize these data to calculate footprints for their products. Since our performance materials are only present in the end product in minute amounts, our contribution to the end product's footprint is generally very minor.

The life science business conducts several analyses to identify product impacts and to improve the sustainability of its products. For example, a life cycle assessment (LCA) was conducted for the Clarisolve® Depth Filter. Another example is the LCA comparing the Titripac® product delivery system with the 1L polyethylene bottle product delivery system. We calculated the life cycle energy and carbon footprint for both product delivery systems, and the results showed that the Titripac® had substantial benefits over the polyethylene bottles: a 61% reduction in GHG emissions, a 33% reduction in GHG emissions for shipping to U.S. customers, a 42% reduction in packaging material mass, a 91% increase in renewable materials, and a 73% reduction in solid waste.

We also conducted an LCA comparing the 200L ReCycler® product delivery system and the 4L glass bottle product delivery system. The study showed that the ReCycler® product delivery system has significant benefits over the glass bottles: a 69% reduction in life cycle GHG emissions, a 77% reduction in life cycle energy demand, a 53% reduction in packaging-to-product weight ratio, 46% increase in cube utilization, and a 99% reduction in mass of packaging solid waste.

Awards

In 2013 and 2014, Merck KGaA, Darmstadt, Germany received awards for its innovative products. In 2013, the company received the Inter Solar Award in San Francisco (CA, USA) for the isishape Selective Emitter Process and in Paris (France) for the isishape SolarEtch product line, both efficiency-gaining and environmentally sustainable concepts. In 2014, we also received the Meyer-Galow Prize for business chemistry for the "Energy-efficient liquid crystals for smartphones and tablets" project, for its contribution to advancements in smartphone and tablet PC displays.

Additionally, the life science business received two R&D Magazine 100 Awards for innovative products released to market in 2013. The 52nd Annual R&D Awards recognize the 100 most technologically significant products introduced into the marketplace over the past year. The products that were recognized are the SmartFlare™ detection reagent and the Clarisolve® Depth Filters.

The life science business was also awarded the "Greenest Life Science Company" in November 2014 at the bi-annual Life Science Industry Awards® (LSIA). The LSIA recognizes the best-in-class life science suppliers across 28 product, communications and support categories. Over 5,000 individual scientists from 76 countries selected our life science business as the "Greenest Life Science Company".

Goals: Sustainable products

Goal	Action	By?	Status in 2013 and 2014	Status
Improve the product sustainability in 10% of the product families of the life science business	Implement the Design for Sustainability program.	End of 2015	Within the Design for Sustainability process we defined several criteria for ensuring product sustainability in each of the following areas: materials, emissions and energy, waste, water, packaging, and usability and innovation. We use these criteria to assess improvement in product sustainability. By the end of 2014, we had improved sustainability across more than 12% of our product families, which means we've already reached our goal.	+

Legend: Achieved In progress Not achieved + New goal

Packaging

Packaging plays an important role for our products in two ways: Firstly, it protects our products from external influences and ensures that they reach the customer undamaged. Secondly, packaging guarantees that the environment will not be negatively impacted by substances leaking out. The packaging must therefore remain safe throughout the product's entire life cycle – during transport, storage, usage, and disposal.

In addition to safety, efficient resource use also plays a crucial role. We identify potential areas for optimizing our resources in order to, for example, reduce material usage during packaging manufacture without compromising quality and safety. We also strive to increase the percentage of materials that minimally impact the environment.

The majority of corrugated boxes we use globally are environmentally certified, e.g. according to the standards of the Sustainable Forestry Initiative (SFI), Forest Stewardship Council (FSC) and/or the Programs for the Endorsement of Forest Certification Schemes (PEFC).

Packaging for the products of our life science business

The life science business is currently developing a sustainable packaging strategy. One important aspect of the strategy is that we want to continue to deliver our products in packaging that is safe and easy for our customers to use, while helping them reduce their own impact on the environment. We are therefore working on several initiatives, including ones to develop reusable packaging systems and to reduce the use of foam components. Here are a few examples:

- Glass bottles are still the most preferred packaging for reagents. Although glass is an inert material, it is highly fragile. In order to increase product safety, we therefore developed the Safebreak bottle, which is coated in plastic (PE) to prevent acids from leaking out if the glass breaks. Should the bottle fall and break, the acid and glass splinters are securely contained within the PE coating. The Safebreak bottles can be recycled or disposed of with conventional glass bottles since the PE coating does not interfere with the glass recycling process.
- Glass reagent bottles have traditionally been secured with EPS (expanded polystyrene) molded foam to prevent them from bumping into each other or falling during transportation and breaking. While EPS is an effective cushioning material, it is produced from non-renewable petrochemicals and hard to recycle. Also EPS packaging is bulky and difficult to store. In recent years, the life science business has thus been replacing EPS foam with molded fiber components (molded pulp), consisting of cellulose and recycled paper, as part of a replacement program. The use of molded pulp reduces the amount of packaging waste for our customers, because it is easily recycled

with other paper materials and can be compacted for storage and transportation. In Germany, we replaced 600,000 EPS molded foam components by the end of 2013. During 2014, we extended the EPS foam replacement program and are now replacing more than 1 million packaging components per year in Germany. In France, we are replacing 12,000 packaging components per year. In India, we initially conducted additional investigations because of the climate conditions found there. In 2015 we will start exporting solvents from our EMPARTA® and EMPLURA® product lines in molded pulp parts. Currently we are using a honeycomb corrugate material to replace EPS foam in the United States, but we are also investigating the use of molded pulp there.

- In Europe, solvents for large-scale application in preparative chromatography are supplied in returnable stainless steel containers, and in the United States, returnable stainless steel containers are utilized in the ReCycler® Program. By using these containers, we are significantly reducing the consumption of primary packaging materials. Since the stainless steel containers can be shipped without any secondary packaging material, we are also reducing packaging by eliminating the cardboard boxes and molded pulp inserts used when shipping glass bottles.
- For our Milli-Q® Integral Water Purification Systems utilized for lab water purification, molded pulp cushioning is used for the product accessories. The Q-Pod® and E-Pod® used to be packaged with polyethylene, but now they utilize a custom molded pulp cushioning material that is made from 100% recycled fiber and is fully recyclable. We have thus also reduced the number of pallets required to store the material by 90%.
- We have developed a custom reusable totes program for two of our U.S.-based customers for the bulk delivery of our Millistak+® Pod Disposable Depth Filters. This program offers these customers a clean-room ready solution that can be reused up to 90 times. In 2013, we conducted a life cycle assessment to compare the environmental benefits of reusable totes versus corrugated packaging. Each tote can transport up to 900 units before being recycled, resulting in a 95% reduction in packaging materials consumed. We are also pursuing opportunities to reduce the carbon footprint of distribution by working on direct ship to customers and other logistics efficiencies.
- Our Titripac® packaging system for volumetric solutions was designed to make titration more reliable and less wasteful. Constructed from a recyclable corrugated outer box and durable inner bag, the packaging features a unique built-in contamination-proof dispenser tap and is less than half the weight of conventional plastic bottles. Recyclability is improved since the outer box can be fully recycled. We conducted a product carbon footprint analysis comparing the Titripac® and plastic bottle packaging systems, and found that the reduced material weight and high recyclability of Titripac® result in an overall reduction of 61% in life cycle greenhouse gas emissions. Because this packaging design keeps the product safe from contamination, the chemical product can be used effectively to the last drop, thereby wasting less.
- In 2013 the life science business developed new user guide booklets from our Millex® Syringe Filter devices manufactured in Cork, Ireland. The new user guide design used less material and was more compact, reducing the weight of the booklet by approximately 50%, saving 4,700 kg of paper in 2013 and 6,200 kg of paper in 2014. This also reduced greenhouse gas emissions from paper production and product distribution by 38 metric tons CO_2e in 2013 and 51 metric tons CO_2e in 2014.

Packaging for Performance Materials products

In South Korea, the Performance Materials business utilizes a patented system of stainless steel canisters that are filled with liquid crystal mixtures at the Poseung site and delivered to South Korean display manufacturers. Our Standard Canisters (MSCs) can be utilized directly on the production lines without decanting. The empty canisters are then sent back to the company where they are cleaned under validated conditions. The MSCs are reused within a closed system over multiple years. A reusable polypropylene box serves as outer packaging. Similar systems are in use at other liquid crystal mixture production sites in Asia.

Reuse and recycling

Through take-back programs, as well as environmentally sustainable recycling and disposal of used chemicals and packaging, Merck KGaA, Darmstadt, Germany works with its customers to help reduce the environmental impacts of its products and services. We strive to communicate and collaborate with our customers, suppliers and other partners to identify ways to develop innovative, safe product packaging, recycling and end-of-life programs that help our customers reduce their own disposal impacts.

The life science business' Design for Sustainability program encourages our Research & Development teams to design products with reduced life cycle impacts. This includes reusable or recyclable materials that are easy to recover or disassemble. We furthermore strive to eliminate materials that are costly to manage, such as toxic substances. This allows the life science business to continually improve the recycling potential of new products through measures such as simplified disassembly, or by increasing the percentage of recyclable materials in its products.

The following examples show how we are implementing product packaging, recycling and end-of-life programs:

- **Biopharma product recycling program**: Single-use products play an increasingly important role in the biopharmaceutical industry. In 2012, the life science business and five customers jointly launched a pilot Biopharma Product Recycling Program in the United States. In 2013, we expanded this pilot program to include two more customers in the United States. The total product waste diverted from traditional disposal during 2013 was 72 metric tons. In 2014 we increased the amount of product waste diverted to 117 metric tons. Out of the 189 metric tons of product waste diverted in 2013 and 2014, we were able to recycle 91 metric tons of plastic. For its Biopharma Product Recycling Program, the life science business received a Sustainability award from its customer Biogen Idec – the first award to be given out to a supplier. This was the first customer recognition for the life science business' Biopharma Product Recycling Program.
- **Ech2o™: Recycling program for lab water purification cartridges**: The Lab Water business field of the life science business launched the Ech2o™ program for water purification cartridges in 2012. The program enables our customers in the U.S. to send back their cartridges for recycling, thus avoiding the need for traditional disposal methods such as landfill or incineration. A life cycle assessment has revealed that this can reduce the environmental impact of the cartridges by 10%-15%. During the last two years more than 300 customers have returned over 2,000 used cartridges. This represents approximately 5 metric tons of product waste that has been diverted from landfill or incineration. We are continuing to work with our customers and our partners to increase awareness of the program and training in the hopes of driving up customer return rates.

We are currently applying our lessons learned and investigating how we can expand both of these programs beyond the United States, to markets in Europe and Asia. Our longer-term goal is to expand our product recycling and reuse initiatives beyond biopharma and lab water purification cartridges, as well as capturing additional plastic products in labs.

Environmentally sustainable, safe disposal

Initially set up in Germany over 20 years ago, the objective of the Retrologistik® program is to provide a system for safe and environmentally sound management of chemical waste and used packaging. In addition to agreements on environmentally sustainable disposal, this program offers chemical users and local waste disposal firms access to information, training and services to implement sound chemical and package waste management. We expanded the program and established the concept in Indonesia, the Philippines and Thailand through a three-year strategic alliance (2010-2013) with the German Association for International Cooperation (GIZ) called "Environmentally Sound Management of Chemical Waste in South East Asia".

Strategic alliance with GIZ

The strategic alliance with GIZ aimed to establish the Retrologistik® concept in Indonesia, the Philippines, and Thailand in order to increase environmental awareness there as well as change how people handle hazardous materials. The project has improved training, auditing and implementation capacity in the respective countries, with the transfer of Merck KGaA, Darmstadt, Germany technology and knowledge playing a crucial role. Informational and training materials were developed and made available in the national languages of each country and approximately 9,000 people received training. Furthermore, approximately 230 metric tons of chemical waste was properly managed in the participating countries between March 2010 and May 2013.

At three universities in Thailand, 20 "model labs" were established to demonstrate responsible, environmentally sustainable chemical management. As a result of these pilot programs, it is estimated that 300 chemical users adopted the Environmentally Sound Management of Chemical Waste system or an equivalent system for their laboratories. Additionally, Merck KGaA, Darmstadt, Germany and training partner organizations in Thailand will continue to offer training on Environmentally Sound Management of Chemical Waste to interested chemical users.

In Indonesia, we built a bottle washing plant that operates according to European standards, the first of its kind. This plant has the capacity to treat 9,000 chemical bottles per month. After we installed the cleaning facility, the Jababeka Industrial Estate assumed ownership of the project and we continue to promote the project and spread awareness to their customers within the region. While the three-year strategic alliance ended in 2013, the company is continuing to support the project and spread awareness in the region through sales and marketing activities.

In the Philippines we implemented the Environmentally Sound Management of Chemical Waste concept, with a focus on photometric cuvette tests. In the region of Luzon, for instance, 25 companies participate in the program and approximately 500 test sets are safely disposed of per year.

In the Philippines, training programs helped chemical users become more aware of the significance of the Globally Harmonized System (GHS) and of the information on chemical safety, storage and disposal available on the internet, especially on our website. The academic sector in particular became more aware of the importance of the information readily available in the safety data sheet (SDS). We reached at least 50 academic institutions. Following the training, we observed improvements in the safety signs in the respective facilities, proper chemical separation and segregation, as well as support for company management and heads of schools regarding chemical safety programs.

At least 400 participants from more than 150 companies came to the 7th Safety Summit held in Manila in June 2014. For the first time this program was also conducted in two other provinces to reach more laboratory practitioners. In all, the company's subsidiary in the Philippines has reached more than 5,000 people through the various seminars and summits that we have conducted.

In Europe, solvents for large-scale application in preparative chromatography are supplied in reusable stainless steel barrels or containers. Customers send back the empty containers to our site in Darmstadt, Germany for professional cleaning and reuse. Approximately 20,000 stainless steel barrels and 20,000 stainless steel drums are circulated in Europe. The rate of return is 90% for the barrels; for the drums it is around 50%.

ReCycler®

Like the Retrologistik® program in Europe, our EMD ReCycler® Bulk Product Delivery System has been designed to increase safe handling and decrease packaging of our solvents for our U.S.-based customers. The system allows our customers to reuse a dedicated fleet of stainless steel containers for delivery of solvents. When the customer requests it, we send another full container to replace the empty one, which can then be sent back to be refilled.

During 2014 we conducted a Life Cycle Assessment (LCA) on this system. We compared the 200L ReCycler® product delivery system to our equivalent 4L glass bottle product delivery system. The total volume delivered was based on 1000L of product being used by a customer. We modeled the distances based on the three different locations within the U.S. The study showed that the ReCycler® product delivery system led to an average 69% reduction in life cycle GHG emissions, a 77% reduction in life cycle energy demand, a 53% reduction in packaging-to-product weight ratio, a 46% increase in cube utilization, and a 99% reduction in mass of waste due to packaging.

Access to health

An estimated 1.3 billion people have no access to effective and affordable healthcare. According to the World Health Organization (WHO), developing countries bear 93% of the world's disease burden, yet account for only 18% of world income and 11% of global health spending. Providing access to health in these countries is a complex challenge. Improving access involves researching, developing and refining health solutions, creating efficient health systems and distribution channels, offering products at affordable prices and empowering health workers and patients.

Clinical trials

As regards clinical trials, we adhere to all applicable statutory regulations and industry standards, such as Good Clinical Practice guidelines and the principles of the Declaration of Helsinki. Our clinical trials are performed according to the same high ethical and scientific standards in all countries worldwide.

Read more under Clinical trials. on p. 70

Responsible Marketing

In order to ensure professional and transparent conduct in our pharmaceutical marketing activities, we comply not only with numerous statutory regulations, but have also defined our own code of practice.

Read more under Responsible marketing on p. 77

Counterfeit medicines

Counterfeit medicines pose a major global threat to public health. The World Health Organization (WHO) estimates that a number of pharmaceuticals available on the market in developing countries are illegal, counterfeit or substandard. We fight product-related crime in order to protect patients, our customers, and our company's reputation.

Read more under Product-related crime on p. 46

Strategic approach

Access to Health (A2H) is a strategic priority for Merck KGaA, Darmstadt, Germany. Through our holistic A2H approach we aim to help improve sustainable access to high-quality health solutions for underserved populations and communities in low- and middle-income countries. Recognizing that access is a complex challenge, our programs and initiatives are tailored to global, regional and local needs. Furthermore, we realize that we cannot work alone to address all the access gaps and that partnerships, collaboration and dialogue are key to delivering sustainable access solutions.

Our A2H strategy leverages our interdisciplinary expertise and skills and is sponsored by Stefan Oschmann, Vice Chairman of the Executive Board. At the end of 2014, he became President of the International Federation of Pharmaceutical Manufacturers & Associations (IFPMA), and has dedicated his two-year term to accelerating access to high-quality health solutions for people in low- to middle-income countries.

In 2013, we established an Access to Health Unit at Group level, which has identified access gaps and opportunities to better meet the needs of underserved patients and has become an integral part of how we conduct business.

In 2014, we revised our strategy and our Charter on Access to Health in Developing Countries. The Charter is composed of 6 position papers that include "Our Approach", which defines our A2H strategy as well as covers the following priority thematic access issues: pharmaceutical donations and philanthropy, research and development for neglected tropical diseases (NTDs), pharmaceutical product pricing, intellectual property, and counterfeit medicines.

We leverage our core competencies and expertise across the health value chain in order to address access barriers through our A2H strategy, which focuses on the "Four As of Access": Availability, Affordability, Awareness and Accessibility:

- **Availability:** Entails the research, development and refinement of health solutions that address unmet needs and are tailored to local environments.

Examples include our engagement in the Pediatric Praziquantel Consortium, our partnership with Medicines for Malaria Venture, and the life science business Muse Auto CD4/CD4% system.

- **Accessibility:** Merck KGaA, Darmstadt, Germany promotes initiatives to strengthen supply chains and to develop localized health solutions in order to deliver and reach out efficiently at the point of care. In India for instance, we support the River Ambulance Project, and in Ghana we have launched a pilot of our Rural Pharmacy, which aims to serve remote areas of Africa.
- **Affordability:** We seek to provide assistance to those who are unable to pay for the health solutions they need. Examples include our Praziquantel Donation Program (MPDP), a partnership with WHO to fight the tropical worm disease schistosomiasis, and our membership in WIPO Re:Search.
- **Awareness:** The company contributes to raising awareness by empowering health workers, communities and patients so that they can make informed decisions. Take for example our Capacity Advancement Program (CAP), a diabetes awareness campaign in Africa, the Suswastha project in India and the Ghana WASH project.

We believe that it is important to monitor and evaluate our access to health programs in order to better understand how we are meeting patients' needs. To help us assess our strengths and areas where we can further strengthen our efforts, we are working to develop quantitative and qualitative indicators across all Four As of Access, which will be evaluated regularly by the A2H steering committee that is currently being formed.

Our approach to delivering initiatives along our Four As of Access involves a four-step process:

1. Diagnose: We identify unmet needs of underserved populations and communities in low- and middle-income countries.
2. Design: We develop business-integrated approaches to provide support, utilizing our expertise and core competencies as well as our partners' experience.
3. Implement: We implement innovative solutions in collaboration with our partners to meet needs in a sustainable way.
4. Evaluate: We regularly monitor and evaluate our programs to ensure that we achieve the outcomes desired, and where necessary, we reorient our program to optimize results. We report on results through our A2H website, Annual Report and Corporate Responsibility Report.

Access to Medicine Index

Every two years, the Access to Medicine Foundation releases the Access to Medicine Index, which ranks pharmaceutical companies in terms of their contributions to improving access to medicines in developing countries. Funded by the Bill & Melinda Gates Foundation as well as the UK and Dutch governments, the Index has been published every two years since 2008. Merck KGaA, Darmstadt, Germany ranked sixth in the 2014 Access to Medicines Index, two places higher than in 2012. In the 2014 Access to Medicine Index report, the company was recognized for its progression from a philanthropy-driven access strategy to a strategic pro-business access approach, as well as for leading examples such as:

- Pro-access approach to Intellectual Property (IP) management and policies, including its commitment to not filing patents in a broad range of Index countries;
- Piloting a pro-access business model in India through the Suswastha project;
- Alignment of R&D strategy with developing countries' needs with regard to communicable and non-communicable diseases;
- Forward integration of our Global Manufacturing and Supply;
- Active approach to dialogue and knowledge sharing through the Access Dialogue Series, a multistakeholder platform for sharing information and best practices as well as discussing collaborative action to overcome access barriers;
- Adoption of a multi-dimensional approach to contribute to the elimination of schistosomiasis;

- Improved transparency through efforts such as the revised and broadened Charter on Access to Health in Developing Countries.

Stakeholder dialogue

We believe that partnerships, collaboration and dialogue are key to delivering sustainable access results. Our partners include multilateral organizations, governments, non-governmental organizations, patient organizations, academia, healthcare professional associations, think tanks and private sector partners. We are committed to the Millennium Development Goals, and we will collaborate with partners on defining priorities and delivering on commitments and goals for the post-2015 sustainable development agenda.

Merck KGaA, Darmstadt, Germany has launched the Access Dialogue Series, which provides a platform for information exchange and best practice sharing among public and private sector stakeholders. These dialogues enable us to collaboratively address the access challenges for underserved populations and to inform our dedicated strategy and initiatives. In 2014, the Access Dialogue Series was recognized as a best practice in the first-ever "Guiding Principles on Access to Healthcare Report" released by Business for Social Responsibility.

During 2013 and 2014, we sponsored a series of access seminars with the European Commission and Parliament hosted by the European Federation of Pharmaceutical Industries and Associations (EFPIA). The seminars focused on important access issues in developing countries, including R&D for neglected diseases, clinical trials, technology transfer, and affordability. The debates demonstrated that, in order to sustainably tackle global health challenges, it is highly important for stakeholders from both developed and developing countries to proactively collaborate. The company also supports a European Commission initiative on access to medicines in developing countries, with a focus on Africa.

Discussions at the global level

In 2013 and 2014, we engaged in numerous discussions at the global level:

- In November 2014, at a reception celebrating the 3rd anniversary of WIPO Re:Search, Stefan Oschmann, Vice Chairman of the Executive Board, formally announced that Merck KGaA, Darmstadt, Germany was joining this initiative.
- In October 2014, more than 100 healthcare professionals from different African countries attended the Africa Luminary in Darmstadt. There, they benefited from medical education on disease management in the areas of diabetes, fertility and oncology, as well as sessions on improving supply chain integrity, pharmacovigilance, and fighting counterfeits.
- In May 2014, at the 67th World Health Assembly (WHA), Stefan Oschmann and the Permanent Representative of Germany to the UN in Geneva hosted a meeting on the topic of "Addressing Accessibility Challenges in Developing Countries". The company also organized a reception with Stefan Oschmann, the then prime minister of Madagascar Roger Kolo, and Dr. Hiroki Nakatani, Assistant Director-General Neglected Tropical Diseases of WHO.
- In April 2014, Stefan Oschmann attended a meeting with other pharmaceutical industry heads to celebrate the second anniversary of the London Declaration as well as to further discuss and accelerate the industry's commitment to fight neglected tropical diseases (NTDs).
- In September 2013, we participated in the EFPIA Global Health Initiative Debate at the EU Parliament on "Access to Medicines: Supply Chain & Delivery Systems - The Last Mile Challenge".
- In August 2013, the company participated in the "Global Post-2015 Development Agenda: Challenges and Opportunities for the German Business", organized by the German Federal Ministry for Economic Cooperation and Development in cooperation with the German Global Compact Network.
- During the 66th World Health Assembly held in Geneva, Switzerland in May 2013, Karl-Ludwig Kley, Chairman of the Executive Board, met with Muhammad Ali Pate, at that time the Nigerian Minister of Health, and Dr. Hiroki Nakatani, WHO Assistant Director-General, to discuss the next steps in the fight against schistosomiasis.

Discussions at the local level

We also participated in numerous discussions in 2013 and 2014 at the local level as well. Below are several examples:

- In September 2014, Merck KGaA, Darmstadt, Germany participated in the European Head and Neck Cancer Awareness Week in Russia as part of the Make Sense Campaign. This is an international effort led by the European Head and Neck Society to raise awareness on head and neck cancer symptoms among the general population and healthcare workers. As part of an information campaign, various media were used, including TV, internet, social media, radio, and printed material. In 2014, the campaign covered 32 clinics in 17 cities, and over 6,000 patients were examined. 609 patients were diagnosed with cancer or a pre-cancer state.
- In December 2013, our subsidiary in North & West Africa organized a symposium during the first African Pharmacovigilance Congress, held in Rabat, Morocco. The symposium was entitled "La Pharmacovigilance, un enjeu africain" and focused on European pharmacovigilance guidelines.
- In August 2013, Biopharmaceuticals India co-organized a round table on "Access to Rural Health" in collaboration with the Rural Marketing Association in India and the Organization of Pharmaceutical Producers of India.
- In Venezuela, our subsidiary, a member of the over-the-counter chamber there, regularly engages with the national government as part of its efforts to ensure the country's supply of life-saving medicines.

Goals: Access to health

Goal	Action	By?	Status in 2013 and 2014	Status
Monitor and assess the progress and efficacy of our Access to Health programs.	Create quantitative and qualitative performance indicators for the 4 A's: Availability, Accessibility, Affordability, and Awareness.	End of 2016		+
Availability: Address unmet needs through the research, development and refinement of health solutions	Expand our R&D portfolio for neglected tropical diseases within the scope of the Global Health Innovation Platform. We have created a three-year plan for our focal areas of developing a pediatric formulation to treat schistosomiasis in preschool-aged children and developing a new anti-malarial drug.	End of 2017		+
Affordability: Address inability to pay	Through our WIPO Re:Search membership, engage in a collaboration agreement to share our intellectual property and knowledge to catalyze the development of medical products against infectious diseases.	End of 2016		+
Awareness: Empower health workers, communities and patients	Develop an integrated initiative of our Healthcare and Life Science business sectors to raise awareness and empower people to make informed decisions.	End of 2016		+
Accessibility: Strengthen supply chains and provide localized solutions	Develop an initiative to reach patients, regardless of their geographic location, and ensure they have access to health solutions.	End of 2016		+

Legend: Achieved | In progress | Not achieved | + New goal

Medicines to combat neglected diseases

The most effective way to achieve progress and develop new approaches to fighting neglected diseases, is to work through robust public-private partnerships, innovative alliances and interdisciplinary approaches to health and development.

In January 2014, the biopharmaceuticals business launched the Global Health Innovation Platform to address unmet medical needs for neglected diseases in children from developing countries. The Global Health Innovation Platform has the goal of developing innovative, affordable, and integrated health solutions leveraging from the Group's cross-business competencies. This R&D platform is based on public-private partnerships (PPP) and collaborations with leading Global Health institutions and organizations in both developed and developing countries. The R&D activities for the Global Health Innovation Platform focus on schistosomiasis and related helminth diseases, as well as malaria. The Global Health Innovation Platform operating model functions through a series of partnerships and collaborations. Our partners include Medicines for Malaria Venture (and its extended network across the globe), the Swiss Tropical and Public Health Institute, the African Institute of Biomedical Science & Technology (AiBST) in Zimbabwe, the Liverpool School of Tropical Medicine, the London Center for NTD Research, and Saint George's University in the United Kingdom. We have furthermore signed a Memorandum of Understanding with both the Kenya Medical Research Institute (KEMRI) as well as the University of Makerere in Uganda. We are also a leading partner of the Pediatric Praziquantel Consortium.

Through the Global Health Innovation Platform, the biopharmaceuticals business promotes and sponsors educational programs. Some examples of this include grants for post-doctoral fellowships at the AiBST in Zimbabwe and grants for healthcare worker disease awareness at the University of Namibia. Through these efforts, we are striving to help build capacities in endemic countries. Additionally, Biopharmaceuticals participates in international fellowship programs that host post-docs from developing countries. The post-docs are trained on clinical operations practices and clinical trial execution across all Phases (I-IV). More specifically, the fellowship places successful candidates with leading product development organizations, including pharmaceutical companies and product development partnerships, for a period of up to 24 months. On returning to their academic institutes, the fellows are expected to become an important resource for institutional capacity development and to undertake as well as manage clinical research in accordance with international regulatory requirements and standards.

Through this Innovation Platform, we are currently focusing on two priority issues in its research and development (R&D) activities: the pediatric praziquantel formulation for the treatment of pre-school age children suffering from schistosomiasis, and an anti-malaria drug. Initiatives are ongoing to assess new opportunities for additional projects to build up our portfolio in both areas. In addition, interdisciplinary approaches in health and development are being fostered through internal R&D cross-business collaboration, such as the diagnostics being co-developed by Biopharmaceuticals and Life Science. They are currently exploring the development of a malaria diagnostic kit from the existing Muse, a diagnostic point of care (IVC) used for the detection of HIV/AIDS. This initiative aims to allow co-diagnosis of HIV and malaria in countries where the co-infection rate is high.

Praziquantel pediatric formulation

Since July 2012, the Pediatric Praziquantel (PZQ) Consortium, an international, non-profit public-private partnership, has been operating with the aim to develop, register, manufacture and launch a pediatric formulation of praziquantel, the gold standard treatment for schistosomiasis. To date, the oral praziquantel tablets have only been available for adults and children over the age of 6. However, the high-risk age group of pre-school age children (from 3 months to 6 years old) accounts for about 10% of the estimated 249 million people already infected with schistosomiasis worldwide. The pediatric formulation will bridge the current treatment gap. Initiated and led by Merck KGaA, Darmstadt, Germany, consortium partners include: Astellas Pharma GmbH (Japan), the Dutch pharmaceutical research enabler TI Pharma, the Swiss Tropical and Public Health Institute, Farmanguinhos (Brazil) and Simcyp (UK).

Significant progress has been achieved within the Pediatric PZQ formulation program: upon successful completion of the pre-clinical phase, a clinical development strategy was defined, and the first Phase I clinical trial in healthy volunteers was completed in South Africa. Work is ongoing to implement the second Phase I trial in South Africa as well as a taste study in Tanzania, and to plan for a clinical Phase II/III trial in African countries. In 2014, the company's Bioethics Advisory Panel (MBAP) discussed how to specifically guarantee that the children's parents and guardians be informed of the risks of trial participation in an ethically responsible manner and give their consent. In particular, the MBAP expert discussion provided guidance to shape the clinical development plan with regard to aspects such as ancillary care, and drew attention to key aspects such as reimbursement.

Anti-malaria drug

Malaria remains a long-standing public health problem and has a major impact on vulnerable populations in over 100 countries: more than 3 billion people are at risk of infection and more than 200 million cases are recorded per year. An estimated 627,000 deaths are caused by malaria every year, primarily in African children under 5 years of age. Thus, despite an existing product portfolio and pipeline, there is an urgent need for new products to overcome the problem of increasing resistance and to achieve the overall goal of eradicating the disease.

In 2014, the biopharmaceuticals business and Medicine for Malaria Venture (MMV), an internationally recognized, Swiss-based not-for-profit organization, renewed the contract of their partnership on the anti-malarial long-acting compound program, which was originally signed in April 2013. The partnership allows them to reach out to a large key expert network including the Tres Cantos Open Lab Foundation in Spain, Monash University in Australia, and the Imperial College of London. Merck KGaA, Darmstadt, Germany and the MMV aim to develop urgently needed anti-malarial compounds through their lead optimization program, which comprises chemical series that have shown significant anti-malarial potential. The main component of this collaboration between the company and MMV is a new chemical series that entered the exploratory development phase in 2014. Under the biopharmaceuticals business' leadership, this alliance is aiming to have at least one pre-candidate drug move into the non-clinical phase by the end of 2015.

Stakeholder dialogue

Over the last two years, we have been participating in a series of conferences focused on schistosomiasis and malaria. These conferences have fostered the dialogue and interactions with key stakeholders and scientific experts in these two fields, from both public as well as private sectors. In particular:

- The 13th International Symposium on Schistosomiasis (Belo Horizonte, Brazil, 2012) opened an important dialogue with governmental representatives; it led to one new partner (Farmanguinhos, the federal governmental pharmaceutical laboratory of the Fiocruz Foundation in Brazil) joining the Pediatric Praziquantel program, thereby bringing its unique expertise for the production and distribution of the new pediatric formulation in endemic countries;
- The 11th Malaria Meeting at the end of 2013 (Aachen, Germany), which fostered a new dialogue and partnership with Saint George's University (UK);
- The 7th EDCTP (European and Developing Countries Clinical Trials Partnership) Forum in mid-2014 (Berlin, Germany);
- The Harvard University Symposium on Malaria and Tuberculosis at the end of 2014 in Boston, MA (USA), during which the biopharmaceuticals business presented their innovative business model and fostered a number of future collaboration opportunities.

Pricing

Our pharmaceutical pricing approach helps to ensure a sustainable supply of products for future generations of patients. This allows us to recover the costs we incur, including, among others, costs from research, development, manufacturing, regulation and distribution. We can furthermore continue investing in the discovery and development of new medicines.

The affordability of our health solutions is part of our wider patient value proposition, which includes accessibility, availability and awareness. We are aware of the importance of affordable access to medicines in developing countries. As a result, we commit to pricing our products responsibly and to engaging in innovative equitable pricing schemes in partnership with governments and other key stakeholders.

We recognize that individual countries have varying abilities to pay for our health solutions. We conduct yearly reviews of our pricing strategies to identify ways to expand access to health by aligning prices with affordability. We are committed to implementing inter-country equitable pricing schemes. Via low-priced tenders, we offer intra-country differential prices to health ministries and to social health insurance systems. These institutions play a critical role in financing the healthcare of patients who would not otherwise be able to afford treatment.

There are three ways in which we make our products affordable to different patient segments within individual countries:

1. Participation in government tenders for products used in public hospitals serving low-income patients.
    - Merck KGaA, Darmstadt, Germany supplies products to governments at reduced rates in Africa, Latin America, the Middle East and Southeast Asia.
2. Establishing second "low-price" brands of existing brands to address patients with out-of-pocket expenses:
    - In South Africa, Concor and Ziak (antihypertensive agents) second brands are available at discounted prices.
3. Patient Access Programs (PAPs) that can offer products at reduced costs:
    - Through the Erbitux® China Patients Aid Program (ECPAP), the Beijing Red Cross Foundation and the biopharmaceuticals business in China are working collaboratively to help expand access to Erbitux® for metastatic colorectal cancer. This program, launched in 2011, aims to identify patients who cannot afford the treatment but who could benefit from Erbitux®. The biopharmaceuticals business set up registration centers at around 100 selected hospitals in 60 cities, through which patients can apply. So far, more than 3,100 patients have benefited from this program.

We also have PAPs in other countries such as the Philippines, Indonesia and Thailand, where we offer Erbitux® for colorectal cancer at reduced prices to patients who do not have health insurance and who would otherwise have to pay the full price for this treatment.

Local manufacturing, distribution and supply chain

To address the varying abilities of countries to pay for our health solutions, we implement innovative mechanisms, such as supporting local manufacturing in these countries. Merck KGaA, Darmstadt, Germany produces a range of essential medicines for patients with diabetes, heart disease and low respiratory conditions in its own manufacturing plants located in developing countries, such as Pakistan. Local manufacturing allows us to supply affordable medicines to local markets and neighboring countries (in this case Afghanistan, Sri Lanka and Myanmar) at considerably lower prices than in Europe.

Of the approximately 350 medicines on the WHO Essential Medicines List, the company provides 65 medicines to developing countries. These medicines are currently distributed in 74 developing countries, including 35 countries in Africa, 18 in Asia and 12 in Latin America. Our products are available in nearly two thirds of Least developed countries (LDCs), including nations such as Afghanistan, Benin, Burkina Faso, Ethiopia, Haiti, Mali, Myanmar, Nepal, Senegal, and Sudan.

Safe and secure supply chains help ensure patient access to quality health solutions. In delivering our health solutions to patients, our policies and procedures help ensure that appropriate quantities of our products are delivered in the right condition, at the right place and

on time. We improve efficiencies and speed up product delivery by bringing all actors together as well as by integrating the steps along the supply chain.

We are dedicated to maintaining quality and safety at every step of production and delivery. We do this by following internal quality management guidelines, complying fully with global Good Manufacturing Practices (GMP) and Good Distribution Practices (GDP) and working with associations and partners. For instance, we are a part of Rx-360, a consortium responsible for protecting patients' safety by sharing information and developing an end-to-end safe supply chain. We use a variety of approaches to ensure the authenticity of the products manufactured and sold under the Merck KGaA, Darmstadt, Germany brand.

As supply chain barriers cannot be solved by one actor alone, we are an active partner of the Neglected Tropical Diseases Supply Chain Forum. We have also launched a multi-stakeholder dialogue on accessibility challenges to discuss how we can partner to strengthen developing country supply chains.

In order to strengthen local supply chains we support various initiatives that were recognized in the 2014 ATM Index as best practices:

- The company is developing a platform to ensure local quality manufacturing standards known as the Virtual Plant Team. This will provide support, expertise and training to local managers in Africa, Asia and Latin America.
- Through our Temptation Project, we use heat and humidity sensors to monitor the transportation conditions of all our products shipped from Europe to the rest of the world. We use the data collected in a centralized system to ensure product quality and improve transport centers.

We are also seeking ways to address the forward integration of supply chains through a software tool that can improve stock management, which has been tested in Sudan and Ethiopia. This tool has been integrated with our order management system and improves price transparency while reducing lead time and miscommunication.

In May 2014, IMS Health, a global information and technology services company, issued a report entitled "Supply Chain Optimization in Africa's Private Sector: Reducing the Price to Patient". In this report, the company was recognized as a best practice company for our efforts to make six prescription and OTC products in Kenya more affordable for patients at the point of delivery. Thanks to innovations in our distribution strategy, we lowered prices by as much as 44%-55%, which was made possible by streamlining our processes in Kenya. For instance, we are now using fewer middle men in-country to distribute our products. This demonstrates how lower prices can be an indirect outcome of more efficient distribution systems.

Intellectual property

Intellectual property protection is important for the company to make investments in research and development needed to enhance the therapeutic efficacy of our existing health solutions and to create new therapies for future generations. We recognize that responsible handling of intellectual property is essential for improving access to health in developing countries, where governments and patients face significant resource constraints and access barriers.

In 2014, Merck KGaA, Darmstadt, Germany joined WIPO Re:Search, an open innovation platform sponsored by the World Intellectual Property Organization. With over 90 members worldwide, the platform accelerates early discovery for infectious diseases through intellectual property and knowledge sharing.

We have adopted a policy of not filing or enforcing patent applications in the vast majority of developing countries. In markets where we file patent applications, we are committed to enhancing data sharing with researchers and improving public access to clinical trial information. The patent status of our products is made publically available.

Merck KGaA, Darmstadt, Germany supports voluntary licensing agreements of all kinds, including non-exclusive voluntary licenses and legally binding non-assert declarations or clauses that are focused on improving access. We focus these agreements on medicines to treat

non-communicable diseases such as cardiovascular diseases, diabetes, cancer, and chronic pulmonary diseases, which represent a growing health burden in developing countries. The company welcomes requests for such licenses from manufacturers that can meet our quality and performance standards. When we grant a license, we commit to supporting technology transfer that ensures the manufacture of high-quality products.

We support the World Trade Organization's (WTO) standards for intellectual property rights, including the WTO's Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) and subsequent amendments such as the Special Declaration on the TRIPS Agreement and Public Health at the Doha Ministerial Conference in November 2001 (Doha Declaration). The Doha Declaration exempted Least developed countries (LDCs) from complying with TRIPS provisions until January 1, 2016. We support this exemption of LDCs and an extension of the exemption beyond 2016.

Patents ensure temporary exclusive rights for marketing an innovative product. However, we respect the right of developing countries to enact compulsory patent licensing in specific situations, as embodied in TRIPS Article 31 and as modified by the Doha Declaration. However, we believe that in some cases, approaches other than compulsory licensing may be more appropriate and would avoid undermining innovation in the pharmaceutical industry. For example, differential pricing and voluntary licensing can achieve improved health outcomes in developing countries.

We also promote responsible regulatory data protection policies. Such policies encourage innovator companies to conduct clinical trials and to invest in additional research and development.

We support the concept of patent pools. However, we believe patent pools should be structured to improve access to medicines and should therefore avoid anti-competitive effects and geographic limitations. We consider joining patent pools if they are relevant to our portfolio and if they meet efficacy, quality and safety requirements.

HIV diagnostics

More than 35 million people are infected with HIV worldwide. However, in 2014 UNAIDS reported that only 19 million of them are aware of their status. In the course of an HIV infection, CD4 cells indicate the state of the immune system and act as markers for T cell lymphocytes. Patients with a low count of these cells in their blood are at increased risk of opportunistic infections.

The life science business is currently developing the Muse Auto CD4/CD4% system, another diagnostic kit for monitoring T cells. The Muse Auto CD4/CD4% system will replace our Guava Auto CD4/CD4% system. Overall, 600 Guava instruments have been sold and around three million patients have been tested and informed of their status. In addition to addressing the needs of adults, the Muse system will also monitor T cells in children and offer a more competitive instrument at a modest price that is intended for use in developing countries. In the development phase of the new Muse system, the life science business partnered with the University of California and in February and April 2014, clinical trials were carried out at the University of Yaounde in Cameroon. A second research study started in November 2014. A final clinical trial is planned for 2015.

Merck KGaA, Darmstadt, Germany is committed to making health workers aware of the new Muse Auto CD4/CD4% system as well. For many years, we have been participating in meetings held by the International AIDS Society, the Global Fund to fight AIDS, Tuberculosis and Malaria (GFATM), the World Health Organization (WHO), UNICEF, the African Society of Laboratory Medicine, and the American Association for Clinical Chemistry. Merck KGaA, Darmstadt, Germany has also developed strong working relationships with NGOs including the Clinton Health Access Initiative, Catholic Relief Services, and the Elisabeth Glazier Pediatric AIDS Foundation (EGPAF), among others. In addition, the life science business works directly with government organizations including PEPFAR/SCMS as well as numerous health ministries.

Philanthropy and product donations

Product donations and philanthropic activities are not stand-alone initiatives. To us, they are part of a broader approach. We support awareness and education programs as well as capacity and infrastructure building in developing countries.

Medicine donations by Merck KGaA, Darmstadt, Germany

In general, we conduct our medicine donation activities within developing healthcare systems and prioritize them based on expressed need and expected impact. Medicines may also be donated in response to emergencies or specific one-time requests. In 2013 for example, in Colombia, the company supported a medical and surgical brigade that brought medical care to a population in extreme poverty, in which 812 people benefited from the three-day-project. Our Praziquantel Donation Program is our largest philanthropic initiative.

All medicine donations by the company are in alignment with the WHO Guidelines for Medicine Donations, our company's Policy and Procedure for Approval and Notifications of Donations and Support, as well as our Code of Conduct and relevant local regulations. The position paper on pharmaceutical product donations in the Charter on Access to Health in Developing countries provides further information on our product donations.

Improving health infrastructure and awareness

We support several projects to educate healthcare providers and patients on disease prevention. As part of our Praziquantel Donation Program, educational material is produced and distributed in order to further promote the prevention of schistosomiasis. In the Jharkhand region in northeastern India for example, we are working to improve the education as well as health care available in the areas where mica, a raw material for our pigments, is mined. The Suswastha project in India aims to directly reach underserved rural patients and provide them with access to health solutions that meet their needs. In India, we also support the River Ambulance that helps expand access to health services and solutions to underserved local populations along the Narmada River. In Ghana, Merck KGaA, Darmstadt, Germany supports the Ghana WASH project to improve water, sanitation facilities and hygiene (WASH) among children, and will be providing training on water quality testing in the future. Furthermore, the company has created the "rural pharmacy" – an innovative pharmacy specifically designed for rural parts of Africa that is being piloted in Ghana.

In addition to these projects, since mid-2014 we have also been partnering with the German Association for International Cooperation (GIZ), the Kilimanjaro School of Pharmacy (founded by the Evangelical Lutheran Church in Tanzania), Boehringer Ingelheim, and Bayer Health Care to support the expansion of four education centers in Tanzania for pharmaceutical assistants. The three-year project aims to improve access to high-quality medicines in rural Tanzania as well as to offer people better health consultation options.

Helping people help themselves

According to estimates, around 382 million people suffer from diabetes across the globe, with low- and middle-income countries accounting for a particularly large percentage of patients. Very few of these patients have adequate access to insulin, syringes, and the medical equipment needed to monitor their blood pressure. We are therefore committed to improving access to quality diabetes treatment.

Capacity Advancement Program (CAP)

Merck KGaA, Darmstadt, Germany is committed to improving the accessibility and quality of diabetes treatment. Our Capacity Advancement Program (CAP) is a five-year program that aims to expand professional capacity in Africa and Asia in the areas of R&D, clinical research, supply-chain integrity and efficiency, pharmacovigilance, medical education, and community awareness, with special focus on diabetes and non-communicable diseases. The program was established in 2012 and has been implemented across Africa, India and Indonesia in collaboration with ministries of health, health science universities and local patients' diabetes associations. The goal is to raise awareness of diabetes by educating the current and future healthcare providers as well as supporting the healthcare system with ways to prevent, diagnose and manage diabetes effectively.

To spread awareness of our Capacity Advancement Program, we have conducted more than 250 events across Kenya, Uganda, Mauritius, Namibia, Mozambique, Ghana, India, Indonesia, and Germany. Furthermore, the "Get informed Get Active Get Healthier" campaign has reached more than 25,000 people in Kenya, Ghana, Uganda and India, providing patients with free screening and medical check-ups. Additionally, more than 100,000 patient leaflets about diabetes have been distributed in camps and in the largest supermarket chains in Kenya and Uganda for better coverage and reach to community members.

As part of CAP, in 2014 around 2,000 medical and pharmacy students from health sciences universities in Africa furthermore participated in clinical diabetes management training. This medical education program was developed by EXCEMED, an independent organization providing medical education programs in partnership with the Oxford Centre of Diabetes, Churchill Hospital, Oxford, UK, and was accredited by the European Accreditation Council for Continuing Medical Education. In 2015, the company will provide the same course to medical and pharmacy students at the University of Indonesia and to medical undergraduates in 18 medical colleges of the Maharashtra University in India. CAP aims to reach 15,000 medical and pharmacy undergraduates in Africa and Asia by 2018.

Bioethics and biotechnology

Bioethics

Bioethics is concerned with fundamental questions that arise from how humans treat other creatures, both human and animal. These issues are the subject of often heated debate, not least because people's ethical positions are the reflection of their differing cultural, social, and religious backgrounds.

For Merck KGaA, Darmstadt, Germany, bioethical issues arise in many areas; these include the use of stem cells, the use of genetically modified microorganisms, the research and application of infertility drugs, and the wide array of clinical research that we conduct. Beyond compliance with regulations and laws, we have a strong commitment to conducting research in an ethical manner, to ensure patients' wellbeing and to evaluate different positions on controversial topics (e.g. stem cell research) in order to make informed decisions.

Our Bioethics Advisory Panel

Bioethical issues are debated in a diverse social environment. Many of these questions are perceived very differently from country to country, and how people view them is furthermore subject to changes in society. As a global company, we must address developments concerning bioethical issues at an international level; we must identify the changes and incorporate them into our position on bioethics. To this end, we have established the Bioethics Advisory Panel (MBAP), which convenes at least once a year to advise the company. It is headed by our Chief Medical Officer (CMO) and consists of globally renowned bioethics experts from a range of pertinent disciplines such as law, theology and medical ethics. The MBAP provides clear recommendations on the issues discussed, which we then integrate into our guidelines and internalize in our conduct. In order to educate our employees on bioethical considerations, we publish high-level summaries from the MBAP meetings on our intranet.

In 2013, the MBAP met to discuss clinical trial data transparency and principles on data sharing. At the end of 2013, the company introduced its policy on clinical trial data sharing and published a summary of our responsible data sharing principles on our data request website. They are in line with the respective principles of the European Federation of Pharmaceutical Industries and Associations (EFPIA), as well as the Pharmaceutical Research and Manufacturers of America (PhRMA).

Other discussion topics included biobanking and genetic testing, as well as pharmacogenomics and targeted therapies in pharmaceutical development. A biobank is a repository that stores tissue samples, along with coded patient data and sample data. Biobanks have great potential for future research in areas such as oncology. They require, however, adherence to high ethical standards both in terms of collecting specimens and genetic data, as well as how the databases are operated. These aspects are described in the Informed Consent form, a document in which study participants must confirm that they have been informed, that they understand, and that they authorize the use of their specimens. This includes consent to anonymize samples, store them and eventually destroy them. The MBAP emphasized that biobanking can only be considered viable if the intended uses of the biobank are made transparently clear, and if bioethical standards are conscientiously applied. With regard to pharmacogenomics and targeted therapies, the company is taking various approaches into consideration, including the use of tumor characteristics such as certain mutations. These approaches are important for the design of future clinical trials.

In 2014, the MBAP discussed several topics, including post-clinical trial access to study drugs and issues arising from the development of praziquantel for small children, as well as the opportunities and bioethical implications of biosimilars.

Access to study drugs post trial is a commitment laid out in several ethical guidance documents, such as the Declaration of Helsinki. These state that if a study drug has shown itself to be beneficial, safe and in line with local requirements, it should continue to be available to trial participants after the clinical trial, which is what the MBAP has recommended. If the drug is commercially available, the patient will be switched to the marketed drug. If the drug is not yet approved, a single/named patient, compassionate use or early access program may be considered in order to continue treatment.

Within the scope of our Praziquantel Donation Program, we are researching a formulation of praziquantel for small children. This project requires clinical trials involving children in low-resource areas such as Africa. The children's parents and guardians must be informed of the risks of trial participation in an ethically responsible manner and then be asked to give their consent. The MBAP discussed the proposal for Phase I testing of the pediatric praziquantel formulation and concluded that the overall aim of the pediatric praziquantel clinical development program is ethically appropriate.

In addition to this, the MBAP discussed ethical considerations regarding biosimilars. To promote worldwide access to high-quality biologics, the company established a biosimilars unit in 2012. We strongly advocate that the same standards of high quality, safety, efficacy, and scientific need be consistently applied to all medicines and across all geographies, regardless of whether the drug in question is patented or a biosimilar.

Clinical trials

We aim to alleviate human suffering by researching and developing innovative medicines. To achieve this, we adhere to all relevant statutory and regulatory requirements, as well as industry standards. For clinical studies, these standards include the Declaration of Helsinki and the Good Clinical Practice (GCP) guidelines of the International Conference on Harmonization (ICH). More details can be found under Clinical Trials on p. 70.

Stem cell research

When clear statutory and regulatory requirements are lacking, the company collaborates closely with experts to develop appropriate guidelines. The requirements described in the "Stem Cells and Human Cloning Principle" enable us to conduct stem cell research within a strictly defined legal framework. They prevent us from violating applicable laws and regulations while enabling us to work within the framework of established ethical principles. Our Stem Cell Research Oversight Committee reviews internal stem cell research proposals and commercial strategies for compliance with our ethical and legal guidelines.

The company is not involved in clinical programs utilizing stem cells or human cloning for therapeutic purposes and does not pursue such approaches.

Infertility treatment research

In developing treatments for infertility, the company avoids all invasive types of prenatal diagnostics. Within the framework of our "Fertility Research Policy", however, we are focusing on improving the success rate for in vitro fertilization.

Our Embryo Viability Assessment Test (Eeva) is designed to improve in vitro fertilization (IVF) outcomes by providing clinicians and embryologists with objective information that will enable them to predict embryo viability with a new level of accuracy. Eeva uses intelligent computer vision software to measure key scientifically and clinically validated cell division parameters from video image.

Biotechnology and genetic engineering

Merck KGaA, Darmstadt, Germany utilizes genetically modified organisms in research and development and has been manufacturing biotech products that are produced using genetically modified organisms (GMOs) since the 1980s. Without this technology, the major medical advances of the last several years would not have been possible.

Our major research centers for medical biotechnology are located in Darmstadt (Germany), Boston (United States), Beijing (China), and Tokyo (Japan). Important production sites for this are Aubonne and Corsier-sur-Vevey in Switzerland.

The biotech facility in Corsier-sur-Vevey remains one of the largest biotech production facilities in Europe. We are a leader in this field. We produce our highly valuable biotech products utilizing the highest standards. All our biotechnological activities are subject to strict legal regulations worldwide; compliance with these regulations is monitored by biological safety officers. The company continually tracks regulatory changes pertaining to biotech products and adapts its processes accordingly, thus ensuring compliance with all statutory requirements.

Clinical trials

In our quest to thoroughly understand our pharmaceutical products throughout their entire life cycle, we ensure that patient needs are foremost at all times. We conduct top-quality clinical research in compliance with the applicable laws and regulations. When conducting multinational, multi-site trials in both the industrialized as well as developing countries, we follow the highest legal, ethical and scientific standards.

Merck KGaA, Darmstadt, Germany only conducts clinical trials if a sound, established scientific methodology is available to investigate a scientific or medical question of relevance to patients, medical professionals and society as a whole. We only enroll the number of participants required to answer the scientific questions being investigated.

The "Pharma Compliance Policy Clinical Research", released in October 2013, serves as a basis for the conduct of clinical trials.

Adhering to the highest standards

In all its research and development activities, Merck KGaA, Darmstadt, Germany adheres to the most stringent international legal, ethical, scientific and quality standards. These include:

- The Good Clinical Practice (GCP) guidelines of the International Conference on Harmonization (ICH)
- The Declaration of Helsinki from the World Medical Association
- The Belmont Report
- Good Pharmacovigilance/Laboratory/Manufacturing/Distribution Practice (GVP/GLP/GMP/GDP)
- The "International Ethical Guidelines for Biomedical Research Involving Human Subjects" of the Council for International Organizations of Medical Sciences (CIOMS)
- The "Joint Position on the Disclosure of Clinical Trial Information via Clinical Trial Registries and Databases" and the "Joint Position on the Publication of Clinical Trial Results in the Scientific Literature", both issued by the International Federation of Pharmaceutical Manufacturers & Associations (IFPMA), the European Federation of Pharmaceutical Industries and Associations (EFPIA), the Japanese Pharmaceutical Manufacturers Association (JPMA), and the

Pharmaceutical Research and Manufacturers of America (PhRMA)

- The EFPIA & PhRMA "Principles for Responsible Clinical Trial Data Sharing"

To provide a broad, in-depth basis for the development of new medicines, the company frequently works in collaboration with external partners in academia and industry, as well as with medical-scientific advisory boards, service providers and vendors. We expect and verify that all our partners – especially contract research organizations (CROs), licensing partners and suppliers – abide by the same set of high standards when conducting clinical trials.

In 2013, the biopharmaceuticals business entered into a partnership with a CRO for the exclusive conduct of all the biopharmaceuticals business' global trials. Within this partnership with Quintiles, the Articles of Association as well as a comprehensive manual clearly define our expectations and escalation paths. Our aim is to promote the highest quality and compliance when conducting clinical trials. The biopharmaceuticals business retains ultimate accountability for any issues that pertain to the quality or procedural compliance of the trials.

In 2014, we entered into a strategic alliance with Pfizer on the joint clinical development of an anti-PD-L1 antibody, which is currently being developed by Merck KGaA, Darmstadt, Germany as a potential treatment for multiple tumor types. Up to 20 high-priority immuno-oncology clinical development programs are expected to commence in 2015, including pivotal registration studies. In this alliance, just as in all of our partnerships, we adhere to our high standards for the conduct of clinical trials.

Responsible clinical trial data sharing

Information sharing related to company-sponsored clinical trials is central to Merck KGaA, Darmstadt, Germany's mission and enables the medical and scientific community to further develop their medical and scientific knowledge base. We are committed to enhancing public health by responsibly sharing clinical trial data in a manner that is consistent with: (a) safeguarding the privacy of patients, (b) respecting the integrity of national regulatory systems, and (c) maintaining incentives for investment in biomedical research.

We are increasing our commitment to responsible clinical trials data sharing in alignment with the European Federation of Pharmaceutical Industries and Associations and the Pharmaceutical Research and Manufacturers of America. Since 2014, the company has been fulfilling its EFPIA and PhRMA commitment to share study protocols, anonymized patient-level data, study-level data, and redacted clinical study reports from clinical trials with qualified scientific and medical researchers; this applies to all drugs of the company approved in the EU and United States from January 1, 2014 onwards.

Publication of clinical trials

Merck KGaA, Darmstadt, Germany is committed to the transparency of clinical trial information and to publicly communicating clinical trial results in an accurate, objective and complete manner. The company furthermore ensures that publications arising out of its clinical trials are produced in a responsible, ethical fashion in accordance with applicable laws and industry codes, and published in a timely manner.

We publish clinical trial information and results in the Global Clinical Trials registry and results database run by the U.S. National Institutes of Health, which can also be accessed via the World Health Organization Clinical Trials Registry Platform. Since 2014, we have also been registering clinical trials and publishing results in the EudraCT (European Union Drug Regulating Authorities Clinical Trials) database in accordance with EU regulations.

Clinical trial governance

The Head of Global Research and Development, supported by the corresponding operating committees, has overall responsibility for product development and the related governance process.

Merck KGaA, Darmstadt, Germany has two dedicated clinical trial governance committees, those being the Integrated Clinical Study Committee responsible for development studies and the Global Medical Affairs Decision Board responsible for studies with marketed products. Chairs and members of both committees are senior medical/scientific experts and executives with long-standing experience in clinical research. Each meet on a regular basis to conduct a comprehensive review

of the proposed clinical trial designs in order to verify that our trials are scientifically sound, have a legitimate scientific purpose and are undertaken according to the latest standards and best practices.

Furthermore, independent quality assurance audits are conducted regularly, thus ensuring that our investigational sites and contract research organizations (CROs) continuously adhere to Good Clinical Practice (GCP) standards. In 2013 and 2014, there were no findings giving rise to concerns that trials were not being conducted in line with ICH-GCP standards and the Declaration of Helsinki.

Our Medical Safety and Ethics Board (MSEB) investigates safety issues and benefit-risk profiles of our marketed and investigational products in order to ensure their safe and appropriate use by patients. The MSEB is chaired by the Chief Medical Officer and consists of senior physicians and scientists with long-standing experience in drug safety and clinical research.

Conducting clinical trials responsibly

Protecting the rights, safety, dignity and wellbeing of volunteers and patients participating in our clinical trials is of utmost importance to us. Individuals enrolled in our clinical trials will not be intentionally exposed to undue risk or irreversible harm. Privacy of all personal information is respected and confidentiality is ensured in compliance with statutory regulations.

Prior to enrolling participants in an interventional clinical trial, a qualified independent ethics committee/ institutional review board (EC/IRB) must review and approve each and every trial. All local regulatory or governmental authorizations required in the respective country must furthermore be obtained. In accordance with Good Clinical Practice guidelines (ICH-GCP), every participant must give their informed consent before enrollment in a clinical trial. Participants are fully informed about all aspects of the clinical trial in a language that they understand; this includes the potential risks and benefits from participating in the trial. They also are given ample time and opportunity to inquire about details of the trial before deciding whether or not to participate. All questions posed by potential participants are answered by the clinical investigator or another qualified health care professional familiar with the study.

Once a trial has started, precisely defined procedures are followed to ensure that the study is conducted to the utmost standards in accordance with Good Clinical Practice and that the data are accurately generated, documented and reported in line with all applicable requirements. In the 2013-2014 period, we received no significant complaints regarding this clinical trial procedure from third parties or regulatory agencies.

We continuously collect and communicate safety data for our products, promptly providing clinical investigators with important new findings relevant to the patients. This aims to ensure the safe use of our pharmaceutical products. Potential safety issues and risks are taken into consideration in order to evaluate the benefit/risk of our products and manage risk. Product information, including the Investigator's Brochure and Subject Information, is updated accordingly.

We engage patient advocacy groups in a discourse on our clinical trials. For example, EMD Serono, one of our subsidiaries in the U.S., is the National Sponsor of AWARE for All, an educational outreach model by the non-profit Center for Information and Study on Clinical Research Participation (CISCRP). AWARE for All educates the public about the importance of clinical research; it is driven by the premise that awareness, realizing the value of participation, and ongoing engagement are the keys to generating public support and attracting more clinical research volunteers. Ultimately, CISCRP hopes to empower patients and the public to make more informed decisions about participating in clinical research. During the 2013-2014 period, EMD Serono collaborated with the Lupus Research Institute in a pioneering effort to make our Lupus Clinical Trials more patient-centric.

We are planning to expand the dialogue with patient organizations, especially for therapeutic areas in which we are conducting clinical trials. For instance, we would like to increase the degree of informed consent and make clinical trials more patient-friendly in order to ensure that the trials are designed and conducted around patient needs.

Clinical trials conducted in developing health care systems

Regardless of location, all Merck KGaA, Darmstadt, Germany's clinical trials are conducted in compliance with international scientific and ethical standards, in addition to the locally applicable laws and regulations. We are actively shifting our development activities to more diverse markets in order to address the healthcare needs in various regions and to support the development of their health care systems.

In performing clinical trials in developing health care systems, we apply the same principles that apply when conducting such trials in developed countries. When we conduct clinical trials in a developing health care system:

- We only do so in an environment that can follow Good Clinical Practice, i.e. where ethics committees and well-trained clinical investigators are present.
- We only address diseases and test innovative medicines that are relevant for the local population.
- We conduct clinical trials in countries where there is a reasonable expectation that the drug tested will be submitted for marketing authorization and be made available to patients after proof of efficacy and safety.
- We assure that enrollment into a clinical trial does not discriminate against participants on the basis of ethnic origin, gender or socio-economic status.

Within the scope of our Praziquantel Donation Program (MPDP), we are partnering with the World Health Organization (WHO) to combat the parasitic worm disease schistosomiasis in African school children. Praziquantel tablets in their current form are suitable for adults and children over the age of six. For children younger than six, it is currently not possible to properly treat the disease. Within the scope of a public-private partnership (PPP), Merck KGaA, Darmstadt, Germany is researching a liquid formulation of praziquantel that is intended to be suitable for small children. This project makes it necessary to conduct clinical trials involving children in Africa. Further details are described under Neglected Diseases on p. 61.

Animal science and welfare

In line with ICH guidelines and the REACH regulation, research-based chemical and pharmaceutical companies are statutorily required to perform animal tests when developing new drugs in order to test the product safety of biological preparations and chemicals. Animal research provides crucial information on product efficacy and safety. Therefore, international laws require animal research to be performed prior to testing the effect of new drugs in humans, or prior to marketing chemicals on a large scale.

Animal research is only permitted if there are no recognized alternative methods available; otherwise, the alternative methods must be utilized. Animal research is, however, still unavoidable in many fields and frequently cannot be replaced by alternative testing. Because living systems are extremely complex, the entire living system of an animal must be observed and tested in order to explore, explain, or predict the course of diseases or the effects of possible treatments. All aspects of animal research are regulated by laws and regulations, which govern the housing of laboratory animals (such as cage size, temperature, ventilation and relative humidity), the conduct and approval of animal tests, and the reliability and expertise of all involved individuals. Animal testing is approved and monitored by regulatory authorities.

For Merck KGaA, Darmstadt, Germany, animal welfare is not just an important ethical issue, but also influences the quality of test results. In order to get reliable, accurate data from our studies, we need animals that are comfortable and provided the best living conditions possible. In addition to this, we are committed to applying high, state-of-the-art quality and animal welfare standards in the housing, care and feeding of laboratory animals, striving to continuously improve these conditions. We therefore promote the 3R principles of animal welfare:

1. Reduction of the required number of animals.
2. Refinement, e.g. to minimize the stress placed on animals before, during and after testing.
3. Replacement of animal research.

Group-wide regulations and organizational structures

Merck KGaA, Darmstadt, Germany keeps animals in its own facilities at various sites worldwide. At all our sites where animals are kept or animal tests are performed, we have appointed responsible individuals and groups (such as animal care and welfare officers, institutional animal care and use committees) both on a voluntary basis as well as in response to national requirements. These units assess and assure the quality of the respective animal husbandry practices. In 2010, the biopharmaceuticals business signed the Interpharma Charter on Animal Welfare. In this charter, pharmaceutical companies commit to global Animal Welfare principles and highest possible standards in animal research worldwide.

Our Corporate Policy "Use, Care and Welfare of Laboratory Animals" describes our principles for the housing, care and feeding of laboratory animals, as well as the roles and responsibilities of the Group function Corporate Animal Science and Welfare. In this guideline, we commit ourselves to high quality and to continually improving the housing, care and feeding of our laboratory animals and expect the same from contract research organizations (CRO) as well as our business partners.

In 2014, we created the "Manual for the Group function Animal Science and Welfare". It describes the requirements for the implementation, maintenance and improvement of laboratory animal science and welfare.

Our Animal Science and Welfare unit is headed by the Corporate Animal Welfare Officer, who creates uniform animal welfare standards. This Group function initiates and conducts audits as well as institutes additional improvements to animal welfare at the company and its partners. A global laboratory animal science network, established in 2013, brings together our Animal Science and Welfare experts. The network supervises the local animal welfare units and supports specific projects and processes related to animal science and welfare (e.g. site accreditation, strategic planning concerning animal science and welfare).

Audits and site accreditation

In 2013 and 2014, our Animal Science and Welfare organization performed five audits at our own laboratory animal facilities; eight animal science and welfare audits took place at contract research organizations and animal breeders.

To demonstrate that we adhere to the highest international animal welfare standards, it is our goal to have all our laboratory animal facilities at the biopharmaceuticals business accredited by the Association for Assessment and Accreditation of Laboratory Animal Care International (AAALAC) by the end of 2015. The AAALAC accreditation factors in national laws and guidelines while also taking into account the high international quality standards of the "Guide for the Care and Use of Laboratory Animals" from the Institute for Laboratory Animal Research (ILAR). Our two laboratory animal facilities in Darmstadt, Germany were successfully reaccredited in 2013 and 2014. The Grafing site in Germany was accredited at the beginning of 2015. The U.S. facility in Billerica, MA was AAALAC-accredited in 2012 and is preparing for reaccreditation in 2015.

Employee training

In order to ensure that animals are handled, tested, housed, fed, and cared for according to the latest standards, all employees working with laboratory animals are specially trained and receive continual advanced training. These training seminars are planned, scheduled, performed, and documented by the company's animal welfare managers in accordance with local legislation. The Group function Animal Science and Welfare supervises these measures, providing consultation and selected training as well.

The nature and scope of this training is governed by national and international legislation as well as local requirements, and the training is monitored by the responsible regulatory authorities. In addition to this, our employees participate in external continuing education programs, such as the accredited laboratory animal science courses offered by the Federation of European Laboratory Animal Science Association, and training provided by the Society of Laboratory Animals, the

Industrial Laboratory Animal Scientists and the "Interessengemeinschaft Tierpfleger" (Community of Animal Caretakers). We also provide online training programs and classroom courses on animal welfare, the 3R principles and the AAALAC accreditation standard.

Using and developing alternative methods

Whenever practical and legally feasible, Merck KGaA, Darmstadt, Germany uses alternative testing methods instead of animal research, including in-vitro tests and computer-based methods. In November 2014, our researcher Stefan Weigt received the Hessian Animal Welfare Research Prize. He developed a method through which all possible disruptions of embryonic development due to active substances can be tested in vitro on fish embryos. This work is a major contribution to the reduction of animal research.

Over the last several years, our researchers have received multiple awards for developing alternative test methods:

- 2014: The Hessian Animal Welfare Research Prize for Alternative Methods to Replace or Reduce Animal Tests
- 2010: The IUTox Bo Holmstedt Scientists Award for Alternative Test Strategies according to the 3R Principles
- 2009: The Eurotox Gerhard Zbinden Young Scientists Award
- 2008: The Eurotox Bo Holmstedt Young Scientists Award for Alternative Test Strategies according to the 3R Principles
- 2007: The Hessian Animal Welfare Research Prize for Alternative Methods to Replace or Reduce Animal Tests
- 2006: The German Animal Welfare Research Prize awarded by the Federal Ministry of Food, Agriculture and Consumer Protection (BMELV) for Alternative Methods to Replace or Reduce Animal Tests
- 2005: The Eurotox Gerhard Zbinden Young Scientists Award

Within the scope of our collaboration in associations such as the European Federation of Pharmaceutical Industries and Associations (EFPIA), the German Association of Research-based Pharmaceutical Companies (VFA), Interpharma, and the IQ 3Rs Consortium, we strive to obtain regulatory recognition for alternative testing methods that transcends national boundaries. There is a serious need for action here because animal research can only be truly reduced if a new methodology gains widespread recognition at an international level. Without international recognition, both animal research and alternative testing have to be conducted in parallel when developing pharmaceuticals intended for global distribution. Our Corporate Animal Welfare Officer represents EFPIA at the AAALAC Board of Trustees and is the chair of the IQ 3Rs Consortium in 2015.

We actively support the SET Foundation and the 3R Foundation, both of which are dedicated to finding alternative and complementary animal testing methods with the aim of reducing animal testing. Currently, the Corporate Animal Welfare Officer is the Vice Chair of the SET board. In addition to these foundations, we are also collaborating with EFPIA to devise performance indicators that can be used to evaluate the methods for 3R improvements developed by companies.

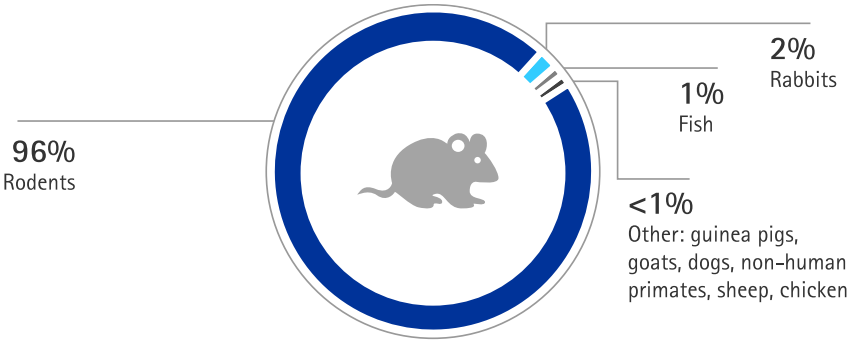
Since 2015, Merck KGaA, Darmstadt, Germany has also been a member of the European Animal Research Association (EARA). The EARA informs, educates and unifies audiences in support of research and facilitates an open debate on animal research.

Animal species

Before a substance is administered to an animal, we perform a careful species selection process involving computer simulation and in vitro preliminary scientific testing, as well as comparison with similar compounds. Mice and rats constitute more than 96% of the species used within the company. Other animal species (in particular non-rodents like dogs, pigs or non-human primates) are only used if specified by statutory regulations or if essential for scientific reasons. For example, regulatory authorities require pharmaceuticals in development to be safety tested in both a rodent species (e.g. rat or mouse) as well as a non-rodent species.

Other guidelines (e.g. REACH) also require testing in non-rodents under certain circumstances. In this way, potential side effects can be identified with higher accuracy and included in the risk assessment. In all experiments, the safety of human beings is our top priority.

Animal species



Animal welfare practices of external partners

We procure our lab animals from special animal breeders and furthermore hire special contract research organizations to conduct animal research on our behalf. We also collaborate or partner with industry institutes and universities. Around 80% of animal research activities are conducted in-house, around 20% by leading contract institutes or partners from industry and academia. Our animal welfare policy stipulates that the same high standards that apply within Merck KGaA, Darmstadt, Germany also be applied equally to these external partners.

The company is developing its own auditing concept and performs animal science and welfare audits on external partners on a risk-based approach. In addition, within the scope of our work with Interpharma, we were closely involved in developing an audit concept for contract research institutes and animal breeders. An Interpharma audit was conducted on an animal breeder at two different sites in Germany in 2013. In 2014, Interpharma performed two more audits on animal breeders in France and Denmark. Three animal breeder sites and five CROs were audited by the company in 2013 and 2014. Generally, all sites were considered of high quality and well suited to serve as animal breeders. Only in a few specific instances did findings suggest some room for improvement. Three audits on breeder facilities in the Netherlands and the U.S. are planned for 2015.

Goals: Animal science and welfare

Goal	Action	By?	Status in 2013 and 2014	Status
Harmonize animal welfare Group-wide	Establish Group-wide governance for Corporate Animal Science & Welfare	End of 2014	In 2014, we created a manual for the Animal Science and Welfare Group function that is in effect throughout the company. It describes roles and responsibilities for implementing, adhering to and improving animal welfare, such as the Corporate Animal Science and Welfare network. Nominations have been confirmed and governance has been established.	
	Develop a Group-wide audit concept for the facilities of contract animal research organizations	End of 2015	The audit concept is described in the Animal Safety & Welfare Manual and is currently being revised and expanded.	
Harmonize the high quality of animal facilities at the biopharmaceuticals business	Obtain AAALAC International accreditation for all the laboratory animal facilities of our biopharmaceuticals business	End of 2015	In 2013 and 2014, two laboratory animal facilities in Darmstadt, Germany were successfully reaccredited (performed every three years). Our site in Grafing, Germany also achieved reaccreditation.	
Implement a 3R award	Participate in the 3Rs IQ/AAALAC Award Program.	End of 2015	The first award is being presented in 2015.	

Legend: Achieved | In progress | Not achieved | + New goal

Responsible marketing

Group-wide regulations for pharmaceutical marketing

Merck KGaA, Darmstadt, Germany's number-one goal for patients is for them to receive effective, high-quality treatment. Patient-centered health care requires that the pharmaceutical industry market its pharmaceuticals transparently and responsibly. The company is committed to ensuring that its promotional practices are responsible and patient-centered, and that they comply with or even exceed strict ethical standards and statutory requirements. In October 2013, we adopted a revised version of its "Pharma Code for Conducting Pharmaceutical Business and Pharmaceutical Operations". This Code is compliant with industry association codes (IFPMA, EFPIA) and sets the standards within the company for ethical marketing practices.

In addition, Merck KGaA, Darmstadt, Germany also abides by codes established by national industry associations as well as guidelines from major international industry associations, such as the "Code of Practice" and "Code of Pharmaceutical Marketing Practices" published by the International Federation of Pharmaceutical Manufacturers & Associations (IFPMA). The company adheres to all provisions included in these codes, which cover marketing practices as well as interactions with health care professionals, medical institutions and patient organizations.

Merck KGaA, Darmstadt, Germany's marketing and promotion is based on robust scientific evidence, is consistent with national prescribing information documentation and complies with all applicable laws and regulations established at national levels. Individuals responsible for medicines promotion, as well as employees working in sales, marketing, medical, and regulatory positions, are annually trained on our marketing codes. In addition, all of our employees also have access to its marketing codes and must receive annual training on compliance (which includes the marketing and promotion of pharmaceuticals).

The company has in place internal processes and compliance officers to govern its sales and marketing activities at the global, regional and national level.

Should one of Merck KGaA, Darmstadt, Germany's marketing/promotional codes be violated, the company has a system to take immediate corrective and, if need be, punitive action. The biopharmaceuticals business is in full compliance with local regulations on advertising. This includes policy requirements such as disclosing the side effects, contra-indications and effectiveness of the advertised prescription drug, as well as presenting clear, accurate and balanced health information to patients and consumers. Merck KGaA, Darmstadt, Germany only engages in direct-to-consumer advertising (DTC) in jurisdictions where this is currently allowed. DTC advertising can increase people's awareness of disease and available treatments, enabling consumers and patients to make informed decisions about their treatment.

The industry associations with which Merck KGaA, Darmstadt, Germany is associated have put in place reporting channels for health care professionals, patients and the general public to report on any wrongdoing with regard to marketing practices. For our employees, we have implemented the Speak-Up Line to support anonymous reporting of compliance concerns. We have also set up systems to take immediate corrective and, if need be, punitive actions.

The Group-wide guideline "Pharmaceutical Operations of Merck KGaA, Darmstadt, Germany and the biopharmaceuticals business S.A. in the United States" specifically applies to our pharmaceutical activities in the U.S. market.

Merck KGaA, Darmstadt, Germany is a member of the Association for the Voluntary Self-Control of the Pharmaceutical Industry (FSA), which has defined its own rules of conduct for collaboration between physicians and industry. When violations of the FSA Code are suspected, members and third parties can file complaints with an arbitration board.

In 2013 and 2014, the company had to deal with three proceedings regarding alleged violations of the FSA Codex with regard to the disclosure of sponsorship money. All three proceedings were terminated.

All guidelines pertaining to marketing and advertising are part of the Group-wide compliance program. They are regularly adapted to reflect current developments and apply for all employees who work in the corresponding fields.

Within the scope of the compliance training plan, all relevant employees receive online training and participate in classroom seminars. Participation is monitored, and the results of the online training are evaluated. In 2013 and 2014, 12,416 employees participated in seminars on our "Pharma Policies", in addition to the regular Code of Conduct training.

Marketing chemicals

Responsible marketing is likewise important in our Chemicals business. In order to ensure careful handling, we supply our chemicals only to commercial customers who have the proven expertise. In addition, we provide customers with information on the safe handling and use of our products. To prevent the misuse of dual-use products, the company has established an extensive safety and security net. Standardized export control guidelines are monitored by our central Export Control & Customs Regulations unit, as well as by trade and export control officers at our local subsidiaries. If we suspect misuse, we refrain from doing business with that customer.

Interactions in the health care industry

We believe that worldwide access to medicinal product information is one of the keys to improving health care and treatment for patients. For this reason, we support scientific research, patient organizations, health care organizations, health care professionals, and other key players in the health care industry by donating money and supplies. We furthermore sponsor activities such as independent initiatives and medical capacity advancement programs.

With this type of support, it is important for key players to remain neutral in order to protect the patients and ensure them the best treatment. All donations and sponsoring activities must comply with the internal and external

standards that apply to the company's marketing operations. To meet our commitments as members of various associations, we furthermore transparently report on the support we provide.

Promoting research and education

To support the health care industry, Merck KGaA, Darmstadt, Germany makes monetary contributions and donates supplies to professional institutions, organizations and associations. These include medical science professional associations, hospitals and university clinics. Our engagement reflects our Values and makes it easier for research institutes and related institutions to do their work, which ultimately serves the common good. Our contributions are not intended to influence decisions regarding treatment, prescriptions or purchasing. In compliance with the code of conduct of the German Association for the Voluntary Self-Control of the Pharmaceutical Industry (FSA), the company publishes its contributions made in Germany in excess of € 10,000 per recipient per year and updates the information on an annual basis.

In order to promote advances in the field of medicine, the company sponsors research and advanced medical training across the world. The biopharmaceuticals business supports outstanding research projects through its Grants for Innovation in Fertility, Multiple Sclerosis, Oncology and Growth Disorders. Through its Global Medical Education unit, the biopharmaceuticals business furthermore provides grants to independent medical education providers, which enables them to develop and deliver advanced medical training for scientists, physicians, nurses, pharmacists, and other health care professionals. These service providers must fulfill certain criteria, including a proven track record of high-quality medical content and a system to assess educational outcomes. In addition, our Medical Education Funding Policy prohibits any third-party medical education provider or related party from conducting activities that promote Merck KGaA, Darmstadt, Germany unless an adequate system to prevent improper influence and ensure separation of such activities has been instituted.

Collaboration with patient organizations

Patient organizations play an important role in providing patients, their family members and their caregivers with support for and information on dealing with diseases. With these institutions, we share the common goal of improving quality of life for patients, which is why we support this important work. The company explicitly endeavors to exert no influence or control over the information that the organizations communicate to their members. For comprehensive transparency, we publish our donations to European patient organizations on our website and update the information annually. This enables us to fulfill a commitment we have made through our membership in the European Federation of Pharmaceutical Industries and Associations (EFPIA).

Increasing transparency

The transparency requirements for interactions in and contributions to the health care industry are growing increasingly stringent. Global transparency initiatives such as the Sunshine Laws in the United States and the initiatives of the European Federation of Pharmaceutical Industries and Associations (EFPIA) require the disclosure of collaborations between the pharmaceutical industry and physicians, medical organizations, and patient organizations. They are also requiring companies to disclose individual partnerships, specifically naming the physicians in question, as well as to disclose the purpose of the interaction and the amount contributed. We have adapted the necessary processes, such as our contract management process, thereby ensuring compliance with the data protection laws. We will start reporting in 2016.

Transport and storage safety

For the storage and transport of our goods, we adhere to strict safety guidelines in order to prevent risk to people and the environment. Environment Health Safety Security Quality (EQ) (see Environmental Management on p. 106), the Group function in charge of environmental protection at Merck KGaA, Darmstadt, Germany, possesses the expertise to ensure warehouse and transport safety and sets our policies, standards and procedures. At the individual company sites worldwide, the Site Director or

Site Manager is responsible for the implementation of our standards and regulations, as well as for issues pertaining to warehouse and transport safety.

The local Environment, Health and Safety (EHS) Manager supports the Site Director or Site Manager and employees regarding compliance with all applicable national and international EHS regulations as well as EHS Group policies, standards and procedures, providing technical guidance and advice.

The local Dangerous Goods Manager is in charge of advising the Site Director or Site Manager on all aspects regarding the transport of dangerous goods. Furthermore, the Dangerous Goods Manager's tasks include monitoring of and compliance with legal requirements for the safe transport of dangerous goods, as well as the related health and safety procedures. In 2014, the main tasks and duties of the Dangerous Goods Manager were adapted to reflect the European regulation for the "Dangerous Goods Safety Adviser".

To evaluate and further improve our approach to managing transport and storage safety, we created a process and developed indicators for warehouses and transport in 2013. The results of the process have led to intensified training on cool and mixed storage. We are working to enhance this monitoring process as well as develop further key performance indicators for all sites and third-party warehouses.

Regular training is provided for our warehouse employees, as well as for those employees involved in the transport of goods. EHS Managers, Dangerous Goods Managers and Logistics Managers are regularly trained on our standards and procedures, changes to international requirements, and incident management. Our EHS managers meet regularly at the EHS conference in Darmstadt, Germany, whose agenda includes best-practice sharing as well as training on transport and materials storage. These topics are also covered in the three-day start-up training seminar that is mandatory for new EHS managers.

For the recently acquired company AZ Electronic Materials, we have retained the existing transport and storage safety systems for the time being, but will be incrementally migrating them to our system starting in 2015.

Storage safety

In order to safely store substances, we have implemented global safety concepts and standards for all our warehouses worldwide. The "Warehouse Safety" standard defines the operational measures needed to prevent substance leakage, as well as fires and explosions. According to this standard, risk evaluations must be conducted on all stored substances, including finished chemical and pharmaceutical products, raw materials, intermediates, waste, packaging material, and technical materials. In addition to this, the standard lays out mandatory rules of workplace conduct for all warehouse employees. All warehouses are audited thoroughly and regularly to check for compliance with safety requirements. The company revisited and revised its current safety concept during 2013 and 2014.

Our Group-wide standard "Warehouse requirements for third-party warehouses" defines the structural and organizational requirements for a facility. Third-party warehouse providers have to provide a statement on environment, health and safety before we sign contracts in order to show that they are in line with our warehouse requirements. Third-party warehouses are regularly assessed by our EHS Managers; in 2013 and 2014, we audited four of these warehouses and developed corrective action plans to address the findings.

Transport safety

For shipments transported by Merck KGaA, Darmstadt, Germany or on behalf of Merck KGaA, Darmstadt, Germany, safety is our top priority. We want to ensure that shipments reach our sites and customers undamaged, with the correct labeling and documentation. Several substances that we ship are classified as hazardous materials. Hazardous goods transport – whether by road, rail, plane, or ship – is heavily regulated across the globe by conventions such as the European Agreement concerning the International Carriage of

Dangerous Goods by Road (ADR). The rules on the transport of dangerous goods are revised every two years; the changes are implemented by our local sites worldwide with support from our EQ Group function experts. In 2014, we introduced the new Group standard "Transport Safety". In this standard, we define the safety levels for our sites based on the United Nations "Recommendations on the Transport of Dangerous Goods". This is especially important for sites in countries that do not have local regulations for the transport of dangerous goods. We have refined our audit concept in order to monitor compliance with the transport safety regulations at company sites as well as the compliance of those partners involved in the transport of goods on our behalf.

During 2013 and 2014, no incidents of significant environmental or social impacts resulting from goods transport were recorded, nor were any incidents of non-compliance with international regulations.

In Germany, we participate in the German Transport Accident Information and Emergency Response System (TUIS), which provides qualified, rapid assistance for incidents involving chemicals transport.

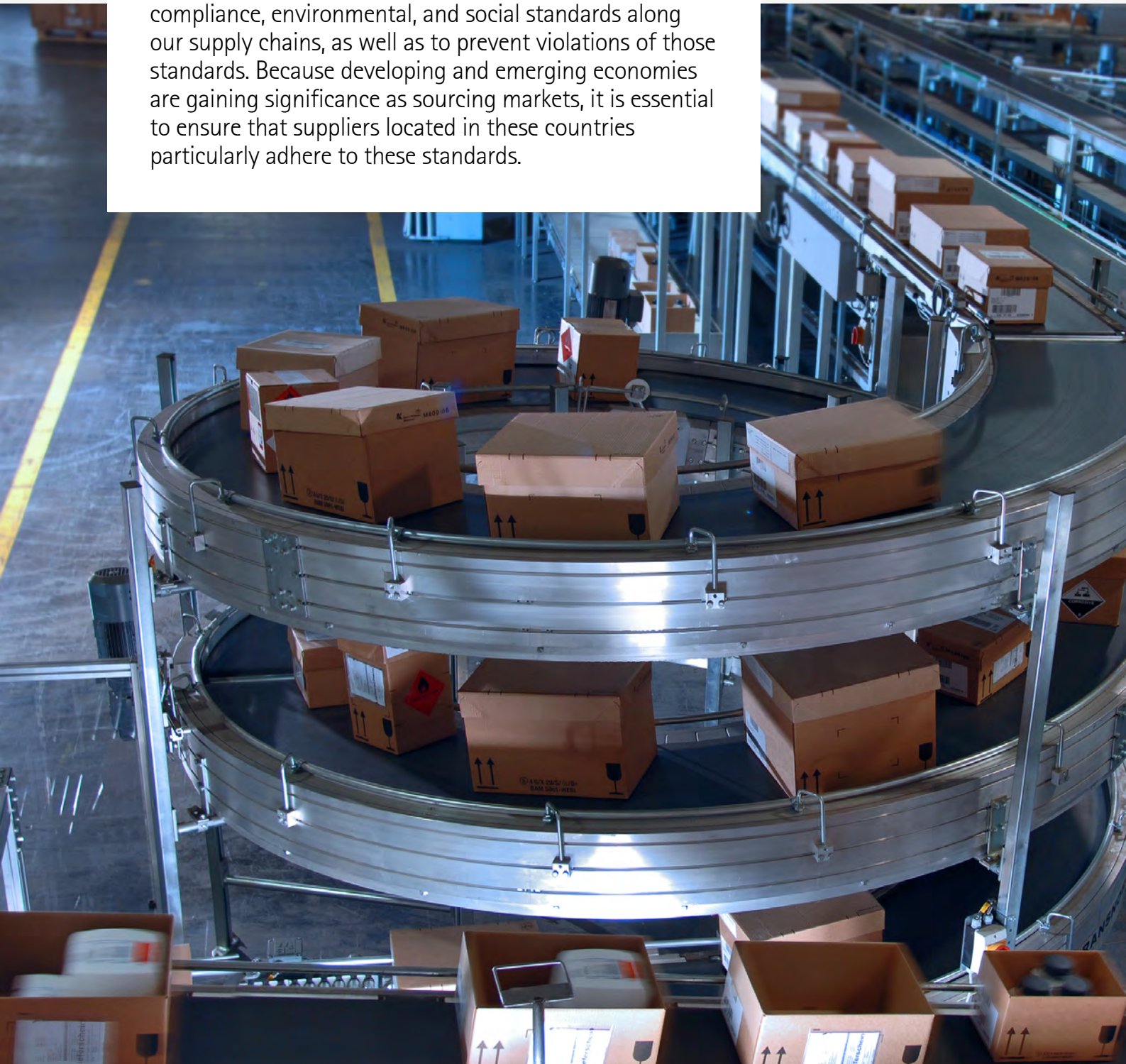
Goals: Transport and storage safety

Goal	Action	By?	Status in 2013 and 2014	Status
Further improve warehouse and transport safety	Expand scope of transport safety audits to include contracted service providers	End of 2014	In 2013 and 2014, we conducted 18 EHS audits on transport and warehouse safety, four of which involved third-party warehouses.	–
	Develop additional performance indicators to assess the safety of our warehouses and transport of our products	End of 2014	We have developed transport and warehouse safety indicators, which indicate the safety rating of an inspected subsidiary relative to the Group average and third-party warehouses.	–
	Implement improvement programs in countries and regions selected based on risks specific to the products being handled	End of 2016		+
	Implement a process to further improve our management approach to transport and warehouse safety	End of 2016	We have instituted an analysis and evaluation process and, in response, have implemented the first set of measures. In addition to the results of local audits and inspections, we will be including customer complaints in our evaluation.	+

Legend: – Achieved – In progress – Not achieved + New goal

Suppliers

Merck KGaA, Darmstadt, Germany's supplier management focuses on more than just typical sourcing priorities such as competitive pricing, quality and delivery reliability - for us, compliance with fundamental environmental and social standards is also a key strategic goal. With this in mind, in 2013 and 2014 we further optimized our procurement strategies, processes and guidelines, aiming to improve adherence to internationally recognized compliance, environmental, and social standards along our supply chains, as well as to prevent violations of those standards. Because developing and emerging economies are gaining significance as sourcing markets, it is essential to ensure that suppliers located in these countries particularly adhere to these standards.



Supplier management

Our Group function Procurement is responsible for integrating corporate responsibility (CR) with our sourcing and supplier management processes. An office within Group Procurement coordinates all corresponding measures, such as revising our guidelines and processes, or joining the Together for Sustainability chemical industry initiative. Through reporting lines and the company's intranet, our Procurement employees in all countries receive information on the guidelines and measures used to ensure compliance with our supply chain standards.

Procurement guidelines

Our fundamental expectations for suppliers and service providers include their compliance with fundamental environmental and social standards that are derived primarily from the International Labour Organization Core Labor Standards and the UN Global Compact. To this end, we have been supporting the Compliance Initiative of the German Federal Association for Materials Management, Purchasing and Logistics (BME) since 2009 and have additionally signed the BME Code of Conduct. This document contains essential rules for combating corruption, violations of antitrust law, and child labor, and features principles on promoting human rights, environmental protection, human health, and fair working conditions.

Through our "Group Procurement Policy", updated in 2013, we ensure that our procurement processes adhere to CR standards. These processes cover everything from selecting to assessing and monitoring our vendors and service providers. This policy reflects numerous internal and external guidelines, such as the Merck KGaA, Darmstadt, Germany Code of Conduct, the Human Rights Charter, our Corporate EHS policy, ISO 14001, and the BME Code of Conduct.

To complement our procurement policy, we drafted the "Responsible Sourcing Principles" and integrated them Group-wide into our general terms and conditions in 2013. These principles define what we require of our suppliers with regard to corporate responsibility, obligating them to apply our corporate responsibility standards to their upstream value chain.

Supplier monitoring

A key element of our supplier management process is ensuring that our suppliers implement CR standards, as well as monitoring their compliance. For this reason, we introduced an IT system in 2013 that utilized a structured questionnaire to collect self-reported information from suppliers. After deciding to join the Together for Sustainability (TfS) initiative, we discontinued this system because the initiative's EcoVadis® platform provides extensive supplier assessments.

The TfS initiative, founded in 2011 by companies in the chemical industry, aims to systematically assess and improve sustainability sourcing practices, including ecological and social aspects. Suppliers are assessed either on self-reported and publicly accessible information, or on information obtained during audits. The evaluation results are utilized by member companies, who abide by all restrictions stipulated by competition law. Beyond evaluations of the suppliers we have selected under our risk-based approach, we thus also have access to evaluations and audit results for other vendors who work for us.

In the course of 2015, we will be switching our supplier CR assessments and CR audits to the TfS method and integrating the TfS database into our supplier management system. We are planning to start conducting assessments and audits according to this new procedure in 2015.

Sustainability audits

In addition to collecting self-reported supplier information, we also conduct CR audits on select vendors based on the potential risk they pose. These audits are based on the corresponding company standard. Suppliers are assigned a risk category based on the risk levels in their country, the product category, and the share of their sales that come from Merck KGaA, Darmstadt, Germany. In general, we assign vendors from non-OECD countries

to a higher risk category. Regardless of their OECD status, suppliers are also audited if there are indications that they have failed to comply with our requirements.

All deviations from the "Responsible Sourcing Principles" or from national statutory requirements identified in the course of an audit are classified as either critical, major or minor. The audit results as well as any corrective action required are communicated to the vendors via an audit report. When an audit reveals defects in a supplier's processes and conduct, we require them to provide us with a corrective action plan that describes the course of action needed to address the issues. When it comes to defects that are classified as critical or major, we check whether the appropriate corrective action has been taken. For critical defects in particular, we consider the option of terminating business relations if the problems are not sufficiently rectified. The audit team additionally determines how often follow-up audits need to be conducted.

Defect classification

- **Critical defects**: Any defect rated as critical must be rectified or mitigated as soon as possible. The supplier must submit a corrective action plan to Merck KGaA, Darmstadt, Germany within one week of receiving the audit report.
- **Major defects**: For major defects, the supplier must submit a formal corrective action plan within one month of receiving the audit report.
- **Minor defect:** Minor defects do not require a formal corrective action plan, nor will we monitor the implementation of the corresponding corrective actions.

In response to the results of our risk assessment, a total of 49 CR audits were conducted in 2013 and 2014, either by us or by a service provider. We found critical defects at 16 suppliers, and major defects at 40 suppliers. For 26 of the vendors with critical or major defects, the issues had to do with their ecological impacts, in particular stemming from waste and hazardous material storage at their facilities. In addition to this, we also identified 40 suppliers who exhibited flawed work practices, primarily in terms of occupational health and safety. Neither our audits nor the self-reported supplier information revealed significant risks regarding violations of the right to assemble or engage in collective bargaining, nor with regard to child labor, forced labor or compulsory labor.

In 2013 and 2014, our CR audits focused particularly on our mica suppliers in India, 14 of whom were audited within this period. We terminated our business relations with two of our vendors because they failed to carry out the required corrective action in a satisfactory manner.

We aim to cultivate long-term working relationships with our direct suppliers. To this end, we conduct workshops in order to help them comply with our standards as well as to develop and grow. We held one vendor workshop in China in 2013 and one in 2014. In addition to focusing on quality assurance, the training also covered our CR and EHS standards. Merck KGaA, Darmstadt, Germany is furthermore involved in the local and regional supplier workshops organized by Together for Sustainability (TfS). One such workshop was held in China in 2014, and TfS is planning to host an event in Brazil in 2015.

Reporting violations within the supply chain

Via our central SpeakUp Line, our employees can report compliance violations as well as violations of CR standards that occur within our supply chain. In the 2013-2014 period, we received no such reports. We do not have a formal procedure for handling reports from outside of the company, nor do we currently have plans to establish one.

Goals: Supplier management

Goal	Action	By?	Status in 2013 and 2014	Status
Ensure our suppliers adhere to ethical, social, environmental, and compliance standards (part of our "risk mitigation" strategic procurement objective)	Conduct 20 CR audits on high-risk suppliers in 2014	End of 2014	In 2014, we conducted 24 audits on high-risk suppliers.	–
	Systematically collect self-reported supplier information	End of 2013	We have set up an IT system and received the first set of self-reported supplier information. This system has been discontinued because we are instead integrating the TfS database into our supplier management system.	–
	Join the Together for Sustainability (TfS) chemical industry initiative Conduct workshops to prepare the company to integrate into the TfS program	End of 2014	We held workshops to prepare employees and joined the TfS Initiative in mid-2014.	–
	Systematically collect self-reported supplier information in line with the TfS methodology	End of 2015	We are implementing the TfS methodology for supplier assessments and audits, as well as for tracking them.	+
	Establish a CR standard operating procedure	End of 2015		+

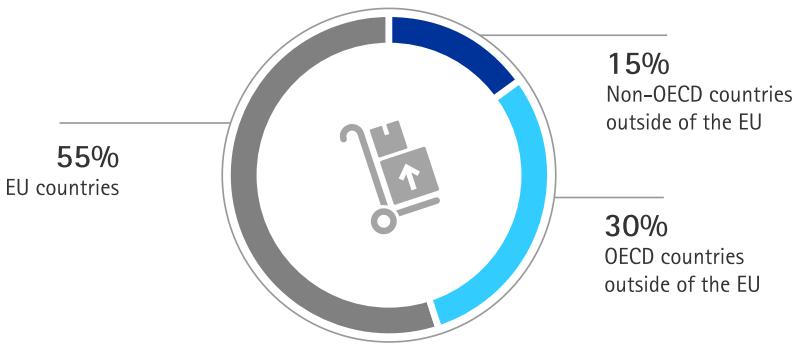
Legend: – Achieved – In progress – Not achieved + New goal

Supply chain

We procure the raw materials, packaging materials, technical products, components, and services we need from over 60,000 suppliers across more than 130 countries. All goods and services purchased in 2013 totaled € 4.1 billion, with € 4.3 billion in 2014.

Of the goods and services (including R&D services) purchased in 2014, we purchased 55% from suppliers based in EU countries and 30% from vendors in OECD countries outside the EU. The share of goods and services sourced from non-OECD countries outside the EU rose from 12% in 2012 to 15% in 2014.

2014 Procurement volume (%)



These figures make it clear that emerging economies are playing an increasingly important role in the company's sourcing activities. One major reason is that certain pharmaceutical products are being produced in the developing and emerging countries in which they are commercialized. For instance, the medicines we manufacture in India, Pakistan and Indonesia are intended for those markets. This approach reflects our Access to Health strategy and is also stipulated by local law. For our products to be manufactured locally, we require compliance with our quality and safety standards; the same goes for the transfer of our technology, skills and intellectual property. All of Merck KGaA, Darmstadt, Germany's pharmaceutical products, whether for developed or developing markets, are produced in manufacturing plants that meet global Good Manufacturing Practices (GMPs).

Merck KGaA, Darmstadt, Germany has no internal guidelines stipulating that local suppliers are to be given preference in the contract award process. However, there are cases in which local vendors have a competitive advantage owing to their proximity, for instance when it comes to the purchase of technology or packaging materials. Furthermore, local legislation sometimes requires us to use local vendors, especially in the pharmaceutical industry. Otherwise, we source our goods and services globally, depending on availability and supply.

Responsibility in the mica supply chain

Merck KGaA, Darmstadt, Germany utilizes mica from India as a primary raw material for effect pigment production. This special mica has properties that are necessary for the manufacture of top-quality pigments. In the course of an investigation in 2008, we discovered that at the start of the supply chain, mica is sometimes collected by children, generally together with their parents. This is not compatible with our corporate values, nor with the principles of our Human Rights Charter.

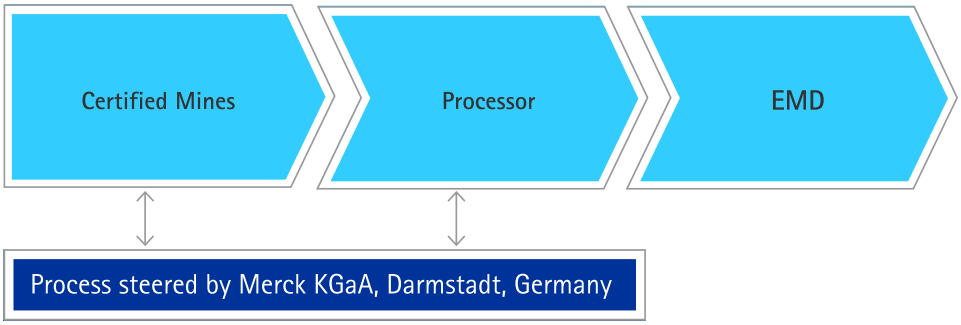
We take a firm stance against child labor. As a signatory to the United Nations Global Compact, we are actively fighting to end this practice. We require our suppliers to act accordingly and contractually prohibit them from utilizing child labor.

As a result of our 2008 supply chain audit, we have realigned the mica supply chain in order to prevent child labor and to ensure that vendors comply with the principles of our Human Rights Charter. Since then, we have been sourcing only mined mica. We no longer use any mica that is collected because, in this informal work environment, we cannot guarantee that child labor is not being used. However, we consider it important to maintain our business relationships with suppliers in the regions where mica comes from and thus safeguard jobs in Jharkhand, a region in northeast India plagued by poverty and political uncertainty. This is why we maintain direct business relationships with our partners along the mica supply chain, meaning the mica mine operators and the mica processing plants. We have set up an office in the region; our staff there are in close contact with our business partners, whom we have instructed on our values, along with the social and environmental standards that we expect of them. Mine owners and processing plants accept their responsibilities and help us keep the mica supply chain free of child labor.

In addition to these measures, we have also set up a mica tracking system in order to guarantee that the raw materials supplied to Merck KGaA, Darmstadt, Germany come exclusively from mines and not from uncontrolled sources. In order to track the mica flow, owners maintain a daily log of the amount produced by their mines. It is unlikely that mine owners would falsely reported inflated production figures for the individual mines and then make up the difference with mica from uncontrolled sources. After all, such a course of action would incur additional licensing fees that would then have to be paid to the government. We crosscheck the final amounts once a month.

On top of this tracking system, we have also developed an audit system that entails surprise audits conducted by us or third party partners. This system aims to ensure that the mines and processing plants are complying with our requirements for environmental protection, safety, and working standards. Once a month, a local organization investigates the working conditions and standards in the mines. In addition to this, an international organization also conducts an annual audit that reviews both working standards, as well as environmental, health and safety standards. The audit reports indicate all issues identified and specify corrective action. Our employees in Jharkhand check whether the required corrective action has been taken.

Mica supply chain



In 2013 and 2014, we conducted 14 audits on our mica suppliers that were part of the standard yearly audit process. Around three-fourths of the corrective actions specified in the previous audits had already been taken or were underway when the audit was performed. Because they failed to carry out the corrective actions in a satisfactory manner, we terminated business relations with two of our vendors.

Social engagement along the mica supply chain

Apart from our strategy to guarantee oversight of the entire mica supply chain, we are working together with the IGEP Foundation to better the living conditions of the families in the mica mining regions of India. We are therefore financing three schools with daycare centers as well as a vocational training center for tailoring and carpentry. These schools now have an enrollment of around 500 children. At a fourth school opened by one of our mica suppliers in 2014, we furthermore provide scholarships for 100 children.

We are improving medical care in the region through a local wellness center that is operated by the IGEP Foundation. This facility has a doctor and a nurse on duty every day and is highly appreciated by the region's 20,000 inhabitants, who previously had no health care at their disposal. The doctor and nurses also pay visits to schools and villages in the vicinity.

From 2010 until 2013, we partnered with the Indian non-profit organization Bachpan Bachao Andolan to develop 20 "child-friendly villages" in Jharkhand. This three-year project aimed to improve understanding for children's rights and foster the basic conditions for children to regularly attend school. In collaboration with local communities, civil servants, and teachers, the project has made visible progress.

Stakeholder dialogue on the mica supply chain

Since the start of our supply chain changeover, we have been keeping interested customers and other stakeholders regularly informed on the progress made on mica sourcing as well as the associated projects. Employees in our Jharkhand office are in communication with our project partners and other stakeholders, such as local and federal agencies.

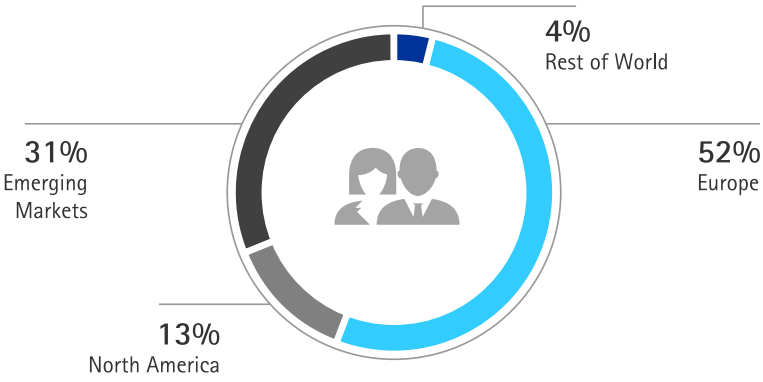
Employees

In accordance with our Values, we live a culture of mutual esteem and respect. We strive to bolster our company's performance by recruiting, developing and motivating the best-suited employees. In addition, we would like to further enhance the performance culture within our company and foster the diversity of our workforce.

Human resources management

As of December 31, 2014, a total of 39,639 employees worked for Merck KGaA, Darmstadt, Germany across 66 countries. In accordance with our Values, we live a culture of mutual esteem and respect. Through workplace provisions defined in the company's "Human Rights Charter", we commit ourselves to complying with fundamental labor and social standards, as well as the International Labour Organization's (ILO) core labor standards, the UN Global Compact and the Responsible Care® program of the chemical industry. We have put global policies and guidelines in place to ensure that these standards are implemented at our sites, often going beyond the legal requirements.

Distribution of employees (by region, %)



Strategic goals

Our strategic HR goals include developing a goal-oriented, performance-driven corporate culture that features a global talent development process and a performance-related, market-oriented compensation structure. We are furthermore focused on recruiting talent, building their loyalty and retaining them for the long term. For this reason, Merck KGaA, Darmstadt, Germany has introduced global programs, for example the Performance Management Process and Global Rewards Policy, as well as the Talent and Succession Management Process. Through targeted measures, we are also aiming to build workforce diversity and foster a culture of inclusion within our company. For instance, we are thus striving to increase the percentage of management positions (Global Grade 14 and higher) held by women to 25%-30% by 2016 (26% are currently held by women). Through our vocational training and continuing education offerings, we are working to build employee buy-in to our performance culture as well as bolster their professional development.

In order to evaluate the impact of our strategic measures, we conduct surveys on our programs. For instance, in the 2013-2014 period, we surveyed our employees regarding our new flexible working model, in which employees can decide when and where they work. One year after implementing this system in July 2013, we turned our attention to Generation Y employees. The results revealed that far more than 90% of those surveyed consider flexibility in the choice of working hours and work location to be highly important. In addition to a new working model, we also introduced a new comprehensive approach to employee surveys in the 2013-2014 period. The key tool here is the Organizational Health Index, which serves to predict our future performance capacity.

Organization and responsibilities

Kai Beckmann, an Executive Board Member, is responsible for human resources at Merck KGaA, Darmstadt, Germany. The Group Human Resources (Group HR) function manages and coordinates all HR activities

worldwide. Regional employees of Group HR are in charge of implementing the measures in their respective subsidiaries.

Group HR comprises the units Corporate HR, HR Business Partners and HR Services. Corporate HR designs all global HR guidelines, programs and policies. HR Business Partners provide advice and support to business units at all subsidiaries; HR Services performs administrative services and supports all employees with regard to HR-related matters. In the 2013-2014 period, we completed the transition to this structure across all local HR organizations.

Actions taken in 2013-2014

The Group-wide "Fit for 2018" transformation and growth program aims to maintain the Group's competitive edge in the long term. A key goal of this initiative is to bolster buy-in to the company's performance culture. For us, this means setting clear expectations and goals for all our employees, providing regular and transparent feedback, and recognizing good performance. This is why we launched the capability initiative known as ONE Talent Development, Rewards and Performance Management. Part of our Group strategy, this initiative aims to recruit the talent needed for our business success, offer them development and growth opportunities, and retain them for the long term. We are therefore working to establish a talent pool for all critical positions at the company. This includes jobs that, from a strategic standpoint, are absolutely essential to our operations. In addition to this, we are striving to further improve our internal talent pool, as well as to identify and start nurturing talent earlier on in their career.

To ensure that all HR functions partner more closely with the businesses during the growth phase of "Fit for 2018", the HR Business Partner functions that previously operated separately are being consolidated into one single HR Business Partner organization starting in 2015. The Organization Center of Expertise and HR Services are also being consolidated into one organization. The heads of both units will report to Kai Beckmann, Executive Board Member and Head of Group Human Resources.

Global employee data collection and controlling

We collect and assess employee data across the Group in order to check whether we are making progress toward our strategic goals.

Since 2012, all relevant HR processes have been consolidated on a single IT platform: global performance management, development planning, identification and assessment of talent and successors, recruiting, learning management, bonus calculation, and annual compensation review. Called "HR Suite", this platform has harmonized and simplified HR processes Group-wide. Over the 2013-2014 period, we gradually expanded the HR Suite group of users. We will be focusing on further integrating processes and data as well as consistent reporting.

Through internal audits, the company regularly reviews all issues covered in HR guidelines and regulations, such as compliance with the statutory minimum working age among all employees.

Training and educating employees

All new employees at Merck KGaA, Darmstadt, Germany receive training on our Code of Conduct, and are educated on what diversity and inclusion means to us. This is how we convey a common understanding of our Values and reinforce our corporate culture.

In the 2013-2014 period, we adapted our activities and measures in order to meet new challenges such as increased international and Group-wide collaboration, as well as accelerated innovation cycles. Since many teams now feature employees of differing nationalities, we are focusing our education and training activities more heavily on a solid, fundamental understanding of other cultures. In addition to this, Merck KGaA, Darmstadt, Germany has developed a tool kit that aims to improve team performance and collaboration, and features workshop formats and e-learning courses. So far, 35 workshops have been held for various teams from various

units. Furthermore, we have implemented talent identification and development processes across the entire Group.

In the coming years, cooperation between HR and the managers of the businesses will continue to grow, which will ensure that all managers and staff worldwide live our Values and strengthen our corporate culture.

Good leadership

Our managers drive our innovative business model by motivating their teams, as well as by recognizing and leveraging the opportunities offered by the diverse cultures and experience of their employees. They furthermore act as role models, bolstering our Values and feedback culture.

In order to reinforce good leadership qualities, we launched the strategic initiative known as ONE Talent Development, Rewards and Performance Management in 2014 as part of the growth phase of our "Fit for 2018" program. We furthermore initiated the Merck KGaA, Darmstadt, Germany Competence Model, which has replaced the Merck KGaA, Darmstadt, Germany Competency Compass and our leadership guidelines. This new model is based on six core competencies: customer-focused, global, innovative, result-oriented, efficient, and engaged. They describe the type of conduct that we expect of and therefore encourage in our employees and managers in order to drive our strategic alignment and business success. This model constitutes the foundation of learning and development activities at the company. In addition to this new model, during 2013 and 2014 the Diversity Council also developed diversity and inclusion expectation criteria for managers.

We offer our top talent and senior managers programs on the topic of "good leadership". For instance, the Future Leaders program helps employees acquire business and leadership skills in the early phases of their career. The participants take on strategic cross-functional projects and work abroad for two years. During the nine-month International Management Program, young talent have the chance to hone their leadership skills as well as their ability to think globally. In addition to this initiative, the Merck KGaA, Darmstadt, Germany University, launched in 1999, offers a multi-regional, modular one-year program in cooperation with top international universities. To date, 284 senior managers have taken part. The company also cooperates globally with universities to support employees who wish to study for an Executive MBA. We plan on further harmonizing our training programs so that all of our managers live the same concept of good leadership.

Our teams are increasingly composed of employees from various sites and various countries. Our management processes must therefore take a global approach, and our managers must possess cross-cultural leadership qualities that are effective across an Internet connection. In the 2013-2014 period, we further harmonized our manager development activities. Since 2013, we have been offering our employees and managers Group-wide an enhanced development portfolio. Take for instance our Emerging Markets Management Program, which we developed in China in collaboration with the renowned China Europe International Business School. This initiative is targeted to young managers in emerging markets in order to groom them and build loyalty to the company. Over a period of up to two years, the program covers business administration content such as marketing and financial analysis, along with topics specific to the company such as our strategy and corporate culture. The goal is to equip participants to work in any of our businesses in an international setting. We launched the Emerging Markets Management Program in China in 2013 and in the Intercontinental region in 2014. Similar programs are being initiated in Latin America in 2015 and in India in 2016.

We gauge the efficacy of our activities through our Performance and Talent Management Process, as well as by the fluctuation rates of managers and top talent in the company. In addition to this, we conduct an organizational health survey as well as an employee engagement survey to get employee feedback on leadership qualities.

Identifying talent

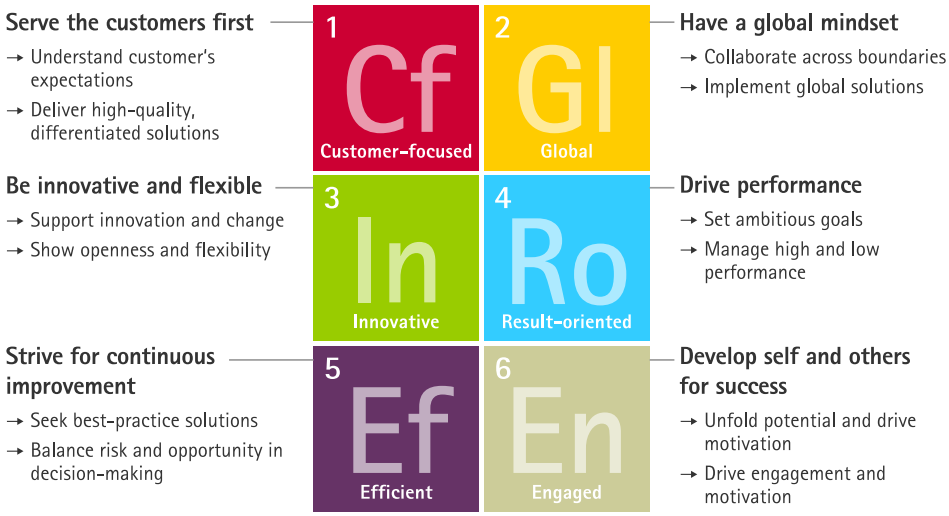
Continuous performance assessment is critical for both individual employees as well as the success of the company. Clear objectives, differentiated feedback, and

individual development plans constitute the foundation of employee development. We utilize the Performance and Talent Management Process to evaluate our employees' performance and identify talent. In doing so, we are bolstering our performance and feedback culture while ensuring that in-house positions are filled more efficiently. This harmonized approach has replaced all previous tools for talent identification, performance evaluation and skill development; it is managed and documented via our HR IT system, known as the HR Suite. Key components of our Performance and Talent Management Process include annual feedback meetings and performance evaluations for employees rated Global Grade 10+ in our position grading system. In 2013, Merck KGaA, Darmstadt, Germany extended the variable bonus model of the Performance and Talent Management Process to include non-exempt employees as well. We are thus encouraging outstanding performance as well as furthering the success of the business and the company.

The Performance and Talent Management Process features three assessment tools that employees can use to systematically advance their development. Line managers, select colleagues, and, as needed, external consultants assess for instance the employee's skills and conduct, thereby helping them better identify their personal strengths and development opportunities. In addition, line managers can utilize the assessment results to create a detailed development plan for their employees.

Around the world, approximately 27,600 employees in 2014 and 31,395 employees in 2014 took part in the Performance and Talent Management Process. In total, we identified 4,200 talented individuals in 2014, which represents around 19% of the participants. These talented employees must work with their line manager to design a development plan. Starting in 2015, we will be expanding the process to include employees rated Global Grade nine or lower.

Six competencies define important leadership skills



Diversity and inclusion

We believe that workforce diversity and a culture of inclusion lead to greater innovation and better team performance within the company. A good balance between different cultures and nationalities, between different age groups, and between male and female employees is conducive to the company's success. We have therefore set ourselves the goal of increasing workforce diversity and optimally leveraging this for our business by creating the conditions for each employee to reach their maximum potential. Here, we are focusing our

efforts on promoting women in management positions as well as addressing the topics of internationality and demographics.

Ultimate responsibility for diversity lies with Kai Beckmann, who as an Executive Board Member is responsible for Group Human Resources, among other areas. The Chief Diversity Officer (CDO) is responsible for strategic diversity management and reports directly to the Executive Board Member responsible for Group HR.

In 2013, we instituted the Diversity Council, which consists of managers from all businesses as well as select Group functions. In the 2013-2014 period, the Diversity Council revised Merck KGaA, Darmstadt, Germany's diversity and inclusion strategy. The strategy focuses on four areas:

- Attracting the right employees to the company, fostering them and building long-term loyalty
- Fostering efficient collaboration
- Driving innovation and improvements
- Meeting the needs of our diverse customers

The new strategy places a heavier focus on how a diverse workforce can contribute to the success of our business strategy. Clear goals can be derived from each of the four focus areas, such as promoting intercultural understanding in order to improve the performance of global teams, or promoting managers who drive inclusion and innovation within the company. The Diversity Council is responsible for implementing the new strategy within our various businesses and units, as well as for reviewing it. In the first half of 2015, Group Human Resources will be conducting an audit to check whether all HR programs and processes reflect the new approach. In 2015, the Diversity Council will continue to push ahead with the new strategy across the Group.

Monitoring and controlling

Each quarter, the company compiles data on the gender distribution, nationality, and other demographics of its employees for internal evaluation purposes. We analyze this data at the business and Group function level, as well as by key countries and by groups of young professionals and managers. We present select data in both our Annual Report as well as our Corporate Responsibility Report. In 2011, Merck KGaA, Darmstadt, Germany joined together with all other DAX® 30 companies to sign a voluntary commitment to increase the proportion of management positions held by women. The companies report on their progress at an annual press conference. With support from the Chief Diversity Officer, the Diversity Council is developing specific performance indicators to assess whether the objectives of the 2015 diversity and inclusion strategy are being attained.

Training and educating employees

In September 2014, we presented our new diversity and inclusion strategy to our employees in Darmstadt (Germany) and Billerica (MA, USA) at our Diversity Days event. Members of the Diversity Council discussed the new strategy with several employees, the results of which were then presented at a panel session. In addition, the topics of diversity and inclusion are also featured in all training courses for employees, as well as in all management seminars for employees with managerial responsibility.

Promoting women in management positions

In 2011, we made the strategic decision to increase the percentage of management positions held by women to 25%-30% by 2016. We reached the lower range of this objective by 2013, having achieved 25%. In 2014, the share of management positions held by women increased to 26%. On top of that, 2014 was the first time that two women assumed leadership of two businesses (Biopharmaceuticals and Consumer Health). At the beginning of 2015, Belen Garijo, a native of Spain and previously CEO of the biopharmaceuticals business, joined the Executive Board and took over leadership of our Healthcare business sector.

At local level, we have implemented numerous measures designed to further increase the percentage of women across the entire workforce and to specifically increase the number holding management positions. For one, we facilitate work-life balance for our employees in many countries, such as by offering flexible working hours and childcare options. Furthermore, women benefit from

special ongoing training and continuing education programs. These measures also include support from in-house networks initiated by our employees, such as Women at Merck KGaA, Darmstadt, Germany. In order to promote exchange among women in management positions within the Group, we support the internal Women in Leadership network at Global headquarters in Darmstadt, Germany, as well as the Group-wide International Women's Network. Our Chief Diversity Officer and Kai Beckmann, an Executive Board member, engage these networks in a regular dialogue. In addition, we also support external global networks that work toward diversity and inclusion in the professional world. Since 2012, the company has been a partner in the Healthcare Businesswomen´s Association (HBA). Thanks to this partnership, women in Darmstadt, Lyon (France) and Boston (MA, USA) can take advantage of the organization's seminars, mentoring programs and conferences. In October 2013, Merck KGaA, Darmstadt, Germany in Darmstadt hosted the HBA's European summit. Among other topics, attendees discussed the development and advancement of leadership skills for professionals in the health industry. In the United States, the company sponsored the 10th Massachusetts Conference for Women, which took place on December 4, 2014 and was attended by 150 EMD Millipore and EMD Serono employees.

Employee networks

In order to promote dialogue on diversity, the company supports various employee networks, such as networks for women in management positions (see "Promoting Women in Management Positions"), networks for international employees, and the Rainbow Network for homosexual, bisexual and transsexual employees. Through their involvement in these networks, employees can advance and hone their leadership and organizational skills. In addition to this, in 2014 we launched a project designed to systematically foster individual network members and to better leverage the networks' potential for our business activities. In 2015, these networks will be developing objectives for future planned activities as well as expanding their scope regionally and internationally.

Promoting internationality

Being an international global player, one of our fundamental principles is to recruit employees from the countries in which we operate and offer them career development opportunities. The company currently employs people from 122 different countries, 27% of which come from Germany. Altogether, our managerial staff includes representatives of 67 nationalities. In the 2013-2014 period, 61% of our management positions were held by non-German employees. The Diversity Council is working on a concrete goal for increasing the percentage of managers who come from emerging markets.

In order to promote the internationality of our workforce, we pursue two goals when hiring people for new positions: one, to increase the number of local employees at sites outside of Germany, across all hierarchical levels; and two, to offer our employees international development opportunities. In addition to this recruitment approach, we also require employees in upper management to have acquired international work experience. Furthermore, we help our employees to acquire intercultural competencies. For this purpose, we promote intercultural training courses and international teamwork throughout the entire company. We offer special cultural immersion courses to managers working outside their home countries, which include language courses and international networks.

Demographic change

In Germany, Switzerland, several other EU countries, Japan, and the United States, demographic change is already underway. At our sites in industrialized countries, the average age of our employees is already more than 40, and we expect this to continue rising in the coming years. In Germany, the company has implemented various programs to respond to demographic change. For instance, we are fostering the employability of our workforce and working to build employee loyalty. This includes adapting workplaces to the needs of older employees and establishing a health management program to maintain their health, as well as their ability to do their job. Take for example the health intervention program that we are running in cooperation with the

company health insurance fund at our facility in Darmstadt, Germany. When they resume exercising and sports activities, employees older than 40 receive special support in the form of the "Leben nach Herzenslust" (Living Life to the Fullest) program. Furthermore, the Darmstadt site offers courses specifically for employees over 40 and for employees over 50, such as the "Dranbleiben - aber wie? Learning 40+" course ("How to stay sharp - Learning at 40+").

On top of this, health counseling sessions between managers and employees also help reinforce healthy behaviors and promote good health. In training sessions on healthy leadership, we educate managers on the connection between management culture, managerial conduct and employee stress. In addition, in 2014 we issued our "Group Health Policy", which promotes and maintains employee health as well as their ability to perform.

Preventing discrimination

Our commitment to diversity also means that we do not tolerate discrimination anywhere within our company – whether based on gender, age, ethnicity, skin color, nationality, religion, sexual orientation, or disability – a stance that is mandated by our Code of Conduct. If an employee feels they have been discriminated against, they can report the issue via various channels. Their first point of contact is their manager, but they can also contact Group Human Resources, Legal, or Compliance. If an employee prefers to anonymously report their case, they can call our free hotline from anywhere in the world. Our compliance organization is responsible for processing suspected cases. Confirmed cases of discrimination can lead to disciplinary action or consequences stipulated by labor law. In 2013 and 2014, one suspected case of discrimination was reported via the SpeakUp Line. After thoroughly examining the case, legal steps were taken.

Goals: Diversity & inclusion

Goal	Action	By?	Status in 2013 and 2014	Status
Increase the percentage of management positions (Global Grade 14+) held by women to at least 25%-30%	Increase the percentage of management positions held by women through numerous initiatives that move women into those positions	End of 2016	Institute communication measures and utilize HR processes such as Talent Management 26% of management positions were held by women in 2014, which means that we have already reached the bottom range of our target. We will continue to pursue this goal in order to further increase the percentage of management positions held by women.	–

Legend: Achieved In progress Not achieved + New goal

Recruiting and retaining talent

In order to maintain our position as a successful, innovative company, we need talented and highly qualified employees. Across all our sites, we face the challenge of attracting talent and retaining them. Particularly in Europe and the United States, but also in China and other Asian countries, we are seeing growing competition for specialists and experts, primarily the consequence of demographic change. We are constantly seeking chemists, pharmacologists, medical scientists, biostatisticians, biochemists, business administration experts, engineers, and IT specialists, as well as people who are able and willing to take on managerial responsibility. In emerging markets, we face the particular challenge of recruiting qualified executives for our company.

Merck KGaA, Darmstadt, Germany is striving to build its reputation as an attractive employer for potential employees. Our goal here is to recruit and retain employees who represent our Values and show the potential for growth. For instance, we are systematically driving the development and growth of our internal talent pool, thereby reducing the risk of vacancies. In addition

to personal development opportunities, a competitive compensation policy is also instrumental to recruiting and retaining talent.

The Center of Expertise (CoE) for Strategic Talent and Performance, part of Group Human Resources, is responsible for developing strategies and leading initiatives for attracting talent and retaining employees. The measures devised by this CoE are implemented by local HR personnel.

Attracting young professionals

In 2010, we launched the "Make great things happen" campaign to position the company globally as an attractive employer. This initiative highlights our strengths. For instance, we offer diverse opportunities for employees to contribute to the development and marketing of innovative products, as well as career opportunities in an international, motivating and modern work environment. Furthermore, the claim of "Make great things happen" is also intended to reflect our strong sense of social responsibility as well as our commitment to maintaining work-life balance. The positive impact of the campaign is confirmed by the company's ranking among the best employers for senior scientists in Germany, which is published every year by the company Universum following a survey of over 5,000 participants. In 2013 and 2014, the company ranked fifth out of 100 companies, versus sixth in 2012. As part of our realignment under our "Fit for 2018" transformation and growth program, we have revised our commitment to existing and potential employees, known as the Employee Value Proposition, along with its key statements. Furthermore, we have expanded our employer branding campaign to cover a broader target audience, an effort to prepare us for issues such as greater future demand for engineers.

Our primary target groups are university graduates and young professionals such as MBA graduates. For instance, in China, Germany, various other European countries, and the United States, we have selected universities with whom we will be cooperating more closely in the future. These institutions were chosen based on their courses of study and degree programs, their student body diversity, and the distinctions their courses have received. Our partner universities include, among others, the London School of Economics. In February 2014, Executive Board Chairman Karl-Ludwig Kley attended a networking event at the London School and held discussions with a select group of students. In addition, the company regularly exhibits at recruiting fairs, which offer a suitable platform for directly interfacing with young talent, advising them on career choices, and providing them information on job opportunities at Merck KGaA, Darmstadt, Germany. A company's visibility and image are also key criteria used by our target group to search for and decide on an employer. In the 2013-2014 period, we furthermore compiled a campus recruiting interview guide, which aims to help graduates identify their personal strengths, such as leadership potential or outstanding dedication.

University graduates can join us via direct hire or through a trainee program. Our trainee programs enable participants to switch between different projects over a period of two years and include continuing education opportunities as well as mentoring programs. In the 2013-2014 period, we further increased the number of trainee positions. In 2015, Merck KGaA, Darmstadt, Germany has around 50 trainees, primarily employed in Inhouse Consulting, but also in IT and Finance as well.

To further increase our reputation as an employer, we have also expanded our loyalty-building Student Excellence Program to include a larger target audience. This program is now open not just to our work-study students, but to all interested university students. In order to reach out to university students, we launched a new event format in November 2014, which aims to give people a chance to experience our company first-hand. The Discovery Day held in Darmstadt in November 2014 was attended by 35 process engineering students from various German universities. Moreover, around 500 university students and 321 high school pupils completed an internship at our German sites in 2013, with 316 university students and 312 pupils in 2014.

Apprenticeships and vocational training

We view the vocational training of young people as one of the most important ways to prevent a shortage of trained staff resulting from demographic change. 2013 was the first year in which the number of high school graduates who went to university exceeded the number of high school graduates who entered a traditional dual vocational training program. Merck KGaA, Darmstadt, Germany will nevertheless need not just academics in the future, but also specialists trained via the dual system. In the 2013-2014 period, we therefore launched various initiatives and activities in order to make our vocational

training programs more attractive. For instance, young people can now do an apprenticeship part-time. In addition to this, our apprentices can also collaborate on charitable projects. In October 2014, for instance, nine apprentices built a dormitory for homeless children in Kenya. We furthermore help our apprentices pursue a work-study program after completing their apprenticeship.

In 2013 and 2014, we filled all the apprenticeship slots that we offered in Germany. More than 450 young people completed an apprenticeship in one of 24 professions; more than 60 young people completed a dual degree program in Business Administration, Business IT, Chemistry/Process Engineering, and Mechanical Engineering. Since 2014, the company has been giving unlimited employment contracts to all apprentices working in occupations for which we have sustained demand. The hiring rate – taking into account voluntary terminations – has been around 90% for several years now. As part of the MobiPro-EU program of the German Federal Ministry of Labour and Social Affairs, for the first time five young people from Spain started an apprenticeship at our headquarters in Darmstadt in 2014. Moreover, in Darmstadt we offer our own one-year work preparation program called "Start in den Beruf" (Preparing to join the workforce). Thanks to the time spent at Merck KGaA, Darmstadt, Germany, 20 secondary school students previously unable to find an apprenticeship successfully qualified themselves for the job market. Since the program's launch in 2006, 92% of the participants have started an apprenticeship, 32% of which have now successfully completed said apprenticeship.

Professional development

Fostering talent, developing our employees and providing ongoing training – this is an investment in our future and a key factor in our entrepreneurial success. The company strives to help its employees optimally develop their personal and professional strengths. Satisfied employees who grow within a company are a critical prerequisite for the success of our businesses.

Key features of employee development are clear objectives, differentiated and open feedback on performance, as well as individual development plans. The Performance and Talent Management Process at Merck KGaA, Darmstadt, Germany therefore mandates an annual overall performance assessment for all employees.

In addition we, offer a catalog of continuing education courses throughout the company that is adapted to specific regional participant needs. On top of this, we gather feedback from our employees on seminars and workshops across the Group in order to gauge and compare their efficacy as well as ensure their quality.

In 2014, for the first time our employees had the opportunity to utilize the Development Advisor, an online tool that promotes lifelong learning. The Development Advisor offers individual employees suggestions on development opportunities that build on our competency model. This tool is part of our Performance and Talent Management Process, helping employees and line managers identify suitable development options during the target agreement process.

In 2014, the U.S. magazine "Training" named EMD Serono and EMD Millipore in the United States as one of 125 companies that excel in employer-sponsored training and development programs. The Training Top 125 winners were officially announced at an award gala held on February 9, 2015.

Performance-based pay

Competitive salaries and additional benefits increase not only our attractiveness as an employer; they also motivate employees and build loyalty to the company. At Merck KGaA, Darmstadt, Germany, compensation is based on market analyses in the relevant field and the value of the position, as well as the employee's competence and performance. Our "Global Rewards Policy" defines the framework for compensation and additional benefits across the entire company. In order to harmonize our compensation structures at a regional and global level, we are constantly implementing measures to improve processes and boost efficiency. Our goal here is to offer all employees the most comparable compensation structures possible.

When reviewing and optimizing our compensation policies, we engage relevant stakeholders early on in the process. We coordinate closely with employee representatives to define our Group-wide compensation policy. In order to achieve competitive compensation structures, we consider both internal and external factors, assessing market requirements every year with regard to income developments and positioning. Controlling for

hierarchy level and value, current analyses of job conditions indicate no gender-specific differences in compensation.

Work-life balance

As a family-friendly company, we strive for our employees to achieve a good balance between work, family and leisure time. We are thus helping maintain and strengthen their motivation and performance potential. Besides this, we build their trust in our company. Our employees can therefore take advantage of flexible working models and diverse childcare options, making it easier for them to schedule their lives and achieve their personal goals. We furthermore offer our employees various health management programs along with ways to better reconcile the demands of a career while caring for family members. In addition to this, employees at all German sites can make use of a referral service that advises them and connects them with home service providers. We conduct regular surveys to gauge employee satisfaction with the respective services.

In 2012, berufundfamilie GmbH, an initiative of the Hertie Foundation, certified our Darmstadt and Gernsheim sites as being "family-friendly" for the third consecutive time (following 2005 and 2008). This distinction is based on a family-friendliness audit conducted in accordance with predefined criteria and is valid for three years. In 2013, the company submitted an interim report for the 2015 audit cycle. The Hertie Foundation has already certified that Merck KGaA, Darmstadt, Germany is continuously working to adapt its operations and strategy to help employees reconcile the demands of a career and family.

Flexible work hour models

In Germany and other countries, we offer numerous options for employees to flexibly structure their work, including choice of working hours and locations. In 2013 and 2014, our employees made use of more than 30 different part-time models, such as varying weekly work hours and individually agreed working days. Globally, approximately 5% of our employees worked part-time.

In 2013, Merck KGaA, Darmstadt, Germany officially implemented a flexible working model for all exempt employees at its Darmstadt, Gernsheim and Grafing sites in Germany. This flexible working hour model aims to bolster the performance and trust culture within the company. Employees have the flexibility of selecting when and where they work. Working hours are no longer clocked – the important thing is that employees meet performance expectations. To this end, line managers and employees work together to define targets. In October 2014, the program was opened up to non-exempt employees whose position suited the working model. When the working model was introduced, employees and line managers were given access to an e-learning program. In addition, supervisors, HR business partners, members of the Works Council, and employee representatives met to discuss open issues pertaining to this flexible working model. By the end of 2014, around 3,500 employees in total were taking advantage of the new model.

Entitlement to parental leave

At numerous sites, our employees are able to take parental leave; this option is also provided for by law in some countries, such as Germany and the United States. Often, we offer our employees better conditions than those required by law.

In the United States, employees are legally entitled to a 12-week unpaid leave of absence per year in the event of the birth of a child or illness of a family member. In addition to this, EMD Millipore also provides its employees with financial support. In total, the company offers eight weeks of paid maternity leave, two weeks of paid paternity leave, and five weeks of paid leave when adopting a child. Moreover, EMD Millipore will reimburse up to US$ 5,000 in adoption fees.

As of December 31, 2013, 433 of the employees working for our subsidiaries in Darmstadt, Gernsheim and Grafing - representing around 24% of our total employees globally in 2014 - were on parental leave, with 507 on parental leave as of December 31, 2014. Fathers represented 33% of this total in 2013 and 31% in 2014. We provide parents returning to work after parental leave with information on childcare support services. In addition to this, our sites in Germany also hold presentations and meetings with parents, and the Darmstadt site furthermore offers contacts for individual consultation.

Childcare options

At various sites, our employees benefit from childcare options that we subsidize. A daycare center for children aged 1-12 has been operating at our headquarters in Darmstadt, Germany for more than 40 years. It is supported by the family of owners. In the 2013-2014 period, we extended the hours of operation and added an additional 50 daycare spots. The center is now open

year-round from 6:30 a.m. to 7:00 p.m. and offers 150 slots total. In Darmstadt, employees can furthermore take advantage of our emergency service if their regular childcare provider falls through. For employees at the Gernsheim site in Germany, five slots are available at a public daycare center.

We have been offering vacation camps for the children of Darmstadt site employees since 2008 and considerably expanded the program in 2013 and 2014. In 2014, we offered a total of 365 spots that employees could book in weekly increments. The vacation camp includes sports programs, art and research projects, as well as numerous outdoor nature activities.

Since 2013, employees throughout Germany have had access to an external partner to advise them on childcare options, helping them find a suitable childcare solution. The service connects employees with nannies, "loaner" grandparents and tutors, among others.

In the United States, EMD Millipore offers its employees assistance in finding the best childcare options.

Reconciling demands of career and family

In an aging society, more and more employees will be required to care for family members with special needs. In Darmstadt, the company has therefore been offering special information and consultation services since 2009. This includes the offerings of Merck KGaA, Darmstadt, Germany's company health insurance fund (BKK), which provides informational material and connects employees with nursing staff. Furthermore, we regularly hold training seminars in Darmstadt on the topic of nursing care. Since 2013, an external partner has also been available to advise employees in their search for suitable nursing care. This includes finding day nurses or setting up an individual nursing network.

In the United States, EMD Millipore supports its employees financially by enabling nursing care to be paid out of gross pre-tax income.

Goals: Good leadership

Goal	Action	By?	Status in 2013 and 2014	Status
Talent & Succession Management: Fill at least 2/3 of positions ranked Global Grade 16+ with internal candidates	Use the Talent & Succession Management Process to identify suitable employees with management potential and define a process to systematically develop them	Ongoing	In 2013, we introduced the Talent & Succession Management Process in order to systematically foster and develop talent. In 2014, 74% of our vacant management positions were filled internally.	–
Have least 50% of managers rated Global Grade 14+ take part in a management program	Expand the geographical range of the programs to reach a broader target group Have senior management act as the official program sponsors	End of 2018		+
Build a talent pool that reflects the demographic structure of the company	Identify talent, inform managers on current demographics (e.g. age, nationality, gender)	Ongoing		+
Competency-based interviews with 20% of the talent	Nominate suitable talent within the scope of the Talent & Succession Management program	Ongoing		+
Have 80% of all employees using the HR Suite IT system for their annual Performance Management Process assessment	Expand the HR Suite user group to new target groups	Ongoing		+

Legend: – Achieved – In progress – Not achieved + New goal

Employee engagement

As a global, science-based company, we strive to create a working environment that nurtures innovation and continual improvement. In this approach, our employees take center stage. Their dedication and skills are crucial to our company's success. We therefore aim to foster a culture that broadens the knowledge base of our employees that creates opportunities and motivates them to take a proactive role in our success.

We want our employees to take an active interest in our goals and Values, to engage in shaping processes and ideas. Dedicated, strong managers as well as self-motivated employees both contribute equally to our success. We have built a framework of clearly defined, clearly communicated strategic goals, using this foundation to design measures that promote employee engagement and incorporate it into our processes. Through our idea management programs, we nurture and reward unconventional thinking, while our state-of-the-art internal communication processes encourage interdisciplinary collaboration. Employee surveys allow us to better understand the needs of our employees.

Our global Center of Expertise for Development and Engagement designs and steers our approach to conducting employee engagement surveys. We utilize survey results to devise concrete measures for our businesses, the implementation of which is steered by Group Human Resources.

Idea management

At our Darmstadt site, we utilize an employee suggestion system to leverage our employees' ideas for the benefit of our business. Here, Merck KGaA, Darmstadt, Germany rewards employee suggestions that have been brought to fruition. The amount of money awarded depends on the actual cost savings achieved and/or the idea's contribution to occupational safety, environmental protection, or quality improvement. Our employees submitted a total of 3,460 suggestions for improvement in 2013 and 3,590 in 2014. These led to savings amounting to € 3.4 million in 2013 and € 2.8 million in 2014. In exchange, the company paid out prize money of € 0.96 million in 2013 and € 1.0 million 2014. Around 75% of the suggestions for improvement related to production; approximately 25% comprised suggestions relating to analysis, technology and logistics. The ideas helped significantly in many instances to optimize production processes and occupational safety, as well as to lower waste output and emission levels. For instance, one group of employees modified the standard packaging for liquid crystals in such a way as to cut down on packaging material.

In addition to this, we also reward the outstanding ideas of our employees with Merck KGaA, Darmstadt, Germany Awards. Every year, recognition is given in the categories of Change, Innovation, and Customer Orientation, along with the special prize, the CEO Award.

Through the strategic initiative known as ONE Global Headquarters, the company is striving to transform the Darmstadt site. In line with our approach to employee engagement, we are focusing heavily on meeting the requirements of a changing working world. This initiative aims to create an attractive environment for existing and potential employees that offers scope for creativity and promotes innovation. In September 2014, for instance, we started construction on a modular Innovation Center. This is where teams will have a place to work for the duration of their innovation projects, where interdisciplinary collaboration will flourish amidst a creative atmosphere. We sincerely believe that this will tangibly improve our employees' performance and productivity.

In order to involve employees in helping decide the company's strategic alignment, we provide an internal online forum in which they can engage in a dialogue and discuss new ideas. This forum is one of the many tools of our "Fit for 2018" transformation and growth program. In 2014, we hosted a major employee celebration at our Darmstadt site as thanks for the successes achieved thus far under "Fit for 2018". The event also provided an opportunity for around 5,000 employees to learn about ongoing strategic initiatives as well as to interact with people from other departments and units.

Channels of communication

Internal Communications develops and steers global communications activities within the company, providing tools such as target group-specific media. For instance, communication packets and information are posted on the online "pro Manager" portal in order to improve manager discourse with employees. In the 2013-2014 period, we conducted two employee surveys on internal communications and then used the results to design new media that better

satisfy the needs of employees and managers. One example is "pro", our international employee publication that has transformed from a newspaper into a magazine. It has been available in seven languages since September 2014 and is now also available as an online magazine and app. It is thus reaching more than 90% of our approximately 39,000 employees worldwide in their local language. For our employees in Germany, we have also been publishing the "pro vor Ort" newspaper. In addition to this, our businesses and Group functions issue their own newsletters to update their employees on progress and changes. Starting in 2015, we will be launching our new online collaboration platform known as EVA, which will replace our former Intranet. Here, we will be focusing more on video communication to convey information quickly, concisely and directly to the desired target group.

Employee surveys

We are striving to incorporate the ideas and know-how of our employees more heavily into our business operations. Because our company has changed greatly in the course of our "Fit for 2018" transformation and growth program, we developed a new approach to employee surveys in 2014. Through this, the company is aiming to strengthen its corporate culture and help managers create a motivating work environment that will increase its success. The new approach includes a survey that is part of the Organizational Health Index (OHI), along with another survey that specifically addresses employee engagement. Together, these will be taking the place of the "Pulse" employee survey that we conducted in 2009, 2010 and 2011. Because of the broader-based approach of these surveys, their results cannot be compared against Pulse results. Both surveys are being implemented globally at the business level as well as the Group function level.

The OHI survey results serve to predict our future performance capacity as well as indicate aspects that are particularly important for the success of the company. The OHI survey is based on nine dimensions: direction, accountability, coordination and control, external orientation, leadership, innovation and learning, capabilities, motivation and culture and climate. The OHI Score reveals how well employees think the company is doing in each of the dimensions. In 2014, 4,251 the biopharmaceuticals business employees and 2,600 Performance Materials employees took part in the survey. Results show that employee motivation at the company is above average relative to other companies. In response to the OHI survey, Biopharmaceuticals has introduced initiatives to promote more motivational management styles and to foster talent. Performance Materials utilized the results in planning the integration of AZ Electronic Materials.

Building on the OHI survey, Biopharmaceuticals and Performance Materials will be conducting the second employee engagement survey in 2015. The survey will cover topics such as leadership, performance, reward, and career and development, along with content specific to Merck KGaA, Darmstadt, Germany such as inclusion. By the end of 2015, the life science business, Consumer Health and all Group functions will be starting with the new employee survey approach by taking the OHI survey.

Engaging employees in corporate responsibility

We educate our employees on corporate responsibility through events and communication campaigns. For instance, in September 2013 we hosted an Africa Week at our Darmstadt and Gernsheim facilities in Germany. CR employees manned booths at site cafeterias, spreading information on our CR projects in Africa. In addition to this, the cafeteria menu featured ethnic African dishes.

As part of Earth Month, Energy Month and World Water Week, the life science business hosted environmental awareness campaigns that provided tips on how employees can minimize their impact on the environment at both work and home. During the Earth Month campaign in 2014, employees also took part in numerous volunteer activities. In Temecula, California (USA), for instance, employees worked together to clean the beach, while staff in Cork, Ireland cleaned the river bank; in Quito, the capital of Ecuador, they planted trees, and in Massachusetts (USA) they picked up trash in parks and on roadsides.

The life science business furthermore utilizes volunteer work as part of its global team building activities. For instance, at a gathering of the life science business leadership team, 130 managers built 26 bikes for children at the East Boston YMCA.

Corporate Responsibility Ambassador Network

In April 2014, the life science business launched the Corporate Responsibility Ambassador Network, a global employee network for CR-related issues.

Members view themselves as role models of proactivity, getting fellow co-workers involved in CR initiatives such as on-site recycling or community engagement in the vicinity of our sites. Thus far, eight sites have CR Ambassador teams: Jaffrey (NH, USA), Billerica (MA, USA), Bedford (MA, USA), St. Charles (MO, USA), Temecula (CA, USA), Cork (Ireland), Amsterdam (Netherlands), and Molsheim (France). For instance, the network in Jaffrey invited people to a Biomass Lunch & Learn aimed at educating co-workers about the site's new biomass central steam plant along with its benefits for the environment. During Earth Month, CR Ambassadors in Cork organized a corporate responsibility open house to spread information on wastewater management, recycling and the "Bike to work" program.

In addition to this, Merck KGaA, Darmstadt, Germany fosters its employees' ideas for new businesses through its Innospire program. In 2014, the program centered on the topics of energy conservation, conversion and efficiency, water treatment, water quality analyses, and efficient water consumption, along with patient focus, personalized medicine and digital/mobile health. Our employees were called upon to submit suggestions for new materials and systems, as well as for new business models. During the 2014 Innospire program, 300 ideas were submitted, including some that pertained to the above-mentioned topics.

Employee co-determination

We foster employee participation, co-determination and dialogue in our company. For this reason, we regularly involve local employee representative bodies, relying on them extensively for input. Take Germany for instance, where 11 subsidiaries have employee representative councils. Here, local works councils as well as an overall Group Works Council represent our employees' interests, discussing issues such as compensation, working hours, and realignment. The Senior Executives Committee represents the interests of senior management.

The Merck KGaA, Darmstadt, Germany Euroforum is our employee representative body at the European level and also serves as an information and advisory platform. Topics that are addressed regularly include the economic and financial situation of the company in Europe, the employment situation, and also significant changes within our company, such as acquisitions.

For its work on the "Fit for 2018" program, the Darmstadt Works Council was awarded the German Works Council Prize in 2013.

Occupational health and safety

As a responsible employer, it is especially important to us to prevent workplace-related illnesses and accidents. To this end, our Group-wide guidelines and management structures establish uniform standards for occupational health and safety that are oriented to the requirements of the International Labour Organization (ILO) and the Responsible Care® program of the chemical industry.

Occupational health and safety are an integral component of our Environment, Health, Safety (EHS) management system, which is aligned with the OHSAS 18001 standard. The Group function Environment, Health, Safety, Security, Quality (EQ) is responsible for this management system; they define goals, steer Group-wide measures, and conduct internal audits to check that the management system is functioning. In addition to this, the EHS management system is also audited every year by independent experts. Local EHS managers are responsible for compliance with occupational safety laws and regulations, as well as for the implementation of measures at individual sites.

We compile data on workplace accidents at the individual sites on a monthly basis. The Group function EQ evaluates all data and informs the other facilities about preventive measures as needed. In turn, all sites are required to immediately report relevant accidents to EQ.

Issued in 1995, our "Environment, Health and Safety Policy" describes our approach to occupational health and safety and is the basis for numerous other guidelines. In 2014, we drafted our "Group Health Policy", which defines the manner in which we promote occupational health and safety as well as the welfare of our employees. One component of this policy is the "Global Wellbeing and Health Promotion Framework", which describes the requirements of each individual country in which we operate. In line with this framework, the interdisciplinary Health Management steering committee designs and implements measures to promote good health, such as a health prevention program for shift workers. Furthermore, at our individual sites, employee and employer representatives have reached company agreements on occupational health and safety. For instance, in October 2013 such an agreement was reached on health counseling at our German sites. Among other measures, this document covers counseling training for managers so that they learn to promptly recognize health risks and psychological strain in their employees. Reached in September 2014, the agreement on health prevention for shift workers includes an extensive health intervention program. The goal here is to educate shift workers and make them aware of the adverse effects of such work, providing them with the tools to minimize these effects.

The key performance indicator for the success of our EHS measures is the lost time injury rate (LTIR), which means the number of workplace accidents resulting in lost workdays per one million hours worked. This indicator is applied to both Merck KGaA, Darmstadt, Germany employees and temps. Our goal is to achieve a lost time injury rate of 2.5 by the end of 2015. In 2014 we outperformed this goal, achieving an LTIR of 1.8. In addition to slips, trips and falls, the primary causes of lost time incidents were accidents involving the operation of machinery as well as business travel incidents, primarily car crashes.

Despite our efforts to prevent accidents, there were unfortunately two workplace accidents resulting in fatalities in 2014. In Venezuela, an employee died in a car accident, and in Pakistan, one employee was killed while performing maintenance work on a scissor lift.

The BeSafe! program

In order to prevent behavior-related workplace accidents, we have implemented the BeSafe! Program. This initiative works to continually educate and train our employees – in particular those at production sites throughout the Group – on potential workplace hazards, thereby reinforcing our safety culture. In 2014, Merck KGaA, Darmstadt, Germany rolled out the BeSafe! program across our warehouse sites as well, which means that all of our production sites and warehouses are now part of this program.

At our annual EHS congress in Darmstadt as well as EHS forums in North and South America, Europe and Asia, EHS managers share best practices and learn from one another. In the 2013-2014 period, EHS forums were held in Poseung (South Korea), San Diego (CA, USA), and Bari (Italy), which particularly focused on health management, occupational exposure limits, and safety management for temp employees. At our Darmstadt and Gernsheim sites in Germany, we hosted an EHS training seminar for 18 EHS managers from 15 countries in 2014. In addition to this, in December 2014 at our Bari site we held our fourth EHS Best Practice Sharing Meeting. Participants included EHS managers from various European sites as well as representatives from local and international companies, industry associations, and academia.

In 2014, we continued to educate our employees worldwide on workplace hazards through initiatives, training seminars, awareness campaigns, and educational activities. In addition to this, individual subsidiaries in Latin America, such as in Brazil and Mexico, hold safety competitions at specific sites that help reinforce our safety culture.

In 2014, the company presented the Safety Excellence Award for the fifth time, which recognizes those production sites with no workplace accidents on record for the year. 42 out of 69 sites received the award in 2014, with 38 out of 63 production sites in 2013.

Health management

Merck KGaA, Darmstadt, Germany issued its "Group Health Policy" in 2014, which aims to maintain and continually nurture employee health and performance.

In line with this policy, we have implemented health-promoting programs to bolster employee welfare and performance. To this end, we have established a Group-wide occupational health management system that aims to incorporate health-related goals into our corporate culture. Our health promotion activities focus on health fundamentals (e.g. workplace ergonomics), healthy leadership (e.g. managerial approaches that maintain employee health), and individualized health intervention (e.g. offering health promotion courses, encouraging employees to take responsibility for their own health).

At our Darmstadt site, we furthermore offer numerous other activities and programs to promote good health. Our company medical center offers services such as check-ups, medical care, and psychosocial counseling. Through local offerings, we raise employee health awareness and encourage them to take responsibility for their own health. Merck KGaA, Darmstadt, Germany's company health insurance fund (Merck KGaA, Darmstadt, Germany BKK) supports these programs across all areas of the company and additionally offers special courses and health care programs. In addition to this, Merck KGaA, Darmstadt, Germany BKK runs the Fit@Merck KGaA, Darmstadt, Germany program on behalf of our Health Management unit. This program enables employees to participate in health prevention classes and will subsidize up to € 195 in costs. In addition to this, employees can take part in our company athletics program. At our cafeterias, we furthermore offer our employees meals that meet the requirements of the German Society of Nutrition (DGE).

EMD Millipore employees at the Massachusetts and New Hampshire facilities in the United States can take advantage of a comprehensive health intervention program offered within the company. This program aims to prevent, detect, and/or treat diseases and injuries early on. It includes special exercise/training programs, seminars, sports competitions, and ergonomic workplace assessments. Employees who attend health intervention courses can receive up to US$ 300 in financial incentives.

Goals: Occupational health & safety

Goal	Action	By?	Status in 2013 and 2014	Status
Reduce occupational accidents throughout the company (lost time injury rate = 2.5)	Implement the BeSafe! program; hold EHS forums on safety behavior change	End of 2015	Through systematic accident prevention measures (such as training and campaigns to strengthen our corporate safety culture), we attained an LTIR of 2.2 in 2013 and an LTIR of 1.8 in 2014. We are working to lastingly stabilize our LTIR.	

Legend: Achieved In progress Not achieved + New goal

Environment

Our responsibility to protect the environment is derived from our values and our Group strategy. We have instituted Group-wide principles, strategies and organizational structures for corporate environmental protection and have also implemented a certified environmental management system for our Group-wide activities. In this way, we aim to reduce our emissions and waste while also ensuring that resources such as energy, water and raw materials are utilized as efficiently as possible. Process safety is a key prerequisite here.

Environmental management

Our responsibility to protect the environment stems from our Values and our Group strategy. We aim to continually improve our performance and reduce our impact on the environment by applying the precautionary principle. This especially means efficiently conserving resources such as raw materials, auxiliaries, operating supplies, energy, and water. In addition to this, we strive to lower our emissions and waste so that we can reduce our costs as well as our impact on the environment.

Our Corporate Environment, Health and Safety (EHS) Policy, in effect throughout the Group, establishes the framework for principles, strategies and organizational structures for environmental protection at the company. The topics of health and safety are covered under Employees: Occupational Health and Safety on p. 102.

Our EHS policy is implemented through internal guidelines and instruction manuals on compliant behavior, such as the "EHS, Security and Quality Manual". This manual describes, for instance, the fundamental global processes and organizational structure for environmental protection and occupational safety at the company. Our guidelines are based on the Responsible Care® Global Charter, which the chemical industry drafted in 2005. Merck KGaA, Darmstadt, Germany was among the first companies to sign the revised version of this charter in 2014. We have furthermore aligned our guidelines to the ISO 14001 (environmental management systems) and OHSAS 18001 (occupational health and safety management systems) standards. We have developed Group-wide standards as well as standard operating procedures for all environment, health and safety issues relevant to the company.

For our environmental protection activities, we have established a management system that is structured according to ISO 14001. We require all production sites with more than 50 employees to implement our environmental management system, which is optional for sites with 50 employees or fewer. This system is certified on an annual basis by an accredited, independent organization. New production sites must subsequently set up and implement an environmental management system that conforms to Group standards and meets the requirements for ISO 14001 certification.

Since 2009, Merck KGaA, Darmstadt, Germany has had an ISO 14001:2004 group certificate for its environmental management system. As part of the certification process, multiple surveillance audits are conducted every year, which we passed with flying colors in both 2013 and 2014. Suitable action plans have been drawn up and are now being implemented. The group certificate currently covers 58 sites, including eight of nine production sites from AZ Electronic Materials, a company that was acquired in 2014. Due to site acquisitions made mid-year and the time needed to fully implement an environmental management system, there are generally always a few production sites still undergoing implementation that have not yet been certified to ISO 14001:2004 by year-end. At the time of the surveillance audit in 2014, four sites fell into this category.

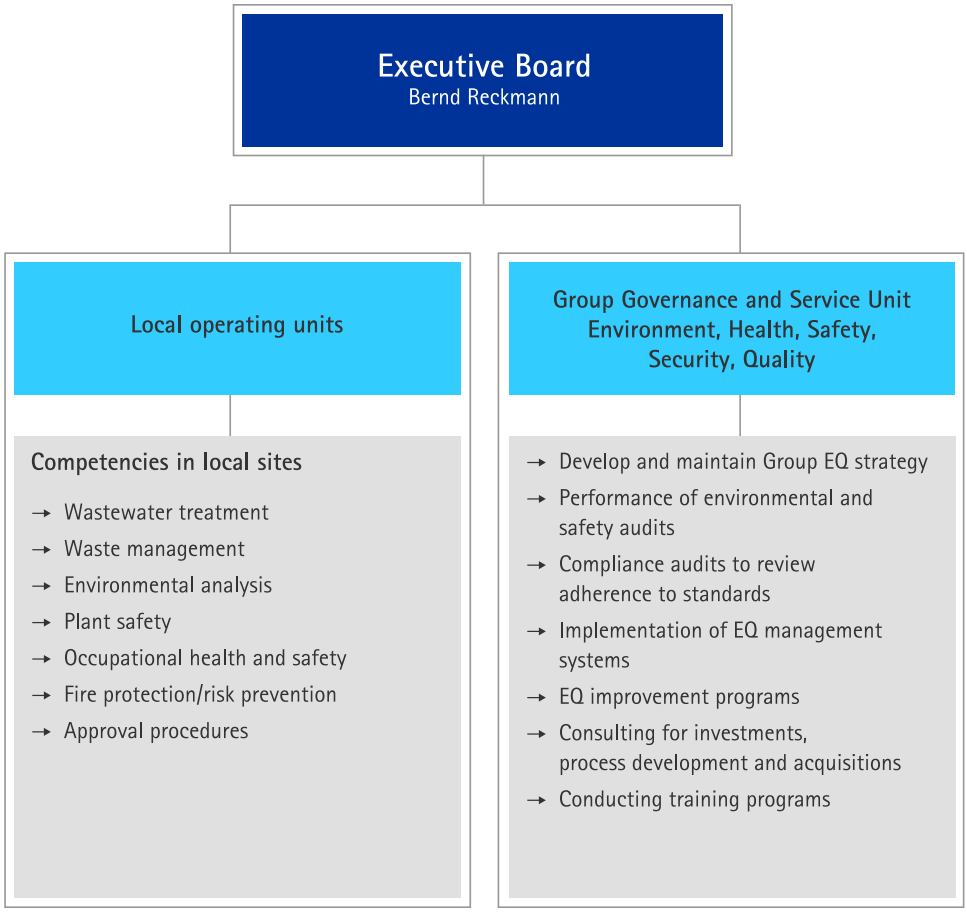
A new version of ISO 14001 is scheduled for publication in 2015. Merck KGaA, Darmstadt, Germany will be adapting its Group-wide environmental management system and corresponding documents such as the "Corporate EHS Policy" and the "EHS, Security and Quality Manual" to meet these new requirements.

Organization

Bernd Reckmann, Member of the Executive Board of Merck KGaA, Darmstadt, Germany, bears overall responsibility for environmental protection at the company. The Merck KGaA, Darmstadt, Germany function EQ is responsible for globally steering all environmental protection measures and is furthermore in charge of occupational health and safety, security, and quality.

Each site has specific employees in charge of EHS-related matters. The local site managers are responsible for operational environmental protection as well as occupational health and safety. When it comes to these matters, they receive support and guidance from EHS managers or, at smaller sites, from EHS coordinators.

The company AZ Electronic Materials, acquired in 2014, has been completely integrated into EQ's structural organization and processes since the beginning of 2015.



The processes for complying with local environmental protection laws, regulatory requirements, standards, and business requirements are stipulated by EQ, but are also partially defined by the sites themselves. EQ has created internal standards and standard operating procedures for all key environmental topics. Regular internal and external audits are conducted to verify compliance with these standards, the frequency of which is based on the site's risk potential. Employees can report violations to Compliance. In the 2013-2014 period, no significant violations of environmental laws or regulations were recorded within the Merck KGaA, Darmstadt, Germany.

Using the Group-wide LION electronic data management system, environmental data is recorded at the individual sites and reported to the Group function EQ at least once a year.

For all capital expenditure projects, either EQ or the local EHS unit will conduct environmental impact assessments to ensure sufficient environmental protection and occupational safety, as well as a proper degree of building and plant security. When sites and property are acquired or divested, EQ performs its due diligence, drawing up detailed EHS statements in order to ensure that contaminated or otherwise problematic sites are neither bought nor sold.

All employees tasked with environmental protection responsibilities are trained on a continuous basis and obtain additional qualifications. In addition to local programs, this training also includes the annual international EHS Congress in Darmstadt, as well as the regional EHS Forum. These events inform attendees about new EHS issues as well as planned guidelines and laws, and furthermore encourage best practice sharing at an expert level. In 2014, these events focused on topics such as management systems, pharmaceutical residue in the environment, and environmental performance indicators.

In 2014, Merck KGaA, Darmstadt, Germany's spending on corporate environmental protection totaled € 146 million worldwide (€ 142 million in 2013). These figures also include capital investments made during 2013 and 2014.

Goals: Environmental management

Goal	Action	By?	Status in 2013 and 2014	Status
Audit and implement environmental management systems at acquired sites	Certify environmental management systems at further acquired sites	Ongoing		In progress
	Perform gap analysis on the life science business acquisitions (e.g. Heipha and Biochrom), along with the Allergopharma production site in Reinbek	End of 2014	We conducted a gap analysis on Biochrom and Allergopharma production sites. Due to production issues, the implementation of ISO 14001 has been delayed for Heipha.	Not achieved
	Integrate AZ Electronic Materials production sites	End of 2015	Eight out of nine production sites of AZ Electronic Materials, which was acquired in 2014, have been incorporated into the group certificate.	In progress
Implement the OHSAS 18001 occupational health and safety management system for all Performance Materials production sites		End of 2016		New goal

Legend: Achieved In progress Not achieved New goal

Plant and process safety

Plant and process safety is of great significance to Merck KGaA, Darmstadt, Germany. Failed safety systems can lead to chemical spillage, which can in turn adversely impact people and the environment. This can also result in financial damage from issues such as production stoppages. One of our top goals is therefore to prevent production disruptions that can cause workplace accidents and chemical leaks.

We apply the same uniform standard to plant and process safety across the globe. Our Group-wide standard "Plant and Process Safety" mandates safety-related requirements be applied to the entire life cycle of a plant - including construction, normal operation, modifications, maintenance, repair, and shutdown. This standard applies to all production plants and warehouses. A safety concept is always developed for each plant before the plant is commissioned. Continuously revised and updated, this concept contains an overview of potential risks (e.g. fires, explosions, substance leakage into the environment) as well as the corresponding protective measures. The Group-wide standard "Spillage Control" defines organizational measures for preventing spillage during storage and transport, and also details how to handle hazardous materials. We furthermore have a Group-wide "Risk Management Process" operating procedure that specifies how to identify and assess risks, as well as how to develop and implement measures to minimize them.

The Group function EQ (see Environmental management on p. 106) is in charge of environmental protection and is the expert in plant and process safety guidelines as well as all related topics. At our individual sites worldwide, local EHS managers are appointed to handle environmental issues pertaining to plant and process safety.

In order to continuously identify potential for improvement, we regularly assess the plant and process safety of each site using EHS performance indicators, which gives us a comprehensive overview of safety at our sites. Accidents are evaluated retrospectively using lagging indicators, and potential future situations are

identified using leading indicators, which are based on factors such as near-accidents and identified areas of improvement.

These comprehensive EHS performance indicators consist of a variety of data. For instance, since 2013 we have been tracking the EHS Incident Rate, an indicator that synthesizes the following data: the number of workplace accidents involving our employees and contractors who work at Merck KGaA, Darmstadt, Germany sites; environmentally relevant incidents (e.g. product spills); activation of operational safety systems without an adverse impact on people and the environment (e.g. preventive system shutdown), and deviations identified in the course of external reviews and audits. For these indicators, product spills are defined according to a concept developed by the European Chemical Industry Council (CEFIC) and the German Chemical Industry Association (VCI).

Across all production, research and storage sites, we registered a total of 44 incident-related substance spills in 2013. Thanks to improved plant and process safety, we only recorded 26 incidents across all sites in 2014. We investigate each individual incident at the respective site and take appropriate countermeasures in order to prevent the same scenario - or a similar one - from recurring. We regularly organize best practice and information sharing sessions so that all our production sites can learn from incidents and implement preventive measures. Of the incident-related spills reported in 2013 and 2014, none resulted in significant environmental pollution.

Since plant and process safety always involves the interaction of man and machine, we consider it highly important for our employees to be well-trained and to receive ongoing training on a regular basis. To this end, in-house training on plant and process safety is regularly conducted at production sites. In 2013 and 2014, two training workshops were offered as part of an internal advanced training program for both site managers as well as for production, engineering and EHS managers from our Life Science and Performance Materials business sectors. The primary topics included systematic risk identification in processing plants, explosion protection, and static electricity.

Climate protection

As a company that operates responsibly, we are committed to helping protect the environment and mitigate climate change by conserving energy and reducing our greenhouse gas emissions. Our climate change mitigation activities are also of financial benefit to us since improved energy efficiency means that we save on operating costs. Pressure from a growing number of statutory regulations governing greenhouse gas emissions has also encouraged us to take action. Merck KGaA, Darmstadt, Germany is subject to a variety of national as well as international energy and emissions regulations, such as emissions trading systems. Currently, the EU Directive 2012/27/EU on energy efficiency is being incorporated into the national legislation of EU member states. It requires major industrial companies to conduct energy audits or implement energy management systems.

Within the scope of the Carbon Disclosure Project, we have been reporting on our greenhouse gas emissions activities, measures, and achievements for several years. In 2014, we were once more ranked in performance band B in the Climate Performance Scoring, which puts us clearly in the upper range of all participating companies in the Germany, Austria and Switzerland category. In the Climate Disclosure Scoring, which rates the thoroughness and transparency of a company's reporting, we scored 87 out of 100 points, putting it well above the average.

The company's function EQ is responsible for globally steering all climate protection activities (see Environmental management on p. 106). At the individual sites, operational units are responsible for implementing climate change mitigation measures.

In 2014, we implemented a new guideline on Group-wide energy management. Our "Energy Management" standard defines general principles for uniform energy management across all Merck KGaA, Darmstadt, Germany sites. Our "Emissions of Refrigerants" standard, implemented at the end of 2013, aims to reduce emissions from cooling processes that may cause global warming as well as ozone layer depletion. In 2013, we furthermore revised our company car policy and set a goal to reduce the average CO_2 emissions from our global company car fleet by 30% by 2020, relative to 2012 levels. In order to reach this goal, we are switching our pool of leased company cars over to more efficient, more economical models.

Our strategic EDISON program

We have set ourselves the goal of reducing greenhouse gas emissions by 20% by 2020, relative to the 2006 baseline. In order to achieve this target, we initiated in 2009 the EDISON energy efficiency and climate protection program, which consolidates the climate change mitigation activities of the Group. Worldwide, 20 company sites jointly account for 80% of our greenhouse gas emissions, so EDISON is focusing on these sites in particular. The reduction of our energy-related emissions is one of our primary measures. To this end, we are working to reduce greenhouse gas emissions from energy generation as well as to enhance the energy efficiency of research and production processes. Furthermore, we wish to lower process-related emissions through initiatives such as a process efficiency program at the life science business. Improving the energy efficiency of our facility operations and employing renewable energy are other measures that will contribute to this goal. For our the life science business sites, we have set ourselves the intermediate goal of reducing greenhouse gas emissions by 10% by the end of 2015, relative to the 2006 baseline.

To create and implement climate change mitigation projects, EQ collaborates with a working group that spans all of the company's businesses. This group develops measures and evaluates site-specific project proposals in terms of absolute CO_2 reduction, CO_2 reduction relative to capital spending volume, and potential cost savings.

Through the approximately 300 EDISON projects that have been initiated since 2012, we aim to annually save around 60,000 metric tons of CO_2 in the medium term. Around two-thirds of these projects have already been launched, or are currently being implemented. For 2015, we have initiated 57 new projects, which we expect to reduce CO_2 emissions by approximately 37,000 metric tons in the medium term.

At the end of 2014, the company commissioned a carbon-neutral biomass power plant in Goa, India that runs on the shells of locally farmed coconuts and cashews. This will enable us to cut CO_2 emissions by around 11,500 metric tons per year. On top of this, a biomass central heat plant went into operation in Jaffrey, New Hampshire (USA) in December 2014. This renewable energy biomass plant will run on locally produced wood chips and will enable us to cut CO_2 emissions by around 3,500 metric tons per year.

The company's production sites in Darmstadt and Gernsheim, Germany, account for around 40% of our global energy consumption. With the cogeneration plant in Darmstadt and the heating plant in Gernsheim, these two sites are subject to the EU Emissions Trading System. Merck KGaA, Darmstadt, Germany operates very efficient energy generation plants and, in this third period of EU emissions trading stretching from 2013 to 2020, we are also benefiting from a situation in which some certificates are being allocated free of charge. As things stand today, however, we will need to purchase additional CO_2 certificates in the future.

At the Darmstadt site, the company is spending around € 27 million on the construction of two state-of-the-art energy stations. In July 2014, Executive Board Chairman Karl-Ludwig Kley and the German Federal Minister for Economic Affairs and Energy Sigmar Gabriel inaugurated the first station, which is supplying the site's pharmaceutical production operations and research activities with power, heating and cooling. The second station is currently under construction and will cover the refrigeration needed by the site's chemical plants and laboratories, among other power needs. Once both plants are in operation, the site's CO_2 emissions will decrease by around 2,500 metric tons per year.

In mid-2013, a highly efficient cogeneration plant was commissioned in Gernsheim, which saves around 7,000 metric tons of CO_2 emissions per year.

Energy management is another component of EDISON. Eight of our sites have been certified to ISO 50001 "Energy Management Systems": Darmstadt, Gernsheim and Wiesbaden in Germany, Molsheim in France, Bari and Tiburtina in Italy, Taoyuan in Taiwan, and Poseung in South Korea.

You can find more information on our website:

- Biomass power plant in Goa, India
- Use of geothermal energy in Atsugi, Japan
- Solar power in Bedford & Billerica, Massachusetts (USA)
- Green buildings (LEED Gold-designed site in Bangalore, India)

Energy consumption and CO_2 emissions in 2013 and 2014

In 2014, Merck KGaA, Darmstadt, Germany consumed a total of 1,622 GWh of energy, which represents a slight increase over 2013 (1,566 GWh). Due to the complexity involved in collecting the data, we are currently not calculating the energy that is consumed upstream or downstream during the production and transport of our raw materials.

In 2014, the company emitted 524,000 metric tons of greenhouse gas emissions (CO_2 equivalents), with 567,000 metric tons emitted in 2013. This decrease can be attributed mainly to a 30% reduction in emissions from one production process. In this process, we have managed to reduce the emissions relative to production volume by almost two-thirds since 2008. CO_2 emissions fell by 9% relative to the 2006 baseline, which means that the company is on the right path to achieving its 20% reduction target by 2020.

In order to report and calculate its greenhouse gas emissions, the company utilizes the Greenhouse Gas (GHG) Protocol, an internationally recognized standard. We are currently reporting Scopes 1 and 2 of the GHG protocol, and parts of Scope 3. Scope 1 covers direct emissions that the company produces itself by burning fossil fuels, or through its own processes. Scope 2 pertains to emissions from imports of energy, such as electricity or district heating. Scope 3 includes emissions such as those from the manufacture and transportation of products, raw materials, and waste, or from employee business travel. Due to the complexity of Scope 3 emissions reporting, we are currently only reporting on Scope 3 emissions from business travel, from employee commuting, from fuel and energy-related activities, and from the disposal and recycling of waste generated in the course of our business operations. Merck KGaA, Darmstadt, Germany has done some product life cycle assessments and carbon footprint analyses (see Sustainable products on p. 50).

Educating employees

Our commitment to climate change mitigation is not only observed at work - we encourage our employees to exhibit this through more sustainable living habits as well.

To keep our employees informed, we publish a selection of climate protection facts and figures on our intranet. Furthermore, various tools such as energy checklists or examples of best practices are also available to help employees share information and learn from one another. We continuously provide information on the company's climate change mitigation efforts in our employee magazine and in an employee newsletter.

Through an online training system, we have trained employees at our Darmstadt and Gernsheim sites in Germany on the topic of energy management. As an incentive to use public transportation, the Darmstadt site offers a "Jobticket", the cost of which is partially covered by the company. In 2014, nearly 4,000 employees took advantage of this option.

In the United States, the life science business supports employees' individual climate change mitigation efforts through engagement programs and monetary subsidies. Employees receive subsidies to install solar panels on their homes, have an energy audit conducted on their homes, or purchase hybrid and/or electric vehicles. New for 2015 will be the addition of select electric motorcycles to the personal climate change mitigation subsidies. The vehicle subsidy has already encouraged over 150 employees to switch to a hybrid or electric car. In addition to this, the life science business is bolstering its employees' awareness of and engagement in environmental protection through global campaigns such as Energy Month and its Corporate Responsibility Ambassador Network. Through the end of 2014, the life science business and the biopharmaceuticals business also installed electric vehicle charging stations at our Bedford and Billerica sites (Massachusetts, USA), where employees and visitors can charge their electric cars free of cost.

Logistics

We are working to reduce the greenhouse gas emissions that result from the transport of our products. To achieve this, we are reducing the use of air transport in favor of sea shipping. We have undertaken a project to identify products that can be shipped by sea instead of air in order to reduce costs and CO_2 emissions. These products need to safely withstand the longer travel time at sea without compromising the product quality and service level to customers. This project encompasses all shipments from our Global Distribution Centers to customers and local warehouses worldwide. For instance, thanks to changing how we transport goods worldwide from Darmstadt, Germany, we reduced CO_2 emissions by approximately 800 metric tons in 2014.

We are also focused on reducing emissions from shipping thousands of products to customers. In the United States, the life science business is an EPA SmartWay® Shipper. As a SmartWay® Shipper, we are committed to benchmarking operations and implementing supply chain efficiencies in order to improve our performance annually with respect to how we ship our products.

As we continue to evaluate our logistics for further climate-saving measures, we believe this will not only help reduce our own greenhouse gas emissions, but will also support our customers' needs as they seek more products and services with reduced carbon footprints.

Goals: Climate change mitigation

Goal	Action	By?	Status in 2013 and 2014	Status
Reduce direct and indirect greenhouse gas emissions (Scope 1 and 2) of the company by 20% relative to the 2006 baseline	Systematically examine the energy consumption at our individual sites	End of 2020	We continued to systematically examine ways to save energy at our production sites. For instance, energy audits were conducted on the Aubonne and Vevey sites in Switzerland.	In progress
	Identify and implement ways to save energy	End of 2020	Through the approximately 300 EDISON projects that have been initiated since 2012, we aim to annually save around 60,000 metric tons of CO_2 in the medium term. Around two-thirds of these projects have already been launched, or are currently being implemented.	In progress
	Reduce process-related emissions	End of 2020	We have made significant progress in reducing the life science business' process-related emissions. The average process emissions relative to production volume at our Jaffrey, New Hampshire (USA) facility has decreased by around two-thirds. At this site, we have witnessed a 30% absolute reduction in process emissions in 2014 versus 2013, while production volumes have continued to increase.	In progress
	Implement sustainable measures to increase energy efficiency and reduce greenhouse gas emissions	End of 2020	We are moving forward with our EDISON program, implementing new projects to increase energy efficiency and reduce greenhouse gas emissions. In 2013 and 2014, we introduced two new guidelines on Group-wide energy management and refrigerants emissions. Several sites were certified according to ISO 50001, accompanied by the respective training activities.	In progress
	Reduce the life science business' greenhouse gas emissions by 10% by 2015 (2006 baseline)	End of 2015	The life science business has reduced greenhouse gas emissions by 13% relative to the 2006 baseline.	Achieved

Legend: Achieved In progress Not achieved + New goal

Waste management

Waste management is a key aspect of our corporate environmental protection activities. This includes measures to prevent, reduce, and properly dispose of waste, as well as recycle materials and energy. Our waste management activities also cover proper waste storage at our sites, which is also crucial to occupational health and safety.

When it comes to waste management, Merck KGaA, Darmstadt, Germany utilizes a Group-wide environmental management system that is certified to ISO 14001. In the course of the ISO 14001 certification process as well as internal EHS audits, our waste management system is examined at both headquarters as well as at the relevant sites.

EQ, the Group function in charge of environmental protection, bears overall responsibility for waste management (see Environmental management on p. 106). At sites outside of Germany, EHS managers are responsible for implementing measures and receive regular training from EQ. As part of the annual ISO 14001 audit of our environmental management system, EHS managers and site management are educated on waste prevention and recycling.

With our Group-wide "Waste Management" standard, we have implemented a uniform waste management framework for all our sites. This standard defines organizational structures and processes and is regularly updated. The type and quantity of waste is logged and documented at all sites and communicated to the EQ Group function.

Waste output in 2013 and 2014

The company produced more waste in 2014 than in the previous year, which rose from 161,000 metric tons in 2013 to 229,000 metric tons in 2014. Waste from construction and renovation projects accounted for the majority of the waste (2013: 24%; 2014: 47%), stemming in particular from the remodeling of our Global headquarters in Darmstadt. We disposed of 108,000 metric tons of the total waste produced in 2014, and 121,000 metric tons were recycled/recovered (material recycling plus waste to energy).

For the most part, waste is externally recycled or disposed of (2013: approx. 85%; 2014: 91%). Being the one who generates the waste, Merck KGaA, Darmstadt, Germany is ultimately responsible for its final disposal. As such, service providers are chosen with extreme care. The terms and conditions for disposal are contractually stipulated, and service providers are required to prove that the waste is properly disposed of. We regularly audit these providers, especially if they are involved with handling hazardous waste.

We continuously work to optimize chemical processes in order to prevent, reduce and recycle waste. Among other measures, solvents are treated and recycled.

For instance, in the 2013-2014 period, we started recycling heptane, a chemical that accumulates during the purification of liquid crystals. In this process, heptane is utilized as a solvent to separate mixtures. We collect the heptane, have an external recycling company treat it, and then reuse the purified solvent in our processes. Our recycling rate is over 85%, which is enabling us to lower our heptane consumption by 1,900 metric tons per year and thus reduce our total waste. This is simultaneously leading to significant improvement in the carbon footprint of the process.

The life science business uses methanol for the production of filtration membranes. While the majority of the methanol is treated on site and then reused, the remainder cannot be reused in the process. Luckily, methanol constitutes an important raw material for municipal wastewater treatment, and the life science business' remaining reclaimed methanol is now being utilized by a local wastewater treatment plant. You can find more information on our website.

Goals: Waste management

Goal	Action	By?	Status in 2013 and 2014	Status
Reduce the life science business' waste output by 10% relative to the baseline 2006)	Introduce measures to minimize waste and recycle materials, solvents, and other waste byproducts.	End of 2015	Between 2006 and 2014, the life science business lowered its waste output by 15%. The life science business has identified and implemented opportunities to distill and reuse solvents in the manufacturing process. At the Bedford, Massachusetts (USA) facility, methanol that cannot be reused in the process after multiple distillations is used as a feed chemical for a local municipal wastewater treatment facility. In 2014, 145 metric tons of methanol were reused externally. Increases in production yields reduced the amount of products scrapped during manufacturing.	
	Perform waste audits to identify ways to reduce waste or increase recycling efficiency	End of 2015	In 2014, waste audits were performed on the life science business' facilities in Molsheim, France, and Kankakee, Illinois (USA).	

Legend: Achieved In progress Not achieved New goal

Resources

For our business activities, we require energy, water, and raw materials, along with numerous other materials, which we mostly utilize for production purposes. Given that these resources are becoming ever scarcer and more costly, we consider it important to utilize them efficiently. We strive to not only cut costs, but also to preserve the environment and conserve resources.

We have therefore implemented programs and processes throughout the company in order to continually make resource management and consumption more efficient. This is a core component of our operations and a prerequisite for maintaining our competitive edge.

Energy use

In 2014, we utilized 1,622 GWh of energy in total, particularly in production, which represents a slight increase compared to 2013 (1,566 GWh). Our energy management processes are described in detail under Climate protection on p. 109.

Water consumption

In its production processes, Merck KGaA, Darmstadt, Germany uses water primarily for cooling, as process water, and for exhaust air purification. For the most part, we draw groundwater from our own wells and drinking water from the local water supply. In 2013, we utilized a total of 9.6 million cubic meters of freshwater, with 11.1 million cubic meters consumed in 2014. The water utilized in 2014 consisted of 57% groundwater from our own wells, 41% water from the public water supply, and 2% surface water. No sensitive water sources were impacted by our water intake.

In the 2013-2014 period, we used public databases such as the WRI Aqueduct Water Risk Atlas and the Water Risk Filter to determine which of our sites are located in areas of high water stress and consume more than 30,000 cubic meters of water per year. Three of our sites - located in Mexico, Spain and Pakistan - meet these criteria. Furthermore, at our facility in Savannah, Georgia (USA) we identified an increased risk to local water availability. Within the scope of their ISO 14001

environmental management systems, these four sites will be focusing on sustainable water management, setting for instance water targets.

Where expedient, we also plan to help sites in areas of moderate water stress implement more efficient water management systems as well. At the end of 2013, we therefore created a best practice sharing platform for water management projects, which we will be continuously expanding.

At Merck KGaA, Darmstadt, Germany, cooling water for production processes is utilized in both closed/open circuit systems and in once-through cooling systems; in some processes, production wastewater is treated and reused. We recycled a total of 16.6 million cubic meters of water in 2013, and 16.0 million cubic meters in 2014.

Material consumption

From the very start of the process development phase, we focus on making the processes efficient and minimizing the resulting waste. We furthermore ensure that the materials utilized pose as little danger to people and the environment as possible.

In particular, we use production materials such as chemical and pharmaceutical raw materials. In addition to these, we also employ operating supplies and packaging materials such as folding boxes, glass bottles and ampules.

The purchased materials that go directly into our pharmaceuticals and chemicals are generally quantified by weight. We utilized a total of 209 metric kilotons of these materials in 2013 and 176 metric kilotons in 2014. These figures do not include packaging materials and operating supplies such as energy or lubricants.

The portfolio of our life science business business features numerous devices and tools whose production requires semi-finished and finished materials, such as fully assembled electronic components or device casing. We log these by the piece.

Water

At Merck KGaA, Darmstadt, Germany, water is used in production primarily for cooling, as process water, or for exhaust air purification. After being utilized, the water may contain eutrophicating substances, heavy metals, or active pharmaceutical ingredients. The treatment of this wastewater, and thus the prevention of environmental pollution, is a fundamental part of our corporate environmental protection activities worldwide.

EQ, the Group function in charge of environmental protection, bears overall responsibility for water protection (see Environmental management on p. 106). At sites outside of Germany, local EHS managers are tasked with implementing measures and receive regular training from EQ.

Our Group standard "Water Protection" defines the processes and responsibilities required for clean wastewater in the company and also covers the hiring of third parties to handle it. This standard is derived from our obligations under the Responsible Care® initiative. It requires all sites to estimate and assess the specific risks and effects of wastewater using tools such as ecotoxicological data. The standard also requires risk assessments to take a site's wastewater treatment plants into account. Furthermore, each individual site must develop and implement a water pollution response plan that features measures to prevent wastewater or reduce its volume. The plan must also define the documentation process for wastewater volume, points of origin, and local limits. The standard provides strict guidelines for wastewater treatment via external service providers. For instance, the service provider agreement must stipulate the wastewater quality to be attained - if not already specified by law - as well as the responsibilities involved.

Environment, Health and Safety (EHS) audits are conducted to verify whether our "Water Protection" standard is being properly implemented. In the 2013-2014 period, 57 internal audits were conducted by the Environment, Health and Safety (EQ-E) unit, and 18 audits were performed by external ISO 14001 certifiers. These audits examine water-related aspects in proportion

to how relevant they are to the individual site - for instance, water is a bigger issue at production sites than at administrative locations.

In 2014, the company produced 10.1 million cubic meters of wastewater. At our Darmstadt site in Germany, the discharge of purified wastewater into the Darmbach (a stream in the Darmstadt area) accounted for over 5% of the average annual volume of this body of water, which is permissible by law. The discharge did not have any significant impact on the Darmbach, or the associated habitats. In the 2013-2014 period, we did not discharge significant amounts of purified wastewater into other bodies of water either.

Active pharmaceutical ingredients in the environment

Our standard "Water Protection" stipulates that the amount of active pharmaceutical ingredients (APIs) in our wastewater should be kept to a minimum. Appropriate measures are defined and implemented on a site-by-site basis. For instance, production and purification processes are being optimized at our sites in order to maximally reduce API concentrations in the wastewater.

All our pharmaceutical production sites have wastewater treatment plants. At these sites, we regularly take readings to assess the amount of APIs being discharged. For these assessments, we apply the predicted no effect concentration (PNEC) values. If the concentrations are below the PNEC, then the substance is not expected to adversely impact the environment. In the 2013-2014 period, we did not exceed these limits.

Goals: Water

Goal	Action	By?	Status in 2013 and 2014	Status
Reduce the life science business' water use by 10% relative to the 2006 baseline	Implement water reuse and reduction initiatives	End of 2015	Despite significant increases in production volumes, between 2006 and 2014, the life science business reduced water consumption by 2%. In 2014, we performed five water audits at the life science business facilities. Our Molsheim, France facility identified viable projects that will be investigated further in 2015.	

Legend: Achieved In progress Not achieved New goal

Biodiversity

Since the Convention on Biological Diversity (CBD) entered into force in 1993, the concept of biodiversity has included diversity within species, between species and of ecosystems. Opened for signature at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992, this treaty has the following three main goals: conservation of biological diversity, sustainable use of its components, and fair and equitable sharing of benefits arising from genetic resources.

The loss of biodiversity is one of the greatest challenges of our time. Ecosystems provide us with services and resources such as sufficient quantities of good-quality water that are absolutely essential to our business operations worldwide. We therefore consider it extremely important to protect biodiversity and have put numerous environmental protection measures in place, all of which work indirectly to safeguard biodiversity. For instance, we have implemented measures to assess and reduce pharmaceutical residues in wastewater.

Our production sites are located in established industrial and commercial zones; they are located neither inside of nor within 10 kilometers of IUCN Category I or Category II protected areas, which are set aside to safeguard biodiversity. Category I includes strict nature reserves and wilderness areas in which human visitation, use and impacts are strictly controlled and limited, while Category II includes national parks. In order to prevent substances that could negatively impact biodiversity from leaking into the environment, we design and operate our facilities according to strict Group-wide safety and environmental requirements. For instance, in our Group-wide standards we have defined measures for processing waste and production wastewater (see Resources on p. 114). We have furthermore implemented a Group-wide program called EDISON in order to reduce greenhouse gas emissions.

We improve the habitats for plants and animals at our sites, for instance by increasing the amount of unsealed surface area. This is, however, not always possible since we seal certain surfaces to protect them from any leakage that may occur. In 1995, we developed a green open space concept for our Darmstadt site, and around 30% of the premises have now been greened. The green areas are designed to improve the functionality of the production areas without degrading the ecological value of existing open areas. In 2008, we signed an agreement with the city of Darmstadt that established the framework to increase the role of nature conservation in the industrial use of our site, as well as better integrate the site into its urban surroundings. The stipulated planning guidelines require, for example, an increase in the percentage of native plants on the site.

When planning new sites and facilities, we consider environmental aspects such as aeration, land-use structures that contribute to a favorable microclimate, and energy-efficient construction concepts. For instance, we conducted a biodiversity study when planning the expansion of our site in Corsier-sur-Vevey, Switzerland. To protect the bordering alpine meadows, we developed a landscape plan in which the meadows are tended to by a local farmer.

When we acquire new sites, we investigate their environmental situation, taking into consideration information from public sources such as neighbors and non-governmental organizations (NGOs). We assume responsibility for pollution we have caused and investigate our sites before selling them.

Society

Taking responsibility toward society is an integral part of our entrepreneurial approach. We are convinced that we can make an important contribution to society through our knowledge, our skills and our products.

Managing our social engagement

Merck KGaA, Darmstadt, Germany sees itself as part of the community, not only at its individual locations, but also at a global level. Within the scope of our business activities, we play an important role in the vicinity of our sites. We create jobs and invest in the training and welfare of our employees. We source goods and services from many local companies. On top of this, we also support charitable initiatives, often doing so in partnership with our employees.

Our social responsibility activities are primarily focused on areas in which we have specific expertise stemming from our businesses. We therefore engage in health promotion projects and environmental protection, while also fostering cultural activities and education initiatives. We provide disaster relief in emergency situations, especially in those regions in which we operate.

To increase the effectiveness and impact of our projects, we focus our resources on three global projects:

- In our Praziquantel Donation Program, we are partnering with the World Health Organization (WHO) to combat the worm disease schistosomiasis in African school children.
- The Global Pharma Health Fund is a charitable initiative funded by Merck KGaA, Darmstadt, Germany to fight counterfeit medicines in developing and emerging countries.
- The Deutsche Philharmonie Merck is the musical ambassador of our company.

Our subsidiaries are also engaged in local projects and invest in the communities in which we operate, which also serves to secure our future. When it comes to choosing projects, we have defined criteria that are used by our local subsidiaries to decide which initiatives to pursue. The Public Affairs & Corporate Responsibility Group function coordinates and implements global projects and regularly provides progress reports to the Executive Board.

We conduct annual global surveys to ascertain the regional scope of our social engagement, to determine our goals and focus, and to track our progress. In 2014, Merck KGaA, Darmstadt, Germany spent a total of € 50.8 million on its social engagement activities, with € 46.2 million in 2013. Of the total monetary and non-monetary donations made by our subsidiaries in 2014, 61% (2013: 63%) went to Emerging Markets (Latin America and Asia, excluding Japan), 37% (2013: 36%) to Europe, and 2% (2013: 1%) to North America and the Rest of World region.

These figures do not include activities that primarily serve to market our products.

Fighting schistosomiasis

Over 232 million people in Africa suffer from schistosomiasis, a tropical worm disease. It is estimated that more than 200,000 people die each year as a result of this chronic parasitic condition, which makes schistosomiasis one of the most devastating neglected tropical diseases (NTD) in terms of public health burden and economic impact. Schistosomiasis is prevalent primarily in the tropical and subtropical areas of sub-Saharan Africa, and is considered to be the third highest burden among Neglected Tropical Diseases. In these regions, the vast majority of the population has no access to clean water and sanitary installations, which also contributes to the spread of the disease.

Schistosomiasis is caused by flatworms and is spread through stagnant water. People become infected by the worm larvae in the water while bathing, fishing, playing, washing their clothes, or working on agricultural land. These larvae penetrate human skin and enter the blood vessels, where they grow into adult worms. The female's eggs infest inner organs such as the intestines, bladder, spleen, or liver and often cause severe inflammation. Symptoms include severe abdominal pain, diarrhea and bloody urine or stool. The infection rate is especially high among children, and the chronic symptoms that result are particularly serious. For example, schistosomiasis stunts growth and contributes to malnutrition, causing learning disabilities and anemia in children.

Praziquantel, which was developed by Merck KGaA, Darmstadt, Germany in the 1970s as part of a research collaboration, is the only active ingredient to treat all forms of schistosomiasis and is a well-tolerated drug.

Since 1983, it has been on the Model List of Essential medicines published by the World Health Organization (WHO).

Managing and monitoring

In 2007, we launched our Praziquantel Donation Program (MPDP) in partnership with WHO. This project was originally intended to run for a period of 10 years, but we have decided to continue the fight until the parasitic disease schistosomiasis has been eliminated in Africa. In order to reach this goal, we pledged in 2012 to significantly expand our donation by a tenfold increase of up to 250 million praziquantel tablets per year. Our efforts to fight schistosomiasis reflect the United Nations Millennium Development Goals as well as the WHO strategic NTD roadmap; they are also part of the London Declaration, an initiative to fight neglected tropical diseases launched by the Bill & Melinda Gates Foundation in 2012.

In close collaboration, WHO and Merck KGaA, Darmstadt, Germany each provide their respective expertise to the MPDP. The company donates Cesol® 600mg praziquantel tablets to WHO. We produce quality-assured praziquantel and ship the tablets to the respective countries, where WHO in turn manages, monitors, and documents the local distribution of the tablets and works with local authorities to administer the treatment at schools. WHO is also responsible for supplying local data on morbidity rates and treatment frequency in the countries in which the MPDP has been rolled out. The data for each country can be found in the WHO PCT databank which is the global repository of preventive chemotherapy treatments. A steering committee consisting of representatives from WHO and the company convenes twice a year in order to review the program's progress and decide on its future course. This committee also advises on the allocation of tablets for each country.

Since the start of the program, Merck KGaA, Darmstadt, Germany has donated over 200 million tablets. To date, more than 54 million people have been treated, mainly school-aged children. In 2013, we have donated around 50 million tablets for twelve African countries. We produced around 75 million tablets in 2014, more than 72 million of which were supplied to 20 African countries by the year's end, a collaborative effort with the World Health Organization.

Research

Within the scope of a public-private partnership (PPP), the company is researching a formulation of praziquantel for small children. Praziquantel tablets in their current form are suitable for adults and children over the age of six; for children younger than six, it is currently not possible to properly treat the disease.

As part of the donation program expansion, Merck KGaA, Darmstadt, Germany is also working to optimize the formulation of the drug. For instance, our researchers are also working on a film coating to make praziquantel tablets easier to swallow as well as more resistant to long transport times.

Educating people

We support an awareness program at schools in Africa that uses comic booklets and posters to explain the causes of schistosomiasis, teaching pupils how to prevent the disease. Following the success of the pilot projects, the program was extended in 2013 to Senegal and Malawi. In addition to 75,000 informational posters on schistosomiasis, we provided one million educational booklets in total; 250,000 of these went to Malawi and the rest to Senegal. In collaboration with WHO, we are funding the translation of the booklets that are already available in English and French into Swahili, Arabic and Portuguese.

During the 2013-2014 period, the company also helped the Uraha Foundation Germany set up a local radio station in the north of Malawi. Radio Dinosaur has been broadcasting since the end of 2014; it provides information on politics, environmental issues, history, culture, and health, doing so in the local languages of KyaNgonde and ChiTumbuka. Among other activities, Merck KGaA, Darmstadt, Germany is funding the production of broadcasts that educate people about schistosomiasis.

Fighting schistosomiasis worldwide

In May 2014, Merck KGaA, Darmstadt, Germany called for different NTD constituencies to form the Global Schistosomiasis Alliance (GSA). This initiative focuses and coordinates efforts to address remaining gaps and challenges in order to meet the schistosomiasis elimination target worldwide. In December 2014, the company organized the first

meeting of the GSA at the UN Conference Centre in Addis Ababa, Ethiopia. During this roundtable, the key founding partners of the GSA introduced themselves to an expert audience from all over the world. Besides us, these founding partners include, among others, the Bill and Melinda Gates Foundation, the Schistosomiasis Control Initiative, the United States Agency for International Development, and World Vision International.

Goals: Fighting schistosomiasis with praziquantel

Goal	Action	By?	Status in 2013 and 2014	Status
Eliminate schistosomiasis in African school children	Provide tablets containing praziquantel free of charge to treat school children in Africa	Ongoing	Since 2007, more than 50 million patients have been treated, primarily school-aged children.	In progress
	Incrementally increase annual tablet donation by a factor of ten, to up to 250 million	End of 2016	In 2014, we produced around 75 million tablets, of which more than 72 million were supplied to 20 African countries by the year's end, a collaborative effort with the World Health Organization.	In progress
	Optimize the praziquantel formulation	End of 2014	We have finished developing the formulation. The dossier has to be submitted to the regulatory authorities for marketing authorization.	In progress
	Research a new praziquantel formulation for children under 6 years old.	End of 2014	The Phase 1 clinical trial was conducted in South Africa.	In progress

Legend: Achieved In progress Not achieved New goal

Detecting counterfeit pharmaceuticals

Substandard medicines and counterfeits pose a deadly hazard. Interpol estimates that up to 30% of all medicines in developing nations are either illegal, counterfeit or of inferior quality. The Global Pharma Health Fund (GPHF), a non-profit initiative funded by Merck KGaA, Darmstadt, Germany, has therefore taken up the fight against counterfeit medicines. With the Minilab developed by the GPHF, counterfeit medicines can be detected quickly, easily and cheaply. Two suitcases each weighing around 30 kilograms contain a large number of test methods that state healthcare workers in developing countries can use to inspect pharmaceuticals. Reference samples are used to test the identity and concentration of 75 active ingredients in total, including anti-malarials, antibiotics, analgesics, and antipyretics.

The GPHF has specifically developed the Minilab for use in regions with a simple infrastructure. The rapid analyses can be performed even without lab equipment using normal drinking water. There is currently no other product like it. The majority of the countries where Minilabs are used are located in Africa and Asia. Since 1998, the GPHF has supplied 685 Minilabs to 90 countries at cost. In 2013 and 2014, they donated 113 Minilabs in total. These compact labs are utilized by national health agencies, often in collaboration with governmental drug safety laboratories. They are also frequently a key component of multilateral health projects in partnership with organizations such as UNICEF or the Global Fund. In addition to selling them at cost, which is handled by a distribution agent, the GPHF and the company will also sometimes donate the test kits. In the 2013-2014 period, 25 Minilabs were donated by the GPHF and 13 by the company.

We participate in external research with the aim of increasing the number of medicines that can be tested. In 2013 and 2014, the GPHF developed testing methods for 12 additional pharmaceuticals and updated the user manual accordingly. The GPHF offers training courses in order to familiarize local users with the testing procedures and ensure that the Minilabs are utilized in a professional manner. In 2013, four courses were offered in Germany, Kenya, Mozambique, and Myanmar, which were attended

by 70 participants in total. In 2014, the GPHF trained 60 participants total in Ethiopia, Germany, Kenya, and Nigeria.

In 2013, the GPHF and the Center for Pharmaceutical Advancement and Training (CePAT) in Ghana – established by the U.S. Pharmacopeial Convention – formed a strategic alliance to combat counterfeit pharmaceuticals. This alliance aims to expand local capacities so that they can identify substandard and counterfeit medicines. Since 2014, the GPHF has furthermore been partnering with the IFPMA FightTheFakes campaign, which uses social media to increase awareness of counterfeit medicines.

Goals: Combating counterfeit medicines with the Minilab

Goal	Action	By?	Status in 2013 and 2014	Status
Fight counterfeit medicines by providing and enhancing the GPHF Minilab™	Develop new test methods for five active ingredients and expand manuals to describe the new testing methods	End of 2014	Develop five new testing methods and update the manuals	—
	Develop new test methods for five active ingredients and expand manuals to describe the new testing methods	End of 2015		+
	Conduct 4 training seminars on the use of the GPHF Minilab™; sell 50 Minilabs	End of 2014	Four training seminars on the use of the GPHF Minilab™ have been conducted, and 37 Minilabs have been sold.	—
	Conduct 3 training seminars on the use of the GPHF Minilab™; sell 25 Minilabs	End of 2015		+

Legend: — Achieved — In progress — Not achieved + New goal

Deutsche Philharmonie Merck

Merck KGaA, Darmstadt, Germany has a long tradition of cultural commitment. We consider classical music in particular to be the universal language that brings people together; as such, it is an important part of our culture that is represented by the Deutsche Philharmonie Merck, our musical ambassador. The concerts of this professional ensemble are highly popular, with more than 26,000 people attending them per year. They represent an integral part of the cultural life in the vicinity of our Global headquarters in Darmstadt, Germany. Special events for children and adolescents as well as partnerships with schools are intended to encourage young people to develop a taste for classical music. In both 2013 and 2014, around 50 children participated in our annual orchestra workshop, rehearsing and performing with the philharmonic members. Furthermore, the Deutsche Philharmonie Merck gave four "cushion concerts", thereby reaching around 800 children.

The Deutsche Philharmonie Merck regularly invites international ensembles to Darmstadt while itself also touring internationally. In July 2013, the philharmonic orchestra gave a concert at the International Jazz Festival in Istanbul. In 2014, the orchestra gave a charity concert in the United Arab Emirates (Dubai) to benefit patients with multiple sclerosis.

Community engagement at our sites across the globe

Health, environment and culture are key focal areas of our social engagement at both the global and local level. In accordance with our Values, all subsidiaries of the company assume responsibility for their local communities. They foster an open dialogue with their neighbors and other community representatives and therefore know where they can make the most valuable contributions. Sustainable engagement means that projects have a long-term scope, and that we generally oversee and support them over a period of multiple years.

Our subsidiaries were involved in 136 projects in 2014 (2013: 125). Take for example the Erbitux® China Patients Aid Program (ECPAP) launched in 2012. In this program, we work with the Beijing Red Cross Foundation to provide Erbitux® free-of-charge to low-income patients with colorectal cancer. Over 3,100 patients have participated in the program to date. Other examples include running a hospital on the island of Baba Bhit in Pakistan and a wellness center in Jharkhand. Our employees also support and institute numerous initiatives. For instance, in the School Water Project in China, our life science business employees taught elementary school pupils about environmental issues and clean water.

Merck KGaA, Darmstadt, Germany grants and promotes four literary prizes worldwide. Since 1964, we have been sponsoring the renowned Johann Heinrich Merck Award for Literary Critique and Essay of Merck KGaA, Darmstadt, Germany, which is presented by the German Academy for Language and Poetry at its annual autumn conference. The award, which comes with a € 20,000 prize, went to publicist Carolin Emcke in 2014. For 12 years, we have been sponsoring the Premio Letterario of Merck KGaA, Darmstadt, Germany. This award is worth € 10,000 and recognizes authors who build bridges between literature and science, thereby making them accessible to a wide audience. In 2014, the award went to Carlo Rovelli, an Italian physicist, and to Francisco Gonzales-Crussi, a Mexican physician and writer. In India, we collaborate with the Goethe-Institut Calcutta to present the Tagore Award of Merck India, a subsidiary of Merck KGaA, Darmstadt, Germany, which is worth 500,000 Indian rupees (around € 7,200); this literary prize is granted every two years to authors who have made a distinctive contribution to the cultural exchange between Germany and India. In April 2014, the award went to Professor Pramod Talgeri, Vice Chancellor of the India International Multiversity. In October 2014, the company and the Goethe Institut Tokyo presented the first-ever Kakehashi Literature Prize of Merck Ltd. Japan, a subsidiary of Merck KGaA, Darmstadt, Germany. Worth a total of € 20,000, this award is granted to contemporary works by German authors that are made accessible to a wider readership in Japan. The prize went to German author Arno Schmidt for his book "Seelandschaft mit Pocahontas" (Lake Scenery with Pocahontas) and to the book's Japanese translator, Jun Wada.

In Brazil, we sponsored projects to help integrate disadvantaged children and adolescents, enabling them to learn skills such as playing a musical instrument.

In the 2013-2014 period, we extensively revised our processes for and approach to strategic disaster relief. The Public Affairs & Corporate Responsibility Group function partners with representatives from our businesses and subsidiaries to steer our efforts to help disaster victims. In October 2014, Merck KGaA, Darmstadt, Germany donated € 250,000 to the Deutsche Rote Kreuz (DRK) to help combat ebola. At the end of 2014, we collaborated with UNESCO (the United Nations Educational, Scientific and Cultural Organization) to launch a joint initiative that is working to advance medical education and capacity in the fight against ebola. At universities in Sierra Leone, Liberia and Guinea, the first set of seminars were held for aspiring doctors and pharmacists, part of our Capacity Advancement program. In addition to this, the company also provided disaster aid for the victims of Typhoon Yolanda in the Philippines, the earthquake in Ludian, China, and the flooding in Pakistan.

More examples of our engagement at our sites across the globe can be found on our website.

Facts and figures

The report profile specifies the reporting framework, shows how data was collected, and describes how the content of the report was determined. We use indicators to facilitate comparison of our ecological, economic and social performance. The figures have been subjected to a limited assurance audit. We have compiled our goals into a single overview. The GRI Index documents our fulfillment of the requirements of the GRI guidelines on sustainability reporting. In the "Communication on Progress for the Global Compact", we describe the implementation of the Compact's ten principles. We have issued a statement of compliance with the German Sustainability Code.

Report profile

This is our seventh Corporate Responsibility (CR) Report. We have a long history of reporting on issues pertaining to our corporate responsibility - a tradition that began in 1993 with the publication of environmental reports. In 2003, we published our first full Corporate Responsibility Report detailing how we fulfill our obligation to society and have since done so every two years. Our goal is to create transparency and inform stakeholders about our activities and successes, as well as challenges that we face. At the same time, our CR Report also documents the progress we've made in implementing the principles of the United Nations Global Compact ("Communication on Progress") while also meeting the criteria of the Sustainability Code (DNK) established by the German Federal Government. We have issued a statement of compliance with the German Sustainability Code.

Reporting framework

This CR Report covers the 2013 and 2014 fiscal years and pertains to the entire Merck KGaA, Darmstadt, Germany with legal entities across 66 countries. This report also covers the activities of AZ Electronic Materials, a company that we acquired during this period. As needed, we specifically indicate when the information provided diverges from this reporting framework.

Data collection and consolidation systems

Since 2005, we have been using the Group-wide Location Information Online System (LION) to collect environmental data as well as occupational health and safety data, which is input locally at the individual sites and approved after being reviewed. In order to ensure that the data is highly reliable, the Merck KGaA, Darmstadt, Germany function Environment Health Safety Security Quality (EQ) furthermore checks the data's plausibility.

We compile environmentally relevant performance indicators from all our production sites, as well as from relevant warehouse and research sites. In assessing the relevance of these warehouse and research sites, we take into account the sites' environmental impact as well as the number of employees there. LION's scope of consolidation therefore covers all our sites that have a relevant impact on the environment.

The occupational health and safety indicators reflect the inclusion of the new AZ Electronic Materials production sites since they were incorporated into our data collection process in 2014, which now covers more than 95% of all employees.

To improve data quality, we help our sites optimize their data collection processes as well as the associated quality control procedures. The processes and the reported data are reviewed by EQ through measures such as internal EHS audits.

The data on employees and social engagement pertains to the entire Merck KGaA, Darmstadt, Germany. Employee master data is continually updated in an SAP-based database. Other employee data - such as info pertaining to core ILO standards - and data on social engagement are queried on an annual basis.

Some employee data is only disclosed for the sites in Darmstadt, Gernsheim and Grafing (all in Germany), which employed around 24% of the company's workforce in 2014. We indicate accordingly when referring only to this restricted set of data.

Determining report content

We use the results of our materiality analysis as well as input from stakeholders to inform our CR Reports, which are aligned to the internationally recognized guidelines of the Global Reporting Initiative (GRI) as well as its principle of completeness. This report was drafted in accordance with the requirements of the GRI G4 guidelines and meets the criteria for a "comprehensive" application level.

We have furthermore taken into account the requirements of the capital market for assessing companies' contributions to sustainability.

In 2014, we performed a materiality analysis to determine the CR issues of relevance to our company. As part of this process, we conducted an international online stakeholder survey in summer 2014, and hosted an internal

materiality workshop in Darmstadt in autumn 2014. We have derived the content of this CR report from the results of this materiality assessment. This report addresses all issues identified as material. Detailed information on the materiality analysis as well as the materiality matrix can be found under Materiality analysis on p. 27.

The Executive Board of the Merck KGaA, Darmstadt, Germany has reviewed and approved this report.

External audit

KPMG AG Wirtschaftsprüfungsgesellschaft has audited the annual financial statements and management report of the Merck KGaA, Darmstadt, Germany and issued an unqualified opinion. Furthermore, after undergoing a limited assurance audit, Merck KGaA, Darmstadt, Germany has obtained an independent audit certificate for non-financial key performance indicators.

Points of contact:

We are happy to receive your feedback and answer your questions.

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The next CR report is scheduled for publication in April 2017.

Indicators

The figures presented below pertain to the entire company, unless otherwise indicated.

You can find further information on our reporting framework and data collection systems in our report profile on p. 125.

The following indicators have undergone a limited assurance audit by KPMG AG Wirtschaftsprüfungsgesellschaft.

Indicators in this chapter:

Indicators: Economics

✔ Audited

Total revenues, sales, operating result (EBIT) and R&D costs, by division (€ million)

	Biopharmaceuticals	Consumer Health	Performance Materials	Life Science	Group*
2013**					
Total revenues	6,060.4	745.0	1,644.4	2,645.3	**11,095.1**
Sales	5,688.4	742.1	1,642.1	2,627.5	**10,700.1**
Operating result (EBIT)	793.1	162.1	653.3	262.0	**1,610.8**
R&D costs	1,178.1	21.8	145.4	159.8	**1,506.6**
2014					
Total revenues	5,975	768.8	2,060.5	2,696.5	**11,500.8**
Sales	5,783.3	766.1	2,059.6	2,682.5	**11,291.5**
Operating result (EBIT)	956.5	149.9	611.5	289.2	**1,762.0**
R&D costs	1,343.7	22.3	170.6	162.6	**1,703.7**

* As a non-operating segment, Corporate and Other is not shown here (see Annual Report 2014, Segment Reporting).

** The previous year's figures have been adjusted (see Annual Report 2014, Notes on Segment Reporting).

Indicators: Compliance

✔ Audited

Internal audits on corruption and Human Rights Charter

	2010	2011	2012	2013	2014
Number of audits relating to corruption	34	28	40	30	36
% of audits relating to corruption	not recorded	not recorded	not recorded	64	68
Number of audits relating to the workplace section of our Human Rights Charter	26	26	40	27	32

Compliance violations reported via the SpeakUp Line

	2010	2011	2012	2013	2014
Number of reported compliance incidents	21	29	20	22	26
Number of confirmed cases	3	5	5	9	11

Compliance training seminars

	2010	2011	2012	2013	2014**
Total number of persons trained in anti-corruption policies and procedures in the respective year*	**8,600**	**13,399**	**22,890**	**24,168**	**7,519*** **
% of employees trained on the topic of anti-corruption in the respective year	21	33	59	63	14
Number of employees Global Grade 10 or higher trained on the topic of anti-corruption in the respective year	not recorded	7,540	10,164	12,390	3,071
% of employees Global Grade 10 or higher trained on the topic of anti-corruption in the respective year	not recorded	53	60	69	17
% of employees Global Grade 9 or lower trained on the topic of anti-corruption in the respective year	not recorded	22	58	51	12

* Until 2010, anti-corruption training was part of Code of Conduct training seminars.

** In Q1 – Q3 2014, Group Compliance performed a thorough analysis and review of the Compliance Training Program. No courses were scheduled for these quarters.

*** Includes 2,023 independent contractors and supervised workers such as temps that have been trained on anti-corruption.

In order to address the special responsibility held by employees of a certain management level, as well as by employees with HR responsibility, these employees are increasingly receiving anti-corruption training. This includes all employees rated Global Grade (GG) 10 or higher.

To date, we have not differentiated between regions when recording compliance training; we are planning to provide this information in the next reporting period.

Our compliance and anti-corruption principles are communicated to all our business partners, who undergo the Business Partner Risk Management (BPRM) process.

Legal actions

	2010	2011	2012	2013	2014
Total number* of legal actions pending or completed (for anti-competitive behaviour, violations of anti-trust or violations of monopoly legislations)	**2**	**3**	**3**	**3**	**2**
pending	2	3	2	2	2
completed	0	0	1	1	0

* As published in the annual reports the herein listed total number of legal actions refers to the significant legal risks as per the company's definition. The significance of legal risks is based on potential negative effects on projected financial objectives as well as on the probability of occurrence.

For further information please see our annual reports:

- Annual Report 2012, page 88 and pages 168-169, no. 50
- Annual Report 2013, pages 132-134 and pages 226-227, no. 48
- Annual Report 2014, pages 130-131 and pages 213-215, no. 48

Indicators: Products

✔ Audited

Customer Privacy

	2010	2011	2012	2013	2014
Total number of substantiated complaints received from outside parties	not recorded	not recorded	not recorded	0	0
Total number of complaints from regulatory bodies	not recorded	not recorded	not recorded	0	1
Total number of identified leaks, thefts, or losses of customer data	not recorded	not recorded	not recorded	0	0

A corporate directive regulates data protection within the company. We have received no significant complaints by customers or outside parties.

Indicators: Employees

✔ Audited

Workforce structure

Number of total employees

As of Dec. 31	2010	2011	2012	2013	2014
Total number of employees	**40,562**	**40,676**	**38,847**	**38,154**	**39,639**
Men	23,171	23,347	22,505	22,253	23,273
Women	17,391	17,329	16,342	15,901	16,366

The slight increase in the number of employees in 2014 is largely attributable to the integration of AZ Electronic Materials.

Number of employees by hierarchical level

As of Dec. 31	2010*	2011*	2012	2013	2014**
Total employees	**40,562**	**40,676**	**38,847**	**38,154**	**39,639**
Senior Management (Global Grade above 17)	51	49	54	63	63
Low and middle management (Global Grade 14–17)	1,354	1,355	1,719	1,949	2,108
Other employees (Global Grade below 14)	39,157	39,272	37,074	36,142	37,468
% of women (total)	**43**	**43**	**42**	**42**	**41**
thereof in Senior Management (Global Grade above 17)	not recorded	not recorded	not recorded	10	10
thereof in low and middle management (Global Grade 14–17)	not recorded	not recorded	not recorded	498	562
thereof other employees (Global Grade below 14)	not recorded	not recorded	not recorded	15,393	15,794
% of men (total)	**57**	**57**	**58**	**58**	**59**
thereof in Senior Management (Global Grade above 17)	not recorded	not recorded	not recorded	53	53
thereof in low and middle management (Global Grade14–17)	not recorded	not recorded	not recorded	1,451	1,546
thereof other employees (Global Grade below 14)	not recorded	not recorded	not recorded	20,748	21,673
by age group Up to 29 years old (%)	**not recorded**	**17**	**15**	**15**	**15**
thereof in Senior Management (Global Grade above 17)	not recorded	not recorded	not recorded	0	0
thereof in Low and middle management (Global Grade 14–17)	not recorded	not recorded	not recorded	5	6
thereof in Other employees (Global Grade below 14)	not recorded	not recorded	not recorded	5,901	5,884
30 to 49 years old (%)	**not recorded**	**65**	**65**	**64**	**64**

* Figures do not entirely include the employees of the Millipore Corporation, which was acquired in July 2010. The Global Grading System was instituted there incrementally.

** Figures do not include the employees of AZ Electronic Materials, which was acquired in July 2014, as they had not yet been graded as of December 31, 2014.

Table continued

Number of employees by hierarchical level

As of Dec. 31	2010*	2011*	2012	2013	2014**
thereof in Senior Management (Global Grade above 17)	not recorded	not recorded	not recorded	27	24
thereof in Low and middle management (Global Grade 14–17)	not recorded	not recorded	not recorded	1,233	1,340
thereof in Other employees (Global Grade below 14)	not recorded	not recorded	not recorded	23,302	24,082
50 years or older (%)	**not recorded**	**18**	**19**	**20**	**21**
thereof in Senior Management (Global Grade above 17)	not recorded	not recorded	not recorded	36	39
thereof in Low and middle management (Global Grade 14–17)	not recorded	not recorded	not recorded	711	762
thereof in Other employees (Global Grade below 14)	not recorded	not recorded	not recorded	6,939	7,502

* Figures do not entirely include the employees of the Millipore Corporation, which was acquired in July 2010. The Global Grading System was instituted there incrementally.

** Figures do not include the employees of AZ Electronic Materials, which was acquired in July 2014, as they had not yet been graded as of December 31, 2014.

Average number of employees by functional area

Average number of employees	2010	2011	2012	2013	2014
Group	**36,347**	**40,570**	**39,939**	**38,282**	**38,930**
Thereof women	**not recorded**	**not recorded**	**not recorded**	**not recorded**	**16,110**
Production	8,327	9,317	9,486	9,985	10,176
Thereof women	not recorded	not recorded	not recorded	not recorded	3,202
Logistics	1,927	2,054	1,665	1,779	2,207
Thereof women	not recorded	not recorded	not recorded	not recorded	774
Marketing and Sales	11,541	12,322	12,353	12,214	12,113
Thereof women	not recorded	not recorded	not recorded	not recorded	4,814
Administration	4,378	4,696	4,416	5,106	6,342
Thereof women	not recorded	not recorded	not recorded	not recorded	3,557
Research and Development	4,116	4,632	4,558	4,433	4,738
Thereof women	not recorded	not recorded	not recorded	not recorded	2,534
Infrastructure and Other	6,058	7,549	7,461	4,765	3,354
Thereof women	not recorded	not recorded	not recorded	not recorded	1,230

Average Head Count (HC) is calculated based on the End HC of the last 5 quarters.

In 2013 and 2014, we assigned all positions to a standardized job profile, thereby substantially increasing transparency. In this way, positions previously not assigned to specific functional areas were classified according to function.

Number of employees by region

As of Dec. 31	2010	2011	2012	2013	2014
Total	**40,562**	**40,676**	**38,847**	**38,154**	**39,639**
Employees in Europe	*	21,830	20,777	20,013	20,537
thereof women	*	9,832	9,261	8,755	8,893
Employees in North America	*	4,964	4,848	4,911	5,092
thereof women	*	2,314	2,225	2,246	2,272
Employees in Emerging Markets**	*	12,229	11,642	11,688	12,176
thereof women	*	4,565	4,274	4,335	4,562
Employees in Rest of World	*	1,653	1,580	1,542	1,834
thereof women	*	618	582	565	639

* No retroactive calculation based on the new regional structure.

** Latin America and Asia excluding Japan.

Supervised workers such as temps are currently not logged in our employee data system. We are investigating possibilities to record information on supervised workers throughout the company.

Percentage of women

As of Dec. 31	2010	2011	2012	2013	2014
% of women in the entire workforce	43	43	42	42	41
% of management positions held by women (Global Grade 14 or above)*	22*	23*	24	25	26**
% of women in the Biopharmaceuticals and Consumer Health divisions	47	47	46	46	45
% of women in the Performance Materials and the Life Science divisions	33	38	37	37	36

* These figures do not entirely include the employees of the Millipore Corporation, which was acquired in July 2010. The Global Grading System was instituted there incrementally.

** This figure does not include the employees of AZ Electronic Materials, a company that was acquired in July 2014. As of December 31, 2014, the Global Grading System had not yet been implemented there.

Full-time and part-time employees

As of Dec. 31	2010	2011	2012	2013	2014
% of full-time employees	94	94	94	95	95
% of part-time employees	6	6	6	5	5

In 2014, women accounted for 39% of employees working full-time (2013: 39%), with women representing 90% of employees working part-time (2013: 92%). In 2014, 10% of our part-time employees were men (8% in 2013).

Temporary and permanent contracts

As of Dec. 31	2010	2011	2012	2013	2014
Total employees	**40,562**	**40,676**	**38,847**	**38,154**	**39,639**
Number of employees with permanent contracts	not recorded	39,261	37,732	36,908	38,410
% of employees with permanent contracts	not recorded	not recorded	not recorded	97	97
by contract type:					
full-time	not recorded	not recorded	not recorded	34,911	37,573
% full-time	not recorded	not recorded	not recorded	95	98
thereof women	not recorded	not recorded	not recorded	13,524	14,497
thereof women (%)	not recorded	not recorded	not recorded	39	39
part-time	not recorded	not recorded	not recorded	1,994	2,066
% part-time	not recorded	not recorded	not recorded	6	5
thereof women	not recorded	not recorded	not recorded	1,839	1,869
thereof women (%)	not recorded	not recorded	not recorded	92	90
Number of employees with temporary contracts	not recorded	1,415	1,115	1,246	1,219
% of employees with temporary contracts	not recorded	not recorded	not recorded	3	3

New Employees

	2010	2011	2012	2013	2014
Total number of new employee hires	**not recorded**	**not recorded**	**not recorded**	**5,007**	**6,212**
by age group					
Up to 29 years old	not recorded	not recorded	not recorded	2,358	2,305
30 to 49 years old	not recorded	not recorded	not recorded	2,397	3,361
50 or older	not recorded	not recorded	not recorded	252	546
by gender					
Women	not recorded	not recorded	not recorded	2,051	2,513
Men	not recorded	not recorded	not recorded	2,945	3,689
by region					
Europe	not recorded	not recorded	not recorded	1,757	2,312
North America	not recorded	not recorded	not recorded	526	826
Emerging Markets	not recorded	not recorded	not recorded	2,608	2,578
Rest of World	not recorded	not recorded	not recorded	116	496
Rate of new employee hires* (%)	**not recorded**	**not recorded**	**not recorded**	**13**	**16**
by age group					
Up to 29 years old	not recorded	not recorded	not recorded	40	37
30 to 49 years old	not recorded	not recorded	not recorded	10	54
50 or older	not recorded	not recorded	not recorded	3	9
by gender					
Women	not recorded	not recorded	not recorded	13	40
Men	not recorded	not recorded	not recorded	13	59
by region					
Europe	not recorded	not recorded	not recorded	9	37
North America	not recorded	not recorded	not recorded	11	13
Emerging Markets	not recorded	not recorded	not recorded	21	42
Rest of World	not recorded	not recorded	not recorded	20	8

* Formula for the rate of new employee hires: Total number of new employees / End HC.

Staff turnover

	2010	2011*	2012*	2013	2014
Total turnover rate	**not recorded**	**13.37**	**13.71**	**14.61**	**11.01**
Turnover rate by gender					
Men	not recorded	10.98	13.17	13.98	10.75
Women	not recorded	12.07	14.45	15.00	11.38
Turnover rate by age group					
Up to 29 years old	not recorded	22.4	23.77	21.55	18.71
30 to 49 years old	not recorded	11.58	12.48	13.44	9.72
50 or older	not recorded	11.4	9.91	13.01	9.49
Turnover rate by region					
Europe	not recorded	8.57	9.52	14.61	7.05
North America	not recorded	14.48	12.75	10.51	12.45
Emerging Markets	not recorded	21	21.46	21.15	17.02
Rest of World	not recorded	17	14.68	14.14	11.50
Total number of Leavers	**not recorded**	**not recorded**	**not recorded**	**5,573**	**4,364**
by gender					
Men	not recorded	not recorded	not recorded	3,110	2,502
Women	not recorded	not recorded	not recorded	2,385	1,862
by age group					
Up to 29 years old	not recorded	not recorded	not recorded	1,273	1,102
30 to 49 years old	not recorded	not recorded	not recorded	3,300	2,474
50 or older	not recorded	not recorded	not recorded	1,000	788
by region					
Europe	not recorded	not recorded	not recorded	2,367	1,447
North America	not recorded	not recorded	not recorded	516	634
Emerging Markets	not recorded	not recorded	not recorded	2,472	2,072
Rest of World	not recorded	not recorded	not recorded	218	211

* The figures for 2011 and 2012 have been recalculated based on the reporting date and therefore now differ from the figures reported in prior years.

The table contains unadjusted turnover rates, calculated as follows: number of separations*100/number of employees as of Dec. 31.

The unadjusted turnover rate excludes employees who leave due to parental leave or a long-term illness, as well as employees who are transitioning to the non-working phase of partial retirement.

Staff turnover (2)

	2010	2011	2012	2013	2014
Turnover rate of employees who were hired during the 18 months preceding Dec. 31 of the respective year	**not recorded**	**12.23**	**14.07**	**12.77**	**12.67**
Turnover rate by gender					
Men	not recorded	13.49	15.20	13.74	13.16
Women	not recorded	10.42	12.34	11.34	11.97
Turnover rate by age group					
Up to 29 years old	not recorded	16.25	16.20	15.55	15.76
30 to 49 years old	not recorded	9.18	12.73	10.76	11.20
50 or older	not recorded	8.51	9.69	10.64	9.32
Turnover rate by region					
Europe	not recorded	7.16	8.16	8.71	10.07
North America	not recorded	7.30	7.91	6.42	7.22
Emerging Markets	not recorded	17.11	19.06	16.10	16.83
Rest of World	not recorded	5.67	11.90	15.77	9.72

We record the new employee turnover rate over the course of 18 months because 12 months is too short a time to become truly familiar with a new position, especially when it comes to management positions.

The turnover rate is calculated as follows: (Number of new hires within the preceding 18 months who left the company within this period)/(average number of employees in the preceding 18 months)*100.

The figures exclude employees who leave due to parental leave or a long-term illness, as well as employees who are transitioning to the non-working phase of partial retirement.

Core labor standards of the International Labour Organization (ILO)

As of Dec. 31	2010	2011	2012	2013	2014
% of full-time employees (standard contract, excluding exempts) with contractually stipulated working hours of maximally 48 hours/week[1]	99	99	99	99	99
% of full-time employees (standard contract) with at least 15 vacation days/year[2]	94	96	95	98	95
% of female employees with access to maternity leave programs[3]	100	100	100	100	100
% of employees with the right to collective bargaining[4]	96	96	97	97	97
% of employees working at companies where collective agreements apply	not recorded*	not recorded*	not recorded*	68	66

[1] ILO: Hours of Work (Commerce and Offices) Convention, 1930 (No. 30).

[2] ILO: Holidays with Pay Convention (Revised), 1970 (No. 132).

[3] ILO: Maternity Protection Convention (Revised), 1952 (No. 103).

[4] ILO: Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87).

* In the years 2010, 2011 and 2012 we recorded the percentage of employees who have a right to collective bargaining.

Table continued

Core labor standards of the International Labour Organization (ILO)

As of Dec. 31	2010	2011	2012	2013	2014
% of sites that rule out complicity in child labor as described in ILO Convention 138	100	100	100	100	100
Age of youngest employees, excluding apprentices	17	18	18	16	17

[1] ILO: Hours of Work (Commerce and Offices) Convention, 1930 (No. 30).
[2] ILO: Holidays with Pay Convention (Revised), 1970 (No. 132).
[3] ILO: Maternity Protection Convention (Revised), 1952 (No. 103).
[4] ILO: Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87).
* In the years 2010, 2011 and 2012 we recorded the percentage of employees who have a right to collective bargaining.

Local minimum wage

	2010	2011	2012	2013	2014
% of sites that guarantee a salary above the local minimum wage*	100	99	100	100	100

* Minimum wage as stipulated by law, or derived from other provisions such as collective agreements.

The Global Rewards Policy applies to all our subsidiaries worldwide and guarantees a systematic compensation structure. Base pay is oriented to the median base pay, and short-term variable compensation is based on the third quartile of the relevant reference market. The overall compensation package thus exceeds the market median.

Occupational health and safety

Work-related accidents

	2010	2011	2012	2013**	2014
Lost Time Injury Rate (LTIR)	**3.0**	**2.1**	**2.3**	**2.2**	**1.8**
by region					
Europe	4.5	3.1	3.9	3.7	2.9
North America	1.3*	1.5	1.1*	0.9	1.0
Emerging Markets	1.9	0.9	0.7	0.8	0.7
Rest of World	0.4	2.1	1.0	1.0	0.9
Number of deaths	**1**	**0**	**0**	**0**	**2**
by region					
Europe	0	0	0	0	0
North America	0	0	0	0	0
Emerging Markets	1	0	0	0	2
Rest of World	0	0	0	0	0
by gender					

* Figures retroactively adjusted.
** from 2013 onwards: incl. supervised workers

Table continued

Work-related accidents

	2010	2011	2012	2013**	2014
Women	1	0	0	0	1
Men	0	0	0	0	1

* Figures retroactively adjusted.

** from 2013 onwards: incl. supervised workers

Our employees have been included in the calculation of the indicators as well as supervised employees of external companies. Independent contractors have not been taken into account.

Using the LTIR, we record work-related accidents of our employees that involve at least one day of missed work. A work-related accident is an injury that results from the type of work, in the course of doing said work, and that has no internal cause (cumulative trauma). Work-related accidents are considered relevant if they occur on the premises, on business trips, during a transport accident, in the course of external influences (e.g. natural disasters), or due to criminal acts involving personal injury. Commuting accidents and accidents during company sporting activities are not included. First-aid incidents are generally not included in the LTIR since these usually do not result in more than one day of missed work.

We have set ourselves the goal of reducing the LTIR to 2.5 by 2015. In 2014, by means of targeted accident prevention measures we again outperformed this goal as we did in the previous three years, achieving an LTIR of 1.8.

For our German sites Darmstadt, Grafing, and Gernsheim (24% of the employees of the company) we report work-related illnesses if these have been diagnosed and verified by a physician. In the reporting period, one case of work-induced illness was recorded. We do not keep track of the number of work-related illnesses throughout the entire company.

We have defined the LTIR as the key indicator for the company. Therefore, we do not publish any other indicators such as workplace accidents, lost days or days of absence. The LTIR is not broken down by gender as this differentiation is not relevant to our strategic planning.

Continuing education and training

Spending on advanced training for employees (€)

	2010	2011	2012	2013	2014
Average continuing education spending per employee	1,152	982	699	679	718

We record and report the costs of vocational training and continuing education for our employees. We are not currently tracking the average number of continuing education hours consolidated at Group level, but we are working on a technical solution to track all training hours globally.

Employees who regularly receive a performance and development evaluation

As of Dec. 31	2010	2011	2012	2013**	2014***
% of employees who receive a performance and development evaluation	**88**	**98**	**98**	**72**	**79**
by gender					
Women	not recorded	not recorded	not recorded	75	84
Men	not recorded	not recorded	not recorded	71	77
by employee category					
Senior Management (Global Grade above 17)	not recorded	not recorded	not recorded	100	97*
Low and middle management (Global Grade 14–17)	not recorded	not recorded	not recorded	100	96*
Other employees (Global Grade below 14)	not recorded	not recorded	not recorded	72	78*

* The fluctuations in participant numbers by employee category can be explained by the acquisition of AZ Electronic Materials, among other factors. By the 2014 reporting date, the majority of AZ employees had been classified according to our grading system. However, because they were not integrated until the end of 2014, they had not yet taken part in our Performance Management Process.

** The 2013 data in the above table is based on a reporting date of March 12, 2014.

*** The 2014 data in the above table is based on a reporting date of March 2, 2015.

Regular feedback and employee performance evaluations are essential to a systematic development process. Our globally uniform Performance and Talent Management Process requires annual feedback meetings and performance assessments for all employees rated Global Grade 10 and up in our position grading system. Apart from evaluating employee performance, this helps us to identify individual development opportunities.

When it comes to applying this process, our individual subsidiaries can decide for themselves whether to include employees rated below Global Grade 10. In Germany, all permanent employees have been participating in the Performance and Talent Management Process since 2013. In 2014, around 31,395 employees worldwide (including non-exempt employees in Germany) were involved in the process (2013: approx. 27,600 employees). The Performance and Talent Management Process is coordinated via the HR Suite IT system.

As of 2013, we changed the table to reflect only the performance evaluations that are documented in the HR Suite IT system. For these evaluations, we can provide details on the Global Grade as well as gender of the participating employees.

For all other employees not participating electronically in this globally uniform process, other methods of performance assessment are available. In 2014, 97% of our employees took part in a performance and development evaluation, the same percentage as in 2013.

Apprentices*

As of Dec. 31	2010	2011	2012	2013	2014
Number of apprentices	513	523	528	516	498
% of apprentices	5.9	5.6	5.7	5.6	5.4

* Only pertains to the Darmstadt, Gernsheim and Grafing sites in Germany (which accounted for around 24% of our employees in 2014).

Diversity and inclusion

Internationality of employees

	2010*	2011*	2012	2013	2014**
Number of nationalities	128	125	121	114	122
Number of nationalities in management positions (Global Grade 14 or above)	55	54	57	64	67
% of non-Germans in management positions (Global Grade 14 or above)	57	56	61	60	60

* These figures do not entirely include the employees of the Millipore Corporation, which was acquired in July 2010. The Global Grading System was instituted there incrementally.

** These figures do not include the employees of AZ Electronic Materials, a company that was acquired in July 2014. As of December 31, 2014, the Global Grading System had not yet been implemented there.

Employee age by region

Number of employees	Worldwide	North America	Europe (including Germany)	Germany	Emerging Markets	Rest of World
2013						
Up to 29 years old	5,906	462	2,362	1,494	2,883	199
thereof women	2,411	204	1,071	587	1,059	77
30 to 49 years old	24,562	2,867	12,774	6,221	7,882	1,039
thereof women	10,666	1,359	5,851	2,447	3,044	412
50 or older	7,686	1,582	4,877	3,153	923	304
thereof women	2,824	683	1,833	1,074	232	76
Average age	**40.4**	**44.1**	**41.9**	**42.6**	**36.0**	**40.5**
Total employees	**38,154**	**4,911**	**20,013**	**10,868**	**11,688**	**1,542**
2014						
Up to 29 years old	5,890	512	2,427	1,513	2,711	240
thereof women	2,458	221	1,105	579	1,049	83
30 to 49 years old	25,446	2,804	12,979	6,359	8,426	1,237
thereof women	10,854	1,302	5,862	2,486	3,231	459
50 or older	8,303	1,776	5,131	3,319	1,039	357
thereof women	3,054	749	1,926	1,133	282	97
Average age	**40.57**	**44.5**	**42.02**	**42.69**	**36.52**	**40.36**
Total employees	**39,639**	**5,092**	**20,537**	**11,191**	**12,176**	**1,834**

Employees with disabilities* (%)

As of Dec. 31	2010	2011	2012	2013	2014
Employees with disabilities*	4.1	4.2	4.9	5.0	4.7

* Only pertains to the Darmstadt, Gernsheim and Grafing sites in Germany (which accounted for around 24% of our employees in 2014, calculations based on the German Social Code IX - SGB IX).

Insurance and retirement benefits for employees

Insurance and pension systems for employees

	2010	2011	2012	2013	2014
% of employees who are obliged to contribute to a statutory pension system	95	98	99	99	100
% of employees with company accident insurance	100	100	100	100	100
% of employees with statutory health insurance	88	88	87	85	87
% of employees with employer-funded health insurance	88	88	93	95	96

We offer a company pension in numerous countries along with various programs for supplemental company pensions and survivor's benefits. Around two-thirds of our employees are enrolled in such a program.

Long-term pension obligations and post-employment benefits

€ million	2010	2011	2012	2013	2014
Present value of all pension obligations as of Dec. 31	2,356	2,490	2,830	2,737	3,813
Pension expenses	132	168	159	147	157

Depending on the legal, economic and fiscal circumstances prevailing in each country, different retirement benefit systems are provided for the employees of the Merck KGaA, Darmstadt, Germany. Generally these systems are based on the years of service and salaries of the employees. Pension obligations of the company include both defined benefit and defined contribution plans and comprise both obligations from current pensions and accrued benefits for pensions payable in the future. Defined benefit plans are funded and unfunded. Provisions also contain other post-employment benefits, such as accrued future health care costs for retirees in the United States (see our Annual Report 2014, Note on Provisions for pensions and other post-employment benefits).

Reconciling the demands of a career and family

Flexible working hours

	2010	2011	2012	2013	2014
% of employees with the option of working flexible hours	57	58	69	75	74

Parental leave in Germany*

As of Dec. 31	2010	2011	2012	2013	2014
Number of employees with a right to parental leave	not recorded	237	299	254	331
thereof women (recorded via maternity leave in the respective year)	not recorded	82	139	120	165
thereof men (recorded via special paternity leave in the respective year)	not recorded	155	160	134	166
Number of employees who took parental leave**	368	401	434	433	507
thereof women	not recorded	283	303	292	349
thereof men	not recorded	118	131	141	158
Number of employees on parental leave who worked part time during their leave	not recorded	123	137	81	99
thereof women	not recorded	117	135	77	94
thereof men	not recorded	6	2	4	5
Number of employees who returned from parental leave	not recorded	144	162	151	187
thereof women	not recorded	58	62	60	83
thereof men	not recorded	86	100	91	104
Return to work rate (%)	not recorded	not recorded	not recorded	34.87	36.88
thereof women	not recorded	not recorded	not recorded	20.55	23.78
thereof men	not recorded	not recorded	not recorded	64.54	65.82
Number of employees still working for the company one year after their return from parental leave	not recorded	140	130	152	***
thereof women	not recorded	55	34	57	***
thereof men	not recorded	85	96	95	***
Retention rate (%)	not recorded	not recorded	not recorded	93.83	***
thereof women	not recorded	not recorded	not recorded	91.94	***
thereof men	not recorded	not recorded	not recorded	95.00	***

* Figures only pertain to the Darmstadt, Gernsheim and Grafing sites in Germany (which accounted for around 24% of our employees in 2014). Figures are calculated on the basis of the data from one entire year, which also includes those employees who took parental leave during the calendar year, but who had not returned by Dec. 31.

** Since parental leave can be taken for a period ranging from one month to three years, it is possible for employees to be recorded across a period of up to four calendar years. This explains why the number of employees on parental leave exceeds the number of employees who have a right to it.

*** Figure will be available on Dec. 31, 2015.

Indicators: Environment

✔ Audited

Environmental management

Spending on environmental protection, safety and health (€ million)

	2010	2011	2012	2013	2014
Spending	140	141	146	142	146

These figures include both investments in as well as internal and external spending on waste and wastewater management, water, occupational safety, fire protection, noise reduction, air pollution prevention, decontamination, preservation of nature and the landscape, climate protection, and energy efficiency.

Greenhouse gas emissions

Total greenhouse gas emissions (metric kilotons) (Scope 1 and 2 of the GHG Protocol)*

	2006**	2010	2011	2012	2013	2014
Total CO_2eq emissions	**575**	**577**	**541**	**551**	**567**	**524**
Thereof						
direct CO_2eq emissions	318	352	318	321	350	323
indirect CO_2eq emissions	257	225	223	230	217	201
Biogenic CO_2 emissions	**6**	**6**	**5**	**5**	**6**	**11**

* In line with the Greenhouse Gas Protocol, for all previous years (up to the 2006 baseline) the greenhouse gas emissions have been calculated based on the current corporate structure of the reporting year and retroactively adjusted for acquisitions (e.g. AZ Group in 2014) or divestments of (parts of) companies, or for changes in emission factors (portfolio-adjusted).

** Baseline for our emission targets is 2006.

eq = equivalent

Our response to the Carbon Disclosure Project contains a detailed description of our calculation methods. We have included the following gases into our calculation of direct and indirect CO_2eq emissions:

- Direct CO_2 emissions: CO_2, HFCs, PFCs; CH_4/N_2O negligible; SF_6/NF_3 not available.
- Indirect CO_2 emissions: CO_2.

In 2014, we emitted 0.046 kg of CO_2eq per euro of sales. This calculation includes data from the AZ Group and assumes that first-time consolidation had already taken place as of January 1, 2014 (further information can be found in the Annual Report 2014).

Other relevant indirect greenhouse gas emissions (Scope 3 of the GHG Protocol)

	2010	2011	2012	2013	2014
Total gross other indirect emissions (metric tons CO_2-eq*)	**28,958**	**47,324**	**48,588**	**64,616**	**320,219**
Fuel- and energy-related activities, not included in Scope 1 or 2 (category 3)	not recorded	not recorded	not recorded	not recorded	98,340
Waste generated in operations (category 5)	not recorded	not recorded	not recorded	not recorded	95,430
Business travel - air travel (category 6)	28,798	47,203	47,618	63,279	73,791
Business travel - rail travel (category 6)	160	121	122	45	21
Business travel - rental car travel (category 6)	not recorded	not recorded	848	1,292	1,223
Employee commuting (category 7)	not recorded	not recorded	not recorded	not recorded	51,414
Upstream leased assets (category 8)	not recorded	not recorded	not recorded	not recorded	0**
Processing of sold products (category 10)	not recorded	not recorded	not recorded	not recorded	0***
Downstream leased assets (category 13)	not recorded	not recorded	not recorded	not recorded	0
Franchises (category 14)	not recorded	not recorded	not recorded	not recorded	0

* eq = equivalent

** already covered under Scope 1/2 emissions

*** We produce a huge variety of intermediate products for various purposes. Due to their many applications and our customer structure, the associated GHG emissions cannot be tracked in a reasonable fashion.

In 2014, we reported data on multiple Scope 3 categories for the first time. As a result, the total 2014 emissions cannot be compared to previous years. No data is available for Scope 3 categories not listed above. Their relevance to the company is assessed in the Scope 3 document.

Biogenic emissions (Scope 3), if present, are not being recorded.

Other air emissions

Emissions of ozone-depleting substances (metric tons)

	2010	2011	2012	2013	2014
Total emissions of ozone-depleting substances	0.7	1.0	1.9	1.5	0.9
CFC-11eq*	0.04	0.06	0.10	0.08	0.05

* CFC-11eq is a unit of measure used to compare the potential of various substances to deplete the ozone. Reference figure 1 indicates the potential of CFC-11 to cause the depletion of the ozone layer.

Substances included: R-12, R-22, R-141b, R-402a, R-409a, R-401a.

Source for the emission factors: Montreal Protocol.

Other air emissions (metric kilotons)

	2010	2011	2012	2013	2014
Volatile organic compounds (VOC)	0.2	0.2	0.2	0.2	0.3
Nitrogen oxide	0.2	0.1	0.2	0.2	0.2
Sulfur dioxide	0.03	0.02	0.02	0.02	0.02
Dust	0.02	0.03	0.03	0.01	0.02

The VOC, nitrogen oxide, sulfur dioxide and dust emissions reported here are production-related. These figures do not include emissions from vehicles. Emissions are determined partially based on measurements and partially based on calculations or estimates. Only some sites are required to measure individual parameters.

Transport

Transport of finished goods, by means of transportation*

	2010	2011	2012	2013	2014
% Truck	58	58	58	56	56
% Boat	36	36	36	37	38
% Airplane	6	6	6	7	6

* Pertains to goods shipped by the German sites Darmstadt, Gernsheim and Hohenbrunn. These figures pertain to the total weight of the transported products. Indicated here is the primary means of transport.

In shipping finished goods from production sites to local warehouses of the subsidiaries, we are working to reduce the use of air shipping in favor of sea shipping. In doing so, we cut costs and reduce the CO_2 emissions incurred by transporting goods. In 2014, this allowed us to save 800 metric tons of CO_2.

Resource consumption

Energy consumption*

in GWh	2010	2011	2012	2013	2014
Total energy consumption	**1,505**	**1,497**	**1,556**	**1,566**	**1,622**
Direct energy consumption	**919**	**920**	**940**	**1,001**	**1,071**
Natural gas	799	802	827	884	937
Liquid fossil fuels**	105	105	100	102	107
Biomass and self-generated renewable energy	15	13	13	15	27
Indirect energy consumption	**586**	**577**	**616**	**565**	**551**
Electricity	518	519	502	500	466

* In line with the Greenhouse Gas Protocol, for all previous years (up to the 2006 baseline) the energy consumption has been calculated based on the current corporate structure of the reporting year and retroactively adjusted for acquisitions or divestments of (parts of) companies, or for changes in emission factors (portfolio-adjusted).

** Light and heavy fuel oil, liquified petroleum gas (LPG), diesel and gasoline.

Table continued

Energy consumption*

in GWh	2010	2011	2012	2013	2014
Steam, Heat, Cold	68	58	114	65	85
Total energy sold	**0.5**	**0.4**	**0.5**	**0.4**	**0.3**
Electricity	0.5	0.4	0.5	0.4	0.3
Steam, Heat, Cold	0	0	0	0	0

in TJ	2010	2011	2012	2013	2014
Total energy consumption	**5,418**	**5,389**	**5,602**	**5,638**	**5,839**
Direct energy consumption	**3,308**	**3,312**	**3,384**	**3,604**	**3,856**
Natural gas	2,876	2,887	2,977	3,182	3,373
Liquid fossil fuels**	378	378	360	367	385
Biomass and self-generated renewable energy	54	47	47	54	97
Indirect energy consumption	**2,110**	**2,077**	**2,218**	**2,034**	**1,984**
Electricity	1,865	1,868	1,807	1,800	1,678
Steam, Heat, Cold	245	209	410	234	306
Total energy sold	**2**	**1**	**2**	**1**	**1.1**
Electricity	2	1	2	1	1.1
Steam, Heat, Cold	0	0	0	0	0

* In line with the Greenhouse Gas Protocol, for all previous years (up to the 2006 baseline) the energy consumption has been calculated based on the current corporate structure of the reporting year and retroactively adjusted for acquisitions or divestments of (parts of) companies, or for changes in emission factors (portfolio-adjusted).

** Light and heavy fuel oil, liquified petroleum gas (LPG), diesel and gasoline.

At our sites in Billerica, Massachusetts (USA), Bedford, Massachusetts (USA), Molsheim (France), Tel Aviv (Israel), Rome (Italy) and Ciudad de Guatemala (Guatemala), we use photovoltaics to produce power.

We currently only record purchased secondary energy – this is primarily electricity and, to a lesser extent, heat/steam/cold. Details on the local energy mix, including the respective percentage of primary energy, renewable energy, etc. are currently not available. Data on local energy efficiency in electricity or heat generation are currently not available either. Our production sites are located in countries with a widely varying energy mix. Our Darmstadt and Gernsheim sites in Germany have a high energy consumption, representing 40% of our Group-wide total. At these sites, fossil energy (coal, gas, etc.) accounts for approx. 57%, nuclear energy approx. 17% and renewable energies approx. 26% of the energy mix. Renewable energies account for a higher share in electricity generation at production sites in Switzerland, with nuclear energy taking the lead in France and Japan. Based on an estimated global energy efficiency of 37% for the conversion and distribution of generated electricity, this results in a primary energy consumption of 1,260 GWh for 2014. Based on an estimated global energy efficiency of 85% for heat/steam/cold, this results in a primary energy consumption of 100 GWh for 2014. This gives a total primary energy consumption of 1,360 GWh for 2014. (The calculation is based on factors stated in the "Handbuch für betriebliches Energiemanagement - Systematisch Energiekosten senken" ("Manual for energy management in practice - Systematically reducing energy costs") published by DENA, 12/2012.

In 2014, our energy intensity relative to sales totaled 0.141 kWh/€. This calculation includes data from the AZ Group and assumes that first-time consolidation had already taken place as of January 1, 2014 (further information can be found in the Annual Report 2014).

Water consumption (millions of m^3)

	2010	2011	2012	2013	2014
Total water consumption	**18.0**	**17.6**	**16.3**	**9.6***	**11.1**
Surface water (rivers, lakes)	8.7	8.3	7.0	0.0	0.3
Groundwater	5.5	5.7	5.3	5.4*	6.3
Drinking water (from local suppliers)	3.8	3.6	4.0	4.2	4.5
Rain water and other sources	0.02	0.02	0.01	0.01	0.03

* Figures retroactively adjusted.
2013: Gernsheim

The sharp decrease in total water use in 2013 is attributable to the closure of the Biopharmaceuticals site in Geneva, Switzerland. The site utilized surface water from Lake Geneva for cooling and heating purposes and used lake water to cover a large portion of the site's energy requirements.

Our water usage increased in 2014 because this was the first time that the manufacturing sites of the AZ Group - acquired in 2014 - were incorporated into our reporting. These figures do not include the ground water that we utilize in relation to safety measures at the Gernsheim site in Germany. Here, the water is fed back directly into natural circulation.

Water reused

	2010	2011	2012	2013	2014
Water reused (millions of m^3)	not recorded	not recorded	17.8	16.6	16.0

Wastewater

Wastewater volume and quality

	2010	2011	2012	2013	2014
Total wastewater volume (millions of m^3)	**8.8**	**11.1**	**8.5**	**8.6**	**10.1**
Chemical oxygen demand (metric tons of O_2)	967	911	929	756	968
Phosphorous (metric tons)	9	8	7	7	11
Nitrogen (metric tons)	61	73	76	77	81
Zinc (kg)	283	248	267	293	288
Chromium (kg)	20	21	21	23	78
Copper (kg)	40	34	37	36	34
Nickel (kg)	39	101	101	110	128
Lead (kg)	38	40	35	42	55
Cadmium (kg)	10	10	10	10	10
Mercury (kg)	1	1	1	1	1
Arsenic (kg)	7	6	3	4	4

The wastewater volume includes indirect discharge into both public and our own wastewater treatment plants, as well as direct discharge (such as rainwater and cooling water). Our water usage increased in 2014 because this was the first time that the manufacturing sites of the AZ Group - acquired in 2014 - were incorporated into our reporting.

Wastewater from the neighboring municipality of Biebesheim is also treated at the wastewater treatment plant at the Gernsheim site in Germany. The communal wastewater from Biebesheim is included in the wastewater volume as well as in the emissions stated in the table.

Emissions are determined partially based on measurements and partially based on calculations or estimates. Only some sites are required to measure individual parameters.

Waste

Hazardous and non-hazardous waste (metric kilotons)

	2010	2011	2012	2013	2014
Total waste	**194**	**200**	**189**	**161***	**229**
Hazardous waste disposed**	47	43	62	37	53
Non-hazardous waste disposed**	27	36	36	31*	55
Hazardous waste recycled	32	45	48	50*	50
Non-hazardous waste recycled	88	76	43	43	71

* Figures retroactively adjusted.

** Disposed = incineration and landfill.

We reduced our hazardous waste disposed to landfills from approx. 300 metric tons in 2013 to 176 metric tons in 2014.

Exported/Imported hazardous waste (metric kilotons)

	2010	2011	2012	2013	2014
Exported*	not recorded	not recorded	not recorded	7.1	10
Imported**	not recorded	not recorded	not recorded	0.01	0.003

* Disposal within the EU.

** Within the scope of the return system for our cell tests, these tests are brought to our Gernsheim site in Germany for their proper disposal.

Waste by disposal method

	2010	2011	2012	2013	2014
Total waste (metric kilotons)	**194**	**200**	**189**	**161***	**229**
Disposed waste (metric kilotons)	**74**	**79**	**98**	**67**	**108**
Landfilled waste (metric kilotons)	13	14	19	13	37
Incinerated waste (metric kilotons)	61	65	79	54	71

* Figures retroactively adjusted.

Table continued

Waste by disposal method

	2010	2011	2012	2013	2014
Recycled waste (metric kilotons)	**120**	**121**	**91**	**94***	**121**
Material recycling (metric kilotons)	100	97	67	69*	94
Waste-to-energy (metric kilotons)	20	24	24	25	27
Recycling rate (%)	**62**	**61**	**48**	**58**	**53**

* Figures retroactively adjusted.

Our waste output rose to 229,000 metric tons in 2014 (2013: 161,000 metric tons). Waste from construction and renovation projects accounted for the majority of the waste (2013: 24%; 2014: 47%), stemming in particular from the remodeling of our Global headquarters in Darmstadt.

Significant Spills

	2010	2011	2012	2013	2014
Total number of significant spills	not recorded	not recorded	0	0	0

Indicators: Society

✔ Audited

Spending on social engagement (€ million)

	2010	2011	2012	2013	2014
Total spending	6.9	7.9	11.8	46.2	50.8

We calculate the value of pharmaceutical product donations according to the WHO Guidelines for Medicine Donations; for other product donations, we apply their fair value.

The increase in our spending on social engagement is attributable to the expansion of the company's Praziquantel Donation Program (MPDP) and the expansion of the Erbitux® China Patients Aid Program. In the Praziquantel Donation Program, we are partnering with the World Health Organization to combat the worm disease schistosomiasis in African school children. In the Erbitux® China Patients Aid Program we work with the Beijing Red Cross Foundation to provide Erbitux® free-of-charge to low-income patients with colorectal cancer.

Spending on local social engagement, by region (%)*

	2010	2011	2012	2013	2014
Europe	29	39	20	36	37
North America	17	23	13	< 1	< 2
Emerging Markets	49	37	66	63	61
Rest of World	5	1	1	< 1	< 1

* Excluding lighthouse projects.

As a result of the sharp increase in spending on social engagement in Europe and Emerging Markets, the relative share of spending in North America declined from 2013 onwards.

Focus of local social engagement (%)*

	2010	2011	2012	2013	2014
Disaster relief	3	10	3	6	4
Education	21	22	16	23	23
Environment	–	5	9	10	10
Health	–	28	30	23	33
Support for culture and sports activities near our sites	14	18	28	19	15
Other**	62	17	14	19	15

* Excluding lighthouse projects, based on number of projects.

** 2010 includes discontinued focus areas.

Motivations for our social engagement (%)*

	2010	2011	2012	2013	2014
Charitable activities	56	52	32	20	9
Community investment	20	24	52	59	59
Commercial initiatives in the community	24	24	16	21	32

* Excluding lighthouse projects, based on total spending.

We assign the motivations for our engagement to categories based on the model of the London Benchmarking Group and the guidelines of the Bertelsmann Foundation for corporate social engagement. Projects that primarily aim to make improvements within the community are classified as "Community investment". Projects that are predominantly aimed at company-relevant factors such as image or personnel recruitment are classified as "Commercial initiatives in the community". "Charitable activities" comprehends any other projects that benefit a charitable organization, but cannot be assigned to either of the other two motivation categories due to missing data or their narrow scope.

Goals

Products

Goals: Safety and quality of chemical products

Goal	Action	By?	Status in 2013 and 2014	Status
Establish a globally uniform hazard and risk communication system for all relevant chemicals of the company in the supply chain, incorporating the principles of prevention	**Implementation of REACH:** Register substances produced in quantities ranging from 1-100 metric tons per year (phase 3 of REACH implementation) and register non-phase-in substances	Mid-2018	By the end of 2014, we had registered 15% of all phase 3 substances.	–
	Implementation of GHS/CLP: Classify mixtures and sets according to the CLP regulation	Mid-2015	All mixtures have been classified according to CLP since mid-2013.	✓
	Implementation of the Global Product Strategy (GPS): Provide Product Safety Summaries within GPS for all hazardous substances registered under REACH	End of 2020	We have already completed Product Safety Summaries for 17 substances registered under REACH; we are working on nine additional Product Safety Summaries.	+
	Projects for hazard communication: Update safety data sheets for non-hazardous materials	End of 2020	We have safety data sheets for around 20% of all non-hazardous substances and continually review them. Around 40% of the non-hazardous substances have replacement letters.	–
	Increase the number of safety data sheets prepared to a globally uniform standard	End of 2020	Around 90% of all safety data sheets are based on our Group-wide GHS standard.	–
	Implementation of US GHS/HazCom 2012: Classify pure substances, mixtures and sets in the United States according to HazCom 2012 criteria	Mid-2015		+

Legend: ✓ Achieved – In progress Not achieved + New goal

Goals: Product-related crime

Goal	Action	By?	Status in 2013 and 2014	Status
Protect customers and patients from harm by product-related crime	Update our international regulations with a focus on product safety for all relevant products	End of 2016		+
	Monitor the dark figures in certain countries	End of 2016		+
	Support regional activities	End of 2016		+
	Pilot a project to improve product safety in high-risk regions of Africa using software-based solutions	End of 2016		+
Increase awareness of strategic importance of counterfeit pharmaceuticals	Expand scope of employee training and increase internal reporting on counterfeits	End of 2015		+
	Host a conference of the Pharmaceutical Security Institutes (PSI) with industry representatives	End of 2015		+

Legend: Achieved In progress Not achieved + New goal

Goals: Sustainable products

Goal	Action	By?	Status in 2013 and 2014	Status
Improve the product sustainability in 10% of the product families of the life science business	Implement the Design for Sustainability program.	End of 2015	Within the Design for Sustainability process we defined several criteria for ensuring product sustainability in each of the following areas: materials, emissions and energy, waste, water, packaging, and usability and innovation. We use these criteria to assess improvement in product sustainability. By the end of 2014, we had improved sustainability across more than 12% of our product families, which means we've already reached our goal.	+

Legend: Achieved In progress Not achieved + New goal

Goals: Access to health

Goal	Action	By?	Status in 2013 and 2014	Status
Monitor and assess the progress and efficacy of our Access to Health programs.	Create quantitative and qualitative performance indicators for the 4 A's: Availability, Accessibility, Affordability, and Awareness.	End of 2016		+
Availability: Address unmet needs through the research, development and refinement of health solutions	Expand our R&D portfolio for neglected tropical diseases within the scope of the Global Health Innovation Platform. We have created a three-year plan for our focal areas of developing a pediatric formulation to treat schistosomiasis in preschool-aged children and developing a new anti-malarial drug.	End of 2017		+
Affordability: Address inability to pay	Through our WIPO Re:Search membership, engage in a collaboration agreement to share our intellectual property and knowledge to catalyze the development of medical products against infectious diseases.	End of 2016		+
Awareness: Empower health workers, communities and patients	Develop an integrated initiative of our Healthcare and Life Science business sectors to raise awareness and empower people to make informed decisions.	End of 2016		+
Accessibility: Strengthen supply chains and provide localized solutions	Develop an initiative to reach patients, regardless of their geographic location, and ensure they have access to health solutions.	End of 2016		+

Legend: Achieved In progress Not achieved + New goal

Goals: Animal science and welfare

Goal	Action	By?	Status in 2013 and 2014	Status
Harmonize animal welfare Group-wide	Establish Group-wide governance for Corporate Animal Science & Welfare	End of 2014	In 2014, we created a manual for the Animal Science and Welfare Group function that is in effect throughout the company. It describes roles and responsibilities for implementing, adhering to and improving animal welfare, such as the Corporate Animal Science and Welfare network. Nominations have been confirmed and governance has been established.	—
	Develop a Group-wide audit concept for the facilities of contract animal research organizations	End of 2015	The audit concept is described in the Animal Safety & Welfare Manual and is currently being revised and expanded.	—
Harmonize the high quality of animal facilities at the biopharmaceuticals business	Obtain AAALAC International accreditation for all the laboratory animal facilities of our biopharmaceuticals business	End of 2015	In 2013 and 2014, two laboratory animal facilities in Darmstadt, Germany were successfully reaccredited (performed every three years). Our site in Grafing, Germany also achieved reaccreditation.	—
Implement a 3R award	Participate in the 3Rs IQ/AAALAC Award Program.	End of 2015	The first award is being presented in 2015.	—

Legend: — Achieved — In progress — Not achieved + New goal

Goals: Transport and storage safety

Goal	Action	By?	Status in 2013 and 2014	Status
Further improve warehouse and transport safety	Expand scope of transport safety audits to include contracted service providers	End of 2014	In 2013 and 2014, we conducted 18 EHS audits on transport and warehouse safety, four of which involved third-party warehouses.	—
	Develop additional performance indicators to assess the safety of our warehouses and transport of our products	End of 2014	We have developed transport and warehouse safety indicators, which indicate the safety rating of an inspected subsidiary relative to the Group average and third-party warehouses.	—
	Implement improvement programs in countries and regions selected based on risks specific to the products being handled	End of 2016		+
	Implement a process to further improve our management approach to transport and warehouse safety	End of 2016	We have instituted an analysis and evaluation process and, in response, have implemented the first set of measures. In addition to the results of local audits and inspections, we will be including customer complaints in our evaluation.	+

Legend: — Achieved — In progress — Not achieved + New goal

Suppliers

Goals: Supplier management

Goal	Action	By?	Status in 2013 and 2014	Status
Ensure our suppliers adhere to ethical, social, environmental, and compliance standards (part of our "risk mitigation" strategic procurement objective)	Conduct 20 CR audits on high-risk suppliers in 2014	End of 2014	In 2014, we conducted 24 audits on high-risk suppliers.	–
	Systematically collect self-reported supplier information	End of 2013	We have set up an IT system and received the first set of self-reported supplier information. This system has been discontinued because we are instead integrating the TfS database into our supplier management system.	–
	Join the Together for Sustainability (TfS) chemical industry initiative Conduct workshops to prepare the company to integrate into the TfS program	End of 2014	We held workshops to prepare employees and joined the TfS Initiative in mid-2014.	–
	Systematically collect self-reported supplier information in line with the TfS methodology	End of 2015	We are implementing the TfS methodology for supplier assessments and audits, as well as for tracking them.	+
	Establish a CR standard operating procedure	End of 2015		+

Legend: – Achieved – In progress – Not achieved + New goal

Employees

Goals: Diversity & inclusion

Goal	Action	By?	Status in 2013 and 2014	Status
Increase the percentage of management positions (Global Grade 14+) held by women to at least 25%-30%	Increase the percentage of management positions held by women through numerous initiatives that move women into those positions	End of 2016	Institute communication measures and utilize HR processes such as Talent Management 26% of management positions were held by women in 2014, which means that we have already reached the bottom range of our target. We will continue to pursue this goal in order to further increase the percentage of management positions held by women.	–

Legend: — Achieved — In progress — Not achieved + New goal

Goals: Good leadership

Goal	Action	By?	Status in 2013 and 2014	Status
Talent & Succession Management: Fill at least 2/3 of positions ranked Global Grade 16+ with internal candidates	Use the Talent & Succession Management Process to identify suitable employees with management potential and define a process to systematically develop them	Ongoing	In 2013, we introduced the Talent & Succession Management Process in order to systematically foster and develop talent. In 2014, 74% of our vacant management positions were filled internally.	–
Have least 50% of managers rated Global Grade 14+ take part in a management program	Expand the geographical range of the programs to reach a broader target group Have senior management act as the official program sponsors	End of 2018		+
Build a talent pool that reflects the demographic structure of the company	Identify talent, inform managers on current demographics (e.g. age, nationality, gender)	Ongoing		+
Competency-based interviews with 20% of the talent	Nominate suitable talent within the scope of the Talent & Succession Management program	Ongoing		+
Have 80% of all employees using the HR Suite IT system for their annual Performance Management Process assessment	Expand the HR Suite user group to new target groups	Ongoing		+

Legend: — Achieved — In progress — Not achieved + New goal

Goals: Occupational health & safety

Goal	Action	By?	Status in 2013 and 2014	Status
Reduce occupational accidents throughout the company (lost time injury rate = 2.5)	Implement the BeSafe! program; hold EHS forums on safety behavior change	End of 2015	Through systematic accident prevention measures (such as training and campaigns to strengthen our corporate safety culture), we attained an LTIR of 2.2 in 2013 and an LTIR of 1.8 in 2014. We are working to lastingly stabilize our LTIR.	

Legend: Achieved In progress Not achieved + New goal

Environment

Goals: Environmental management

Goal	Action	By?	Status in 2013 and 2014	Status
Audit and implement environmental management systems at acquired sites	Certify environmental management systems at further acquired sites	Ongoing		
	Perform gap analysis on the life science business acquisitions (e.g. Heipha and Biochrom), along with the Allergopharma production site in Reinbek	End of 2014	We conducted a gap analysis on Biochrom and Allergopharma production sites. Due to production issues, the implementation of ISO 14001 has been delayed for Heipha.	
	Integrate AZ Electronic Materials production sites	End of 2015	Eight out of nine production sites of AZ Electronic Materials, which was acquired in 2014, have been incorporated into the group certificate.	
Implement the OHSAS 18001 occupational health and safety management system for all Performance Materials production sites		End of 2016		+

Legend: Achieved In progress Not achieved + New goal

Goals: Climate change mitigation

Goal	Action	By?	Status in 2013 and 2014	Status
Reduce direct and indirect greenhouse gas emissions (Scope 1 and 2) of the company by 20% relative to the 2006 baseline	Systematically examine the energy consumption at our individual sites	End of 2020	We continued to systematically examine ways to save energy at our production sites. For instance, energy audits were conducted on the Aubonne and Vevey sites in Switzerland.	
	Identify and implement ways to save energy	End of 2020	Through the approximately 300 EDISON projects that have been initiated since 2012, we aim to annually save around 60,000 metric tons of CO_2 in the medium term. Around two-thirds of these projects have already been launched, or are currently being implemented.	
	Reduce process-related emissions	End of 2020	We have made significant progress in reducing the life science business' process-related emissions. The average process emissions relative to production volume at our Jaffrey, New Hampshire (USA) facility has decreased by around two-thirds. At this site, we have witnessed a 30% absolute reduction in	

Table continued

Goals: Climate change mitigation

Goal	Action	By?	Status in 2013 and 2014	Status
			process emissions in 2014 versus 2013, while production volumes have continued to increase.	
	Implement sustainable measures to increase energy efficiency and reduce greenhouse gas emissions	End of 2020	We are moving forward with our EDISON program, implementing new projects to increase energy efficiency and reduce greenhouse gas emissions. In 2013 and 2014, we introduced two new guidelines on Group-wide energy management and refrigerants emissions. Several sites were certified according to ISO 50001, accompanied by the respective training activities.	
	Reduce the life science business' greenhouse gas emissions by 10% by 2015 (2006 baseline)	End of 2015	The life science business has reduced greenhouse gas emissions by 13% relative to the 2006 baseline.	

Legend: Achieved In progress Not achieved + New goal

Goals: Waste management

Goal	Action	By?	Status in 2013 and 2014	Status
Reduce the life science business' waste output by 10% relative to the baseline 2006)	Introduce measures to minimize waste and recycle materials, solvents, and other waste byproducts.	End of 2015	Between 2006 and 2014, the life science business lowered its waste output by 15%. The life science business has identified and implemented opportunities to distill and reuse solvents in the manufacturing process. At the Bedford, Massachusetts (USA) facility, methanol that cannot be reused in the process after multiple distillations is used as a feed chemical for a local municipal wastewater treatment facility. In 2014, 145 metric tons of methanol were reused externally. Increases in production yields reduced the amount of products scrapped during manufacturing.	
	Perform waste audits to identify ways to reduce waste or increase recycling efficiency	End of 2015	In 2014, waste audits were performed on the life science business' facilities in Molsheim, France, and Kankakee, Illinois (USA).	

Legend: Achieved In progress Not achieved + New goal

Goals: Water

Goal	Action	By?	Status in 2013 and 2014	Status
Reduce the life science business' water use by 10% relative to the 2006 baseline	Implement water reuse and reduction initiatives	End of 2015	Despite significant increases in production volumes, between 2006 and 2014, the life science business reduced water consumption by 2%. In 2014, we performed five water audits at the life science business facilities. Our Molsheim, France facility identified viable projects that will be investigated further in 2015.	

Legend: Achieved In progress Not achieved + New goal

Society

Goals: Fighting schistosomiasis with praziquantel

Goal	Action	By?	Status in 2013 and 2014	Status
Eliminate schistosomiasis in African school children	Provide tablets containing praziquantel free of charge to treat school children in Africa	Ongoing	Since 2007, more than 50 million patients have been treated, primarily school-aged children.	—
	Incrementally increase annual tablet donation by a factor of ten, to up to 250 million	End of 2016	In 2014, we produced around 75 million tablets, of which more than 72 million were supplied to 20 African countries by the year's end, a collaborative effort with the World Health Organization.	—
	Optimize the praziquantel formulation	End of 2014	We have finished developing the formulation. The dossier has to be submitted to the regulatory authorities for marketing authorization.	—
	Research a new praziquantel formulation for children under 6 years old.	End of 2014	The Phase 1 clinical trial was conducted in South Africa.	—

Legend: — Achieved — In progress — Not achieved + New goal

Goals: Combating counterfeit medicines with the Minilab

Goal	Action	By?	Status in 2013 and 2014	Status
Fight counterfeit medicines by providing and enhancing the GPHF Minilab™	Develop new test methods for five active ingredients and expand manuals to describe the new testing methods	End of 2014	Develop five new testing methods and update the manuals	—
	Develop new test methods for five active ingredients and expand manuals to describe the new testing methods	End of 2015		+
	Conduct 4 training seminars on the use of the GPHF Minilab™; sell 50 Minilabs	End of 2014	Four training seminars on the use of the GPHF Minilab™ have been conducted, and 37 Minilabs have been sold.	—
	Conduct 3 training seminars on the use of the GPHF Minilab™; sell 25 Minilabs	End of 2015		+

Legend: — Achieved — In progress — Not achieved + New goal

Recognition and rankings

The following table presents a selection of major awards and rankings for 2013 and 2014. Information on additional rankings and awards received by individual businesses or sites can be found in the respective chapter of the 2014 Corporate Responsibility Report, or on our company's website.

Recognition and rankings for 2013 and 2014

Name	For?
Carbon Disclosure Project	The Carbon Disclosure Project (CDP) is a not-for-profit organization that, on behalf of investors, purchasers and governments, has pioneered a disclosure system enabling companies to transparently report their greenhouse gas emissions and water use. In the Carbon Disclosure Leadership Index, which assesses the level of reporting detail as well as transparency, we scored 87 out of 100 possible points. In the Carbon Disclosure Performance Index, which measures corporate performance in reducing emissions, the company was graded B on a scale of E to A, which clearly places us in the upper performance band among all companies from Germany, Austria and Switzerland.
FTSE4Good-Index	Since 2008, we have been included in the FTSE4Good Index, a leading international sustainability index that annually evaluates companies' social, environmental and ethical performance.
Oekom Research Sustainability Rating	In 2013, oekom research AG, a sustainability ratings agency, gave us a C+ on a scale of D- to A+ (top grade). We thus once more achieved Prime Status.
STOXX® Global ESG Leaders Index	In 2014, our stocks were once again included in STOXX Global ESG Leaders, a sustainability index that assesses companies based on key environmental, social and governance criteria.
Ethibel Sustainability Index (ESI) Excellence Europe and Ethibel EXCELLENCE Investment Register	We have been selected as a constituent of the Ethibel Sustainability Index (ESI) Excellence Europe since 23/03/2015. The ESI indices universe is composed of companies included in the Russell Global Index that display the best performance in the field of Corporate Social Responsibility. Furthermore, we are a member of the Ethibel EXCELLENCE Investment Register.
Access to Medicine Index	In the Access to Medicine Index, we went from 8th place in 2012 to 6th in 2014. This Index assesses 20 pharmaceutical companies with respect to their activities to improve access to medicine in developing countries. The index is published every two years by the Access to Medicine Foundation, an international not-for-profit organization.

GRI Index

The CR Report 2014 is based on the G4 guidelines of the Global Reporting Initiative and meets the criteria for the application level "Comprehensive". The following GRI Index provides an overview of standard disclosures, the GRI indicators identified as relevant, and where the corresponding contents are described.

General Standard Disclosures:

GRI Index: Company and report profile on p. 167

Specific Standard Disclosures:

GRI Index: Economic performance indicators on p. 172
GRI Index: Environmental performance indicators on p. 174
GRI Index: Social performance indicators on p. 177

GRI Index: Company and Report Profile

General Standard Disclosures

DMA* and Indicators		Comment	Link	External Assurance
Strategy and Analysis				
G4-1	Statement from the most senior decision-maker of the organization		Letter by Karl-Ludwig Kley on p. 21	
G4-2	Key impacts, risks, and opportunities		CR strategy and organization on p. 25	
Organizational Profile				
G4-3	Name of the organization		Company Profile on p. 4	
G4-4	Primary brands, products, and services		Company Profile on p. 4 Products	
G4-5	Location of the organization's headquarters		Company Profile on p. 4	
G4-6	Number of countries where the organization operates, and names of countries where either the organization has significant operations or that are specifically relevant to the sustainability topics covered in the report		Company Profile on p. 4 Share ownership by country	✔
G4-7	Nature of ownership and legal form		Company Profile on p. 4	
G4-8	Markets served (including geographic breakdown, sectors served, and types of customers and beneficiaries)		Company Profile on p. 4	
G4-9	Scale of the reporting organization		Company Profile on p. 4 Management Employees on p. 89 Indicators Employees on p. 132 Indicators Economics on p. 128 Net sales Capitalization Consolidated Balance Sheet	✔
G4-10	Total number of employees by employment contract and gender	Supervised workers such as temps are currently not logged in our employee data system. We are investigating possibilities to record information on supervised workers throughout the company.	Management Employees on p. 89 Indicators Employees on p. 132	✓
G4-11	Percentage of total employees covered by collective bargaining agreements		Employee Engagement on p. 100 Indicators Employees on p. 132	✓
G4-12	Organization's supply chain		Management Suppliers on p. 83 Supply chain on p. 85	

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Table continued

DMA* and Indicators		Comment	Link	External Assurance
G4-13	Significant changes during the reporting period regarding size, structure, ownership, or its supply chain		Management Suppliers on p. 83 Company Profile on p. 4	
G4-14	Whether and how the precautionary approach or principle is addressed by the organization		Management Environment on p. 106 Transport and storage safety on p. 79 Plant and process safety on p. 108 Occupational health and safety on p. 102	
G4-15	Externally developed economic, environmental and social charters, principles, or other initiatives to which the organization subscribes or which it endorses		Values and external initiatives on p. 23 Responsible care on p. 24	
G4-16	Memberships of associations		Stakeholder dialogue on p. 36	
Identified Material Aspects and Boundaries				
G4-17	Entities included in the organization's consolidated financial statements		Report profile on p. 125 Company Profile on p. 4	✓
G4-18	Definition of report content		Materiality Analysis on p. 27	✓
G4-19	Material Aspects identified in the process for defining report content		Materiality Analysis on p. 27	✓
G4-20	Material aspects within the organization		Materiality Analysis on p. 27	✓
G4-21	Material aspects outside the organization		Materiality Analysis on p. 27	✓
G4-22	Effect of any restatements of information provided in previous reports, and the reasons for such restatements		Report profile on p. 125	✓
G4-23	Significant changes from previous reporting periods in the Scope and Aspect Boundaries		Report profile on p. 125	✓
Stakeholder Engagement				
G4-24	Stakeholder groups engaged by the organization		Stakeholder dialogue on p. 36	✓
G4-25	Basis for identification and selection of stakeholders with whom to engage		Stakeholder dialogue on p. 36	✓
G4-26	Organization's approach to stakeholder engagement		Stakeholder dialogue on p. 36	✓
G4-27	Key topics and concerns raised through stakeholder engagement		Stakeholder dialogue on p. 36	✓
Report Profile				
G4-28	Reporting period		Report profile on p. 125	
G4-29	Date of most recent previous report		Report profile on p. 125	
G4-30	Reporting cycle		Report profile on p. 125	
G4-31	Contact point for questions		Report profile on p. 125	
G4-32	GRI Index		GRI Index on p. 166	
G4-33	External Assurance		Report profile on p. 125	

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Table continued

DMA* and Indicators		Comment	Link	External Assurance
Governance				
G4-34	Governance structure of the organization		CR strategy and organization on p. 25 Management Statement of Corporate Governance	✔
G4-35	Process for delegating authority for economic, environmental and social topics from the highest governance body to senior executives and other employees		CR strategy and organization on p. 25 Procedures of the Corporate Bodies	✔
G4-36	Responsibility for economic, environmental and social topics		CR strategy and organization on p. 25	
G4-37	Processes for consultation between stakeholders and the highest governance body		Stakeholder dialogue on p. 36 Employee Engagement on p. 100	
G4-38	Composition of the highest governance body and its committees		Management Statement of Corporate Governance The Executive Body	✔
G4-39	Indicate whether the Chair of the highest governance body is also an executive officer		Statement of Corporate Governance Management	✔
G4-40	Nomination and selection processes for the highest governance body and its committees		Diversity and inclusion on p. 92 Corporate Bodies Objectives of the Supervisory Board	✔
G4-41	Processes for the highest governance body to ensure conflicts of interest are avoided and managed		Compliance on p. 33 Corporate Governance Practices	✔
G4-42	Highest governance body's and senior executive's roles in the development, approval, and updating of the organization's CR strategies, policies, and goals		CR strategy and organization on p. 25 Values and Compliance Report of the Supervisory Board	✔
G4-43	Measures taken to develop and enhance the highest governance body's collective knowledge of economic, environmental and social topics		CR strategy and organization on p. 25 Executive Board Statement of Corporate Governance	✔
G4-44	Evaluation of the highest governance body's performance with respect to governance of economic, environmental and social topics		Board of partners Supervisory Board Articles of Association	
G4-45	Highest governance body's role in the identification and management of economic, environmental and social impacts, risks, and opportunities		CR strategy and organization on p. 25 Report on Risks and Opportunities Statement of Corporate Governance Compliance on p. 33	✔
G4-46	Highest governance body's role on reviewing the effectiveness of the organization's risk management processes for economic, environmental and social topics		CR strategy and organization on p. 25 Report on Risks and Opportunities Report of the Supervisory Board	✔
G4-47	Frequency of highest governance body's review of economic, environmental and social impacts risks, and opportunities		CR strategy and organization on p. 25 Report on Risks and Opportunities Report of the Supervisory Board	✔

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Table continued

DMA* and Indicators		Comment	Link	External Assurance
G4-48	Highest committee or position that formally reviews and approves the organization's sustainability report		Report profile on p. 125	✓
G4-49	Process for communicating critical concerns to the highest governance body		Compliance on p. 33 Values and Compliance	✓
G4-50	Nature and total number of critical concerns that were communicated to the highest governance body		Compliance on p. 33 Values and Compliance	✓
G4-51	Remuneration policies for the highest governance body and senior executives		Compensation Report	✓
G4-52	Process for determining remuneration		Compensation Report	✓
G4-53	How stakeholders' views are sought and taken into account regarding remuneration		Recruiting and retaining talent on p. 95 Compensation Report	✓
G4-54	Ratio of annual total compensation for the organization's highest-paid individual to the median annual total compensation for all employees in the same country	Competitive salaries and additional benefits increase not only our attractiveness as an employer; they also motivate employees and build loyalty to the company. At Merck KGaA, Darmstadt, Germany, compensation is based on market analyses in the relevant field and the value of the respective position, as well as the employee's skill set and performance. Our Global Rewards Policy defines the framework for compensation and benefits across the entire company. We strive to offer all our employees the most comparable compensation structures possible. In addition to this, we monitor compliance with minimum standards. We do not consider the information required under G4-54 and G4-55 to be relevant to assessing the fairness of our compensation structures.		
G4-55	Ratio of percentage increase in annual total compensation for the organization's highest-paid individual to the median percentage increase in annual total compensation for all employees in the same country	Competitive salaries and additional benefits increase not only our attractiveness as an employer; they also motivate employees and build loyalty to the company.		

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Table continued

DMA* and Indicators		Comment	Link	External Assurance
		At Merck KGaA, Darmstadt, Germany, compensation is based on market analyses in the relevant field and the value of the respective position, as well as the employee's skill set and performance. Our Global Rewards Policy defines the framework for compensation and benefits across the entire company. We strive to offer all our employees the most comparable compensation structures possible. In addition to this, we monitor compliance with minimum standards. We do not consider the information required under G4-54 and G4-55 to be relevant to assessing the fairness of our compensation structures.		
Ethics and Integrity				
G4-56	Organization's values, principles, standards and norms of behavior		Values and external initiatives on p. 23 Human rights on p. 24 Compliance on p. 33	
G4-57	Internal and external mechanisms for seeking advice on ethical and lawful behavior, and matters related to organizational integrity		Compliance on p. 33	
G4-58	Internal and external mechanisms for reporting concerns about unethical or unlawful behavior, and matters related to organizational integrity		Management Suppliers on p. 83 Diversity and inclusion on p. 92 Compliance on p. 33	

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GRI Index: Economic Performance Indicators

Specific Standard Disclosures

DMA* and Indicators		Comment	Link	External Assurance
Aspect: Economic Performance				
G4-DMA	Management Approach		Economic performance Pension Plans Report on Risks and Opportunities Employee Engagement on p. 100	
G4-EC1	Direct economic value generated and distributed		Income Statement Cash Flow Statement Figures by division, country and region Personnel expenses Indicators Society on p. 152	✔
G4-EC2	Financial implications and other risks and opportunities for the organization's activities due to climate change	We report in detail on various aspects of climate change as part of our participation in the Carbon Disclosure Project (CDP).	Climate protection on p. 109 Global Compact CoP on p. 185 CDP Report on Risks and Opportunities	
G4-EC3	Coverage of the organization's defined benefit plan obligations		Indicators Employees on p. 132 Pension Plans	✔
G4-EC4	Financial assistance received from government		Accounting policies for property, plant and equipment Property, plant and equipment Research and development spending	✔
Aspect: Market Presence				
G4-DMA	Management Approach		Management Employees on p. 89 Good leadership on p. 91 Diversity and inclusion on p. 92 Employee Engagement on p. 100	
G4-EC5	Ratios of standard entry level wage by gender compared to local minimum wage at significant locations of operation	This indicator is not relevant to us, which is why we do not collect data on the ratio of the standard entry level wage compared to local minimum wage. Being a pharmaceutical and chemical company, we employ highly qualified individuals. Our Global Rewards Policy applies to all our subsidiaries worldwide and guarantees a systematic compensation structure. Base pay is oriented to the median base	Indicators Employees on p. 132 Human Rights Charter	✔

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Table continued

DMA* and Indicators		Comment	Link	External Assurance
		pay, and short-term variable compensation is based on the third quartile of the relevant reference market. The overall compensation package thus exceeds the market median.		
G4-EC6	Proportion of senior management hired from the local community at significant locations of operation	We encourage both local hiring and international appointments across all levels of the hierarchy. The percentage of local managers is not recorded as it is not relevant to our strategic personnel planning.	Diversity and inclusion on p. 92	
Aspect: Procurement Practices				
G4-DMA	Management Approach		Management Suppliers on p. 83 Supply chain on p. 85	
G4-EC9	Proportion of spending on local suppliers at significant locations of operation		Supply chain on p. 85	

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GRI Index: Environmental Performance Indicators

Specific Standard Disclosures

DMA* and Indicators		Comment	Link	External Assurance
Aspect: Energy				
G4-DMA	Management Approach		Climate protection on p. 109 Management Environment on p. 106 Sustainable products on p. 50	
G4-EN3	Energy consumption within the organization		Climate protection on p. 109 Resources on p. 114 Indicators Environment on p. 145	✓
G4-EN4	Energy consumption outside of the organization		Climate protection on p. 109 Indicators Environment on p. 145	✓
G4-EN5	Energy intensity		Indicators Environment on p. 145	✓
G4-EN6	Reduction of energy consumption	We are currently only calculating the CO_2 savings from measures we have implemented. In future, we plan on measuring the reduction in energy consumption as well.		
G4-EN7	Reductions in energy requirements of products and services		Sustainable products on p. 50 Examples of products from our Performance Materials division	
Aspect: Emissions				
G4-DMA	Management Approach		Climate protection on p. 109	
G4-EN15	Direct greenhouse gas (GHG) emissions (Scope 1)		Climate protection on p. 109 Indicators Environment on p. 145	✓
G4-EN16	Energy indirect greenhouse gas (GHG) emissions (Scope 2)		Climate protection on p. 109 Indicators Environment on p. 145	✓
G4-EN17	Other indirect greenhouse gas (GHG) emissions (Scope3)		Climate protection on p. 109 Indicators Environment on p. 145 Carbon Disclosure Project	✓
G4-EN18	Greenhouse gas (GHG) emissions intensity		Indicators Environment on p. 145	✓
G4-EN19	Reduction of greenhouse gas (GHG) emissions		Climate protection on p. 109 Carbon Disclosure Project	
G4-EN20	Emissions of ozone-depleting substances (ODS)		Indicators Environment on p. 145	✓
G4-EN21	NO_X, SO_X, and other significant air emissions		Indicators Environment on p. 145	✓
Aspect: Effluents and Waste				
G4-DMA	Management Approach		Plant and process safety on p. 108 Waste management on p. 113	

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Table continued

DMA* and Indicators		Comment	Link	External Assurance
G4-EN22	Total water discharge by quality and destination		Water on p. 115 Indicators Environment on p. 145	✓
G4-EN23	Total weight of waste by type and disposal method		Waste management on p. 113 Indicators Environment on p. 145	✓
G4-EN24	Total number and volume of significant spills		Plant and process safety on p. 108 Indicators Environment on p. 145	✓
G4-EN25	Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the Basel convention annex I, II, III, and VIII, and percentage of transported waste shipped internationally		Indicators Environment on p. 145	✓
G4-EN26	Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by the organization's discharges of water and runoff		Water on p. 115	
Aspect: Products and Services				
G4-DMA	Management Approach		Sustainable products on p. 50 Packaging on p. 54 Reuse and recycling on p. 56	
G4-EN27	Extent of impact mitigation of environmental impacts of products and services		Sustainable products on p. 50	
G4-EN28	Percentage of products sold and their packaging materials that are reclaimed by category		Packaging on p. 54 Reuse and recycling on p. 56	
Aspect: Compliance				
G4-DMA	Management Approach		Management Environment on p. 106	
G4-EN29	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations		Management Environment on p. 106	
Aspect: Transport				
G4-DMA	Management Approach		Transport and storage safety on p. 79	
G4-EN30	Significant environmental impacts of transporting products and other goods and materials used for the organization's operations, and transporting members of the workforce	We do not consider relevant any data queried under this indicator that goes beyond the data already reported.	Transport and storage safety on p. 79 Indicators Environment on p. 145	✓
Aspect: Supplier Environmental Assessment				
G4-DMA	Management Approach		Management Suppliers on p. 83	
G4-EN32	Percentage of new suppliers that were screened using environmental criteria		Management Suppliers on p. 83	

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Table continued

DMA* and Indicators		Comment	Link	External Assurance
G4-EN33	Significant actual and potential negative environmental impacts in the supply chain and actions taken		Management Suppliers on p. 83	
Aspect: Environmental Grievance Mechanisms				
G4-DMA	Management Approach		Management Suppliers on p. 83 Compliance on p. 33	
G4-EN34	Number of grievances about environmental impacts filed, addressed, and resolved through formal grievance mechanisms		Management Suppliers on p. 83 Management Environment on p. 106	

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GRI Index: Social Performance Indicators

Specific Standard Disclosures

Labor Practices and Decent Work

DMA* and Indicators		Comment	Link	External Assurance
Aspect: Employment				
G4-DMA	Management Approach		Management Employees on p. 89 Recruiting and retaining talent on p. 95 Occupational health and safety on p. 102	
G4-LA1	Total number and rates of new employee hires and employee turnover by age group, gender, and region		Indicators Employees on p. 132	✓
G4-LA2	Benefits provided to full-time employees that are not provided to temporary or part-time employees, by significant locations of operation	At our German sites Darmstadt, Grafing, and Gernsheim (24% of the company's total workforce), part-time employees receive the same job benefits as full-time ones. Employees with temporary contracts, however, are not entitled to all company benefits; for instance, they are not entitled to a company pension.	Recruiting and retaining talent on p. 95 Occupational health and safety on p. 102 Indicators Employees on p. 132	✓
G4-LA3	Return to work and retention rates after parental leave, by gender		Recruiting and retaining talent on p. 95 Indicators Employees on p. 132	✓
Aspect: Labor/Management relations				
G4-DMA	Management Approach		Employee Engagement on p. 100 Management Employees on p. 89	
G4-LA4	Minimum notice periods regarding operational changes, including whether these are specified in collective agreements	The regulations on periods of notice vary worldwide. We apply the rules that are in force locally. It is not relevant for us to log periods of notice at Group level.		
Aspect: Occupational Health and Safety				
G4-DMA	Management Approach		Occupational health and safety on p. 102	
G4-LA5	Percentage of total workforce represented in formal joint management-worker health and safety committees that help monitor and advise on occupational health and safety programs	Occupational health and safety committees are required by law in Germany, which is why all employees	Occupational health and safety on p. 102	

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Table continued

DMA* and Indicators		Comment	Link	External Assurance
		of our German sites Darmstadt, Grafing, and Gernsheim are represented by such a committee at each site. Theses employees account for around 24% of the workforce.		
G4-LA6	Type of injury and rates of injury, occupational diseases, lost days, and absenteeism, and total number of work-related fatalities by region and gender		Occupational health and safety on p. 102 Indicators Employees on p. 132	✓
G4-LA7	Workers with high incidence of high risk or diseases related to their occupation		Occupational health and safety on p. 102	
G4-LA8	Health and safety topics covered in formal agreements with trade unions	Our German facilities Darmstadt, Gernsheim, and Grafing (around 24% of the total workforce) are subject to a company agreement on occupational health and safety.		
Aspect: Training and Education				
G4-DMA	Management Approach		Good leadership on p. 91 Diversity and inclusion on p. 92 Recruiting and retaining talent on p. 95	
G4-LA9	Average hours of training per year per employee by gender and by employee category		Indicators Employees on p. 132 Training on specific topics: Compliance on p. 33 Safety of drugs on p. 41 Safety of chemical products on p. 43 Product-related crime on p. 46 Animal testing on p. 73 Diversity and inclusion on p. 92 Occupational health and safety on p. 102 Management Environment on p. 106	✓
G4-LA10	Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings		Diversity and inclusion on p. 92 Recruiting and retaining talent on p. 95	
G4-LA11	Percentage of employees receiving regular performance and career development reviews, by gender and by employment category		Good leadership on p. 91 Indicators Employees on p. 132	✓
Aspect: Diversity and Equal Opportunity				
G4-DMA	Management Approach		Diversity and inclusion on p. 92 Objectives of the Supervisory Board	

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Table continued

DMA* and Indicators		Comment	Link	External Assurance
G4-LA12	Composition of governance bodies and breakdown of employees per employee category according to gender, age group, minority group membership, and other indicators of diversity.	Because the term "minority" does not mean the same thing across the globe, we do not record this sort of data. Moreover, many countries in which we operate have strict data protection regulations governing the recording of personal employee data.	Diversity and inclusion on p. 92 Indicators Employees on p. 132 Executive Board Supervisory Board Objectives of the Supervisory Board	✔
Aspect: Equal remuneration for women and men				
G4-DMA	Management Approach		Recruiting and retaining talent on p. 95 Compensation Report	
G4-LA13	Ratio of basic salary and remuneration of women to men, by significant locations of operation	The salaries are predicated on the job descriptions and are based on our Global Job Catalog, which has fixed salary bands that are identical for men and women. Variable salary components that fall under performance-based compensation are paid on the basis of whether mutually agreed targets have been achieved. A performance management system governs this process.	Recruiting and retaining talent on p. 95	
Aspect: Supplier Assessment for Labor Practices				
G4-DMA	Management Approach		Management Suppliers on p. 83	
G4-LA14	Percentage of new suppliers that were screened labor practices criteria		Management Suppliers on p. 83	
G4-LA15	Significant actual and potential negative impacts for labor practices in the supply chain and actions taken		Management Suppliers on p. 83	
Aspect: Labor Practices Grievance Mechanisms				
G4-DMA	Management Approach		Management Suppliers on p. 83 Compliance on p. 33	
G4-LA16	Number of grievances about labor practices filed, addressed, and resolved through formal grievance mechanisms		Management Suppliers on p. 83 Compliance on p. 33	

* Disclosures on Management Approach.

✔ KPMG AG Wirtschaftsprüfungsgesellschaft has provided limited assurance on the indicators in the chapter "Facts and figures", including explanatory notes, in the online Corporate Responsibility Report for the business year 2014 of Merck KGaA, Darmstadt, Germany. You can find the Independent Assurance Report in the Assurance Report on p. 188

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Table continued

DMA* and Indicators		Comment	Link	External Assurance
Human Rights				

DMA* and Indicators		Comment	Link	External Assurance
Aspect: Investment				
G4-DMA	Management Approach		Responsible care on p. 24 Compliance on p. 33	
G4-HR1	Total number and percentage of significant investment agreements and contracts that include human rights clauses or that underwent human rights screening		Compliance on p. 33 Management Suppliers on p. 83	
G4-HR2	Total hours of employee training on human rights policies or procedures concerning aspects of human rights that are relevant to operations, including the percentage of employees trained		Human rights on p. 24	
Aspect: Non-discrimination				
G4-DMA	Management Approach		Diversity and inclusion on p. 92	
G4-HR3	Total number of incidents of discrimination and corrective actions taken		Diversity and inclusion on p. 92	
Aspect: Freedom of association and collective bargaining				
G4-DMA	Management Approach		Management Suppliers on p. 83 Human rights on p. 24 Compliance on p. 33 Human Rights Charter	
G4-HR4	Operations and suppliers identified in which the right to exercise freedom of association and collective bargaining may be violated or at significant risk, and measures taken to support these rights		Management Suppliers on p. 83	
Aspect: Child Labor				
G4-DMA	Management Approach		Management Suppliers on p. 83 Human rights on p. 24 Compliance on p. 33 Human Rights Charter	
G4-HR5	Operations and significant suppliers identified as having significant risk for incidents of child labor, and measures taken to contribute to the effective abolition of child labor		Management Suppliers on p. 83	
Aspect: Forced and Compulsory Labor				
G4-DMA	Management Approach		Management Suppliers on p. 83 Human rights on p. 24 Compliance on p. 33 Human Rights Charter	

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Table continued

DMA* and Indicators		Comment	Link	External Assurance
G4-HR6	Operations and suppliers identified as having significant risk for incidents of forced or compulsory labor, and measures to contribute to the elimination of all forms of forced or compulsory labor		Management Suppliers on p. 83	
Aspect: Assessment				
G4-DMA	Management Approach		Human rights on p. 24 Compliance on p. 33	
G4-HR9	Total number and percentage of operations that have been subject to human rights reviews or impact assessments		Compliance on p. 33 Indicators Compliance on p. 129	✓
Aspect: Supplier Human Rights Assessment				
G4-DMA	Management Approach		Management Suppliers on p. 83 Human rights on p. 24 Compliance on p. 33	
G4-HR10	Percentage of new suppliers that were screened using human rights criteria		Management Suppliers on p. 83	
G4-HR11	Significant actual and potential negative human rights impacts in the supply chain and actions taken		Management Suppliers on p. 83	
Aspect: Human Rights Grievance Mechanisms				
G4-DMA	Management Approach		Management Suppliers on p. 83 Human rights on p. 24 Compliance on p. 33	
G4-HR12	Number of grievances about human rights impacts filed, addressed, and resolved through formal grievance mechanisms		Management Suppliers on p. 83	

Society

DMA* and Indicators		Comment	Link	External Assurance
Aspect: Anti-Corruption				
G4-DMA	Management Approach		Compliance on p. 33 Values and Compliance	
G4-SO3	Total number and percentage of operations assessed for risks related to corruption and the significant risks identified		Compliance on p. 33 Values and Compliance Indicators Compliance on p. 129	✓
G4-SO4	Communication and training in anti-corruption policies and procedures		Values and external initiatives on p. 23 Compliance on p. 33 Indicators Compliance on p. 129	✓

* Disclosures on Management Approach.

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Table continued

DMA* and Indicators		Comment	Link	External Assurance
G4-SO5	Confirmed incidents of corruption and actions taken	As applicable, we report on risks from litigation and legal proceedings in our Report on Risks and Opportunities.	Compliance on p. 33 Report on Risks and Opportunities	
Aspect: Public policy				
G4-DMA	Management Approach		Stakeholder dialogue on p. 36 Code of Conduct	
G4-SO6	Total value of political contributions by country and recipient/beneficiary		Stakeholder dialogue on p. 36 Code of Conduct Publication of donations made via PACs (EMD Serono)	
Aspect: Anti-competitive behavior				
G4-DMA	Management Approach		Compliance on p. 33 Values and Compliance Report on Risks and Opportunities	
G4-SO7	Total number of legal actions for anti-competitive behavior, anti-trust, and monopoly practices and their outcomes		Indicators Compliance on p. 129	✔
Aspect: Compliance				
G4-DMA	Management Approach		Compliance on p. 33 Report on Risks and Opportunities	
G4-SO8	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations	As applicable, we report on risks from litigation and legal proceedings in our Report on Risks and Opportunities.	Indicators Compliance on p. 129 Report on Risks and Opportunities	
Aspect: Supplier Assessment for Impacts on Society				
G4-DMA	Management Approach		Management Suppliers on p. 83 Compliance on p. 33	
G4-SO9	Percentage of new suppliers that were screened using criteria for impacts on society		Management Suppliers on p. 83	
G4-SO10	Significant actual and potential negative impacts on society in the supply chain and actions taken		Management Suppliers on p. 83	
Aspect: Grievance mechanisms for Impacts on Society				
G4-DMA	Management Approach		Management Suppliers on p. 83 Compliance on p. 33	
G4-SO11	Number of grievances about impacts on society filed, addressed, and resolved through formal grievance mechanisms		Management Suppliers on p. 83 Compliance on p. 33	

Product Responsibility

* Disclosures on Management Approach.

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Table continued

DMA* and Indicators		Comment	Link	External Assurance
DMA* and Indicators		Comment	Link	External Assurance
Aspect: Customer health and safety				
G4-DMA	Management Approach		Safety of drugs on p. 41 Safety of chemical products on p. 43 Sustainable products on p. 50 Report on Risks and Opportunities	
G4-PR1	Percentage of significant product and service categories for which health and safety impacts are assessed for improvement		Safety of drugs on p. 41 Safety of chemical products on p. 43 Sustainable products on p. 50	
G4-PR2	Total number of incidents of non-compliance with regulations and voluntary codes concerning health and safety impacts of products and services during their life cycle, by type of outcomes	As applicable, we report on risks from litigation and legal proceedings in our Report on Risks and Opportunities.	Report on Risks and Opportunities	
Aspect: Product and service labelling				
G4-DMA	Management Approach		Safety of drugs on p. 41 Safety of chemical products on p. 43 Responsible marketing on p. 77 Interactions in the health care industry on p. 78	
G4-PR3	Type of product and service information required by the organization's procedures for product and service information and labeling, and percentage of significant product and service categories subject to such information requirements		Safety of drugs on p. 41 Safety of chemical products on p. 43	
G4-PR4	Total number of incidents of non-compliance with regulations and voluntary codes concerning product and service information and labeling, by type of outcomes		Safety of chemical products on p. 43	
G4-PR5	Results of surveys measuring customer satisfaction	Within the scope of our B2B activities, we maintain close contact with our customers and endeavor to find out what they want from us and what they think of us as business partners. Individual customer survey results that are used for strategy development are confidential.	Stakeholder dialogue on p. 36 Sustainable products on p. 50 Responsible marketing on p. 77	
Aspect: Marketing communications				
G4-DMA	Management Approach		Responsible marketing on p. 77 Report on Risks and Opportunities	

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Table continued

DMA* and Indicators		Comment	Link	External Assurance
G4-PR6	Sale of banned or disputed products		Responsible marketing on p. 77	
G4-PR7	Total number of incidents of non-compliance with regulations and voluntary codes concerning marketing communications, including advertising, promotion, and sponsorship by type of outcomes	As applicable, we report on risks from litigation and legal proceedings in our Report on Risks and Opportunities.	Responsible marketing on p. 77 Report on Risks and Opportunities	
Aspect: Customer privacy				
G4-DMA	Management Approach		Clinical trials on p. 70 Compliance on p. 33	
G4-PR8	Total number of substantiated complaints regarding breaches of customer privacy and losses of customer data		Clinical trials on p. 70 Indicators Products on p. 131	✓
Aspect: Compliance				
G4-DMA	Management Approach		Compliance on p. 33 Report on Risks and Opportunities	
G4-PR9	Monetary value of significant fines for non-compliance with laws and regulations concerning the provision and use of products and services	As applicable, we report on risks from litigation and legal proceedings in our Report on Risks and Opportunities.	Report on Risks and Opportunities Indicators Compliance on p. 129	✓

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Global Compact Communication on Progress

2014 Communication on Progress regarding the implementation of the Global Compact Principles

The Global Compact (GC) is a United Nations (UN) initiative founded in 2000. Signatories of the initiative commit themselves to ten principles based on key UN conventions regarding human rights, labor standards, environmental protection, and anti-corruption. At the same time, the compact obliges the signatories to actively engage themselves in propagating the principles within their own sphere of influence.

Merck KGaA, Darmstadt, Germany has been a Global Compact participant since 2005. The following table presents the key measures that we took in 2013 and 2014 to implement the principles of the Global Compact.

Link: www.unglobalcompact.org

Global Compact – COP

UNGC Principles	Relevant GRI Indicators	Key actions in 2013 and 2014	Link
Human Rights			
Principle 1: Support and respect human rights	G4-HR2, G4-HR7, G4-HR8, G4-HR9, G4-HR12, G4-SO1, G4-SO2	• Adoption of a Group-wide Human Rights Charter • Revised supplier management in terms of Corporate Responsibility (CR) aspects and joined the Together for Sustainability (TfS) initiative • Formation of the Global Schistosomiasis Alliance (GSA) to fight NTDs • Increase in praziquantel donations to eliminate schistosomiasis	Human rights on p. 24 Management Suppliers Counterfeit pharmaceuticals on p. 121
Principle 2: Rule out complicity in human rights abuses	G4-HR1, G4-HR10–11	• Adoption of a Group-wide Human Rights Charter • Human Rights Impact Assessments • CR audits on suppliers and collection of self-reported supplier information • Revised supplier management in terms of CR aspects and joined the Together for Sustainability (TfS) initiative	Human rights on p. 24 Compliance on p. 33 Management Suppliers
Labor Standards			
Principle 3: Uphold freedom of association	G4-11, G4-HR4, G4-LA4	• Internal audits on labor standards of the Human Rights Charter • CR audits on suppliers and collection of self-reported supplier information	Human rights on p. 24 Compliance on p. 33 Management Suppliers

Table continued

Global Compact – COP

UNGC Principles	Relevant GRI Indicators	Key actions in 2013 and 2014	Link
		• Revised supplier management in terms of CR aspects and joined the Together for Sustainability (TfS) initiative	
Principle 4: Eliminate all forms of forced and compulsory labor	G4-HR6	• Internal audits on labor standards of the Human Rights Charter • CR audits on suppliers and collection of self-reported supplier information • Revised supplier management in terms of CR aspects and joined the Together for Sustainability (TfS) initiative	Human rights on p. 24 Compliance on p. 33 Management Suppliers
Principle 5: Abolition of child labor	G4-HR5	• Internal audits on labor standards of the Human Rights Charter • CR audits on suppliers and collection of self-reported supplier information • Revised supplier management in terms of CR aspects and joined the Together for Sustainability (TfS) initiative	Human rights on p. 24 Compliance on p. 33 Management Suppliers Supply chain on p. 85
Principle 6: Eliminate discrimination	G4-10, G4-EC5–6, G4-LA1, G4-LA3, G4-LA9, G4-LA11–13, G4-HR3	• Internal audits on labor standards of the Human Rights Charter • Corporate goal to increase percentage of management positions held by women • Worldwide hotline for people to anonymously report cases of discrimination	Human rights on p. 24 Compliance on p. 33 Diversity and inclusion on p. 92 Recruiting and retaining talent on p. 95
Environmental Protection			
Principle 7: Take a precautionary approach to environmental challenges	G4-EC2, G4-EN1, G4-EN3, G4-EN8, G4-EN15–17, G4-EN20–21, G4-EN27, G4-EN31	• ISO-14001 Group certificate for company environmental management • Annual reduction of greenhouse gas emissions (reduction target 2020: 20% relative to 2006 baseline • Signed the revised version of the Responsible Care® Global Charter • EHS standards updated • Product safety measures (e.g. REACH, GHS, Global Product Strategy) • Identified sites located in areas of high water stress and created a best practice sharing platform for water management projects	Management Environment on p. 106 Climate protection on p. 109 Resources on p. 114 Sustainable products on p. 50 Safety of drugs on p. 41 Safety of chemical products on p. 43 Plant and process safety on p. 108 Transport and storage safety on p. 79 Water on p. 115 Waste management on p. 113

Table continued

Global Compact – COP

UNGC Principles	Relevant GRI Indicators	Key actions in 2013 and 2014	Link
Principle 8: Promote greater environmental responsibility	G4-EN1–34	• Implementation and update of Group-wide standards and guidelines (e.g. on Energy Management and company car policy) • New measures within EDISON climate protection program • Internal and external EHS audits • Energy checks at sites • Product labeling • Packaging take-back programs	Climate protection on p. 109 Plant and process safety on p. 108 Transport and storage safety on p. 79 Water on p. 115 Waste management on p. 113 Safety of drugs on p. 41 Safety of chemical products on p. 43 Reuse and recycling on p. 56
Principle 9: Encourage diffusion of environmentally friendly technologies	G4-EN6–7, G4-EN19, G4-EN27, G4-EN31	• Product life cycle analyses • Sustainable products developed	Sustainable products on p. 50 Performance Materials
Anti-corruption			
Principle 10: Fight corruption in all its forms	G4-56–58, G4-SO3–SO6	• Internal audits on corruption • Assessment of business partners' compliance standards • Anti-corruption training • Worldwide hotline for people to anonymously report cases of corruption	Compliance on p. 33

Independent Assurance Report[1]

To the Executive Board of Merck KGaA, Darmstadt, Germany

We were engaged to provide assurance on the sustainability information relating to 'Materiality analysis' and 'Stakeholder dialogue' as well as on the indicators in the chapter 'Facts and figures', including explanatory notes, in the online 'Merck KGaA, Darmstadt, Germany Corporate Responsibility Report 2014' (further 'the Report') for the business year 2014 of Merck KGaA, Darmstadt, Germany. The Executive Board is responsible for the appropriateness of the determination and presentation of the sustainability information in the Report in accordance with the reporting criteria. This responsibility includes the conception, implementation and maintenance of systems and processes for ensuring adherence to sustainability reporting principles when determining material report contents. Our responsibility is to issue an assurance report on the selected sustainability information, including the explanatory notes, published in the Report.

Scope

Our assurance engagement was designed to provide limited assurance on whether the following selected sustainability information for the business year 2014, including the explanatory notes, are presented, in all material respects, in accordance with the reporting criteria:

In the chapter 'Facts and figures - Indicators' the GRI G4 Specific Standard Disclosures on:

- Economics
- Compliance
- Products
- Employees
- Environment
- Society

In the chapters 'Materiality analysis' and 'Stakeholder dialogue' the GRI G4 General Standard Disclosures:

- 'Identified Material Aspects and Boundaries' GRI G4-17 to 23
- Stakeholder Engagement' GRI G4-24 to 27

The sustainability performance information in the scope of our assurance engagement is marked in the column "External assurance" of the GRI Index with the following symbol: ✔

Procedures performed to obtain a limited level of assurance are aimed at determining the plausibility of information and are less extensive than those for a reasonable level of assurance.

Reporting criteria and assurance standards

Merck KGaA, Darmstadt, Germany applies the Sustainability Reporting Guidelines G4 of the Global Reporting Initiative, the Corporate Accounting and Reporting Standard (Scope 1 und 2), and the Corporate Value Chain (Scope 3) Standard of World Resources Institute/World Business Council for Sustainable Development, supported by internal guidelines, as described in the section of the Report 'Report profile', as reporting criteria.

We conducted our engagement in accordance with the International Standard on Assurance Engagements (ISAE) 3000: 'Assurance Engagements other than Audits or Reviews of Historical Financial Information' and the International Standard on Assurance Engagements (ISAE) 3410: 'Assurance Engagements on Greenhouse Gas Statements', issued by the International Auditing and Assurance Standards Board. These standards require, amongst others, that the assurance team possesses the specific knowledge, skills and professional competencies needed to provide assurance on sustainability information, and that we comply with the requirements of the Code of Ethics for Professional Accountants of the International Federation of Accountants to ensure our independence.

Work undertaken

Our procedures included:

- An evaluation of the process for determining material aspects and respective boundaries, including results of Merck KGaA, Darmstadt, Germany's stakeholder engagement.
- A risk analysis, including a media search, to identify relevant sustainability aspects for Merck KGaA, Darmstadt, Germany in the reporting period.
- Evaluation of the design and implementation of the systems and processes for the collection, processing and control of the indicators, including the consolidation of the data, at corporate and site level.
- Interviews with relevant staff on corporate level responsible for providing and consolidating the data, as well as carrying out internal control procedures on the data including the explanatory notes.
- Visits to Tiburtina (Italy) and Bari (Italy) to assess local data collection and reporting processes and the reliability of the reported data.
- An analytical review of the data and trend explanations submitted by all sites for consolidation at Group level.
- Use of the insights and relevant work performed for the group and statutory audit of the (consolidated) financial statements for the year ended December 31, 2014 of Merck KGaA, Darmstadt, Germany with regard to audit procedures on those information and indicators that were derived from those consolidated financial statements.
- An evaluation of the overall presentation of the selected indicators, including the explanatory notes, within the scope of our engagement.

Conclusion

Based on the procedures performed, as described above, nothing has come to our attention to indicate that the sustainability information, including the explanatory notes, in the Report are not, in all material respects, presented in accordance with the reporting criteria.

Frankfurt am Main, April 15, 2015

KPMG AG
Wirtschaftsprüfungsgesellschaft

[Original German version signed by:]

Fischer
Wirtschaftsprüferin
[German Public Auditor]

Glöckner
Wirtschaftsprüfer
[German Public Auditor]

[1] Translation of the independent assurance report, authoritative in German language.

Glossary

3R principle
The 3R principle applies internationally as the guiding principle for all animal testing. By using methods to replace animal experiments (replacement), reduce the required number of tests and animals (reduction), and improve the test methods (refinement), the number of laboratory animals used as well the stress placed on them before, during and after testing are to be kept to an absolute minimum.

AAALAC
The Association for Assessment and Accreditation of Laboratory Animal Care International is a private, nonprofit organization that promotes the humane treatment of animals in science through voluntary accreditation and assessment programs.

ATM
Access to Medicine

Audit
An audit is a process performed by a trained auditor to investigate things such as management systems.

Biodiversity
The term is used to describe the diversity of ecosystems, habitats and landscapes on earth, the diversity of the species, and the genetic diversity within a biological species or population.

Biosimilars
Biosimilars are officially approved subsequent versions of innovator biopharmaceutical products made by a different sponsor after the original product's patent or exclusivity expires. Based on guidance from the EMA (European Medicines Agency), biosimilars must demonstrate comparability, or biosimilarity, to an existing approved product.

Carbon Disclosure Project
The Carbon Disclosure Project (CDP) is an independent not-for-profit organization that works on behalf of investors to motivate companies to transparently report their greenhouse gas emissions and water consumption.

Chromatography
Chromatography is a technique used to separate mixtures.

CISCRP
The Center for Information and Study on Clinical Research Participation (CISCRP) is an independent non-profit organization dedicated to educating and informing the public and patients about clinical research. CISCRP also provides information and resources to help research and health professionals better serve their patients and study volunteers.

CLP
The European CLP regulation (Classification, Labelling and Packaging of Substances and Mixtures) is based on the Globally Harmonized System (GHS) of Classification and Labelling of Chemicals.

CO_2eq
CO_2 equivalent: This indicates how much a specified quantity of a specific greenhouse gas has contributed to the greenhouse effect and uses the global warming potential of carbon dioxide as a reference.

Compliance
This term means adherence to laws and regulations as well as to voluntary codices that are internal to the company. Compliance is a component of diligent corporate governance.

Demographic change
The term describes the development of a population, such as the change in the age structure. In Germany, Switzerland, several other EU countries, and the United States, the average age of the population is on the rise.

Dual-use products
Dual-use products are goods that are normally used for civilian purposes, but that may also have military applications.

Due diligence
Due diligence means a risk analysis exercised with particular care that is done in preparation for a business transaction.

EBIT
Earnings before interest and taxes on income. Equals the operating result.

ECETOC
ECETOC is the leading European scientific forum for the ecotoxicology and toxicology of chemicals, biomaterials and pharmaceuticals. ECETOC's work focuses on the health assessment and environmental safety of substances. ECETOC's Targeted Risk Assessment (TRA) tool calculates the risk of exposure from chemicals to workers, consumers and the environment.

Ecotoxicology
Ecotoxicology focuses on the effects of substances on the ecosystem.

EDISON
Company-wide program that consolidates the company's climate protection activities.

EFPIA
The European Federation of Pharmaceutical Industries and Associations (EFPIA) is a European umbrella organization representing individual pharmaceutical companies as well as national associations of research-based pharmaceutical companies.

EHS
Environment, Health and Safety: This abbreviation describes environmental management, health protection and occupational safety throughout the company.

EQ
Environment Health Safety Security Quality: A Merck KGaA, Darmstadt, Germany function

Essential medicines
Essential medicines as defined by the World Health Organization are "those drugs that satisfy the health care needs of the majority of the population".

Eutrophicating
Eutrophicating substances cause an overabundance of nutrients in the ecosystem.

FDA
Food and Drug Administration: U.S. government agency responsible for protecting and advancing public health, especially as concerns food and drugs.

First-in-man clinical trials
Clinical trials to test medical procedures or substances on human subjects for the first time.

Generation Y
Also known as Millennials, this is the generation born between 1980 and 2000. The letter "Y" ("why?") refers to a fundamental characteristic evinced by this demographic cohort: to challenge tradition while seeking flexibility, freedom and self-actualization.

GHG Protocol
The Greenhouse Gas (GHG) Protocol is the most widely used accounting and reporting system for greenhouse gas emissions.

GHS
Globally Harmonized System of Classification and Labelling of Chemicals: An international standard system to classify chemicals that covers labeling as well as safety data sheets.

Global Compact
The Global Compact is an initiative set by the United Nations in 2003. Its signatories commit themselves to ten principles based on key UN conventions on human rights, labor standards, environmental protection, and anti-corruption.

Global Grade
The company uses the Global Grading System from Towers Watson to value positions. The system has a total of 23 different global grades available to grade all positions, thus aligning jobs across the company and providing a basis of comparison.

Global Product Strategy
The Global Product Strategy is an initiative of the International Council of Chemical Associations (ICCA) through which participating companies of the chemical industry make a commitment to comprehensive product responsibility.

Global Reporting Initiative (GRI)
The GRI is a global network of stakeholders and experts that has created guidelines for producing sustainability reports with the aim of achieving comparability among these reports. The GRI G4 standard is the fourth generation of the guidelines. Apart from information on planning, content and quality of reporting, it contains a list of the required data on management approach and indicators that are to be communicated as part of sustainability reporting.

GMP
Good Manufacturing Practices are rules and procedures that help ensure that pharmaceuticals are of the required quality. GMPs pertain to the methods, facilities and control processes utilized for manufacturing, processing, packaging, and/or storing pharmaceuticals.

Good Clinical Practice
Good Clinical Practices (GCP) are rules and procedures for clinical drug trials involving human subjects.

GPHF
The Global Pharma Health Fund e.V. is a charitable organization funded by Merck KGaA, Darmstadt, Germany. The organization's goal is to promote health care within the scope of development assistance, especially with respect to the fight against counterfeit medicines through the use of the GPHF-Minilab ^{TM}.

Greenhouse gases
Greenhouse gases are gases in the atmosphere that contribute to global warming. Greenhouse gases can be either naturally occurring or caused by humans (such as CO_2 emissions caused by burning fossil fuels).

HazCom 2012
HazCom 2012 refers to a U.S. OSHA standard pertaining to the safe handling of chemicals in the workplace, with an emphasis on occupational safety and environmental protection. This standard requires manufacturers and distributors to provide information on the hazards posed by a product as well as ways to minimize risks.

ICH
The aim of the "International Conference on Harmonisation of Technical Requirements for Registration of Pharmaceuticals for Human Use" (ICH) is to promote uniform assessment criteria for product registration in Europe, the United States and Japan. The ICH makes recommendations toward achieving greater harmonization in the interpretation and application of technical guidelines and requirements for pharmaceutical product registration. This includes, for instance, Good Clinical Practice (GCP) guidelines for clinical trials of pharmaceuticals and Good Manufacturing Practice (GMP) guidelines for flawless manufacturing.

IFPMA
The International Federation of Pharmaceutical Manufacturers & Associations (IFPMA) is the global umbrella organization for research-based pharmaceutical companies as well as pharmaceutical associations.

In vitro
In vitro refers to procedures involving components of an organism that have been isolated from their usual biological surroundings (e.g. test tube experiments).

Inert
In chemistry, the term inert ("inactive" in Latin) is used to define substances that are not chemically reactive, or that react only minimally to other chemicals.

International Labour Organization (ILO)
The ILO is a United Nations agency dealing with labor issues, in particular the formulation and implementation of international labor and social standards, especially the core ILO labor standards. The agency's work focuses on an inclusive, democratically governed globalization process and the creation of decent employment opportunities as a fundamental prerequisite for prosperity.

Interpharma
A federation of research-based pharmaceutical companies in Switzerland.

Interpol
International Police Organization.

Interventional clinical trials
Interventional studies are "investigations conducted on humans with the purpose of researching or proving the clinical or pharmacological effects of medicines, or of determining their side effects, or of investigating their absorption, distribution, metabolism, or excretion, in order to discern the safety and/or efficacy of the drug". (German Federal Drug Law (AGM), section 4, para. 23).

ISAE 3000
Short for "International Standard for Assurance Engagements other than Audits or Reviews of Historical Financial Information", the ISAE 3000 is published by the International Auditing and Assurance Standards Board (IAASB) and is currently the far most internationally applied corporate responsibility standard.

ISO 14001
This international environmental management standard sets globally recognized requirements for an environmental management system.

ISO 50001
This international standard defines globally recognized requirements for energy management systems.

IUCN
International Union for Conservation of Nature (IUCN).

Least developed countries
Least Developed Countries (LDC) are countries that, according to the United Nations, exhibit the lowest indicators of socioeconomic development.

Life cycle assessment (LCA)
A life cycle assessment (also known as ecobalance) is a systematic analysis of the environmental impact of products throughout their entire life cycle.

Liquid crystals (LC)
These specialty chemicals are used in LC displays (LCDs), such as those used in flat-screen televisions, notebooks, mobile telephones, etc.

LTIR
Lost time injury rate: indicator for workplace safety. The number of workplace accidents with one or more days of lost time per million hours worked.

Values
Our values are: Courage, Achievement, Responsibility, Respect, Integrity, and Transparency.

Mutagen
A substance that changes the DNA of an organism.

Neglected tropical disease
Neglected tropical diseases (NTD) are conditions that occur primarily in developing countries. NTDs include schistosomiasis, intestinal worms, trachoma, lymphatic filariasis, and onchocerciasis. This group of diseases is called "neglected" because, despite the large number of people affected, they have historically received less attention and research funding than other diseases.

NGO
Non-governmental organization

Non-communicable disease
Non-communicable diseases (NCDs) are non-infectious and not passed from person to person. They can refer to chronic diseases, which are of long duration and mostly slow progression. Other NCDs may, however, also result in rapid death. The four main types are cardiovascular diseases, cancers, chronic respiratory diseases, and diabetes.

OECD
The Organization for Economic Co-operation and Development, headquartered in Paris, is a forum of 34 countries committed to the principles of democracy and market economy.

OHSAS
The Occupational Health and Safety Assessment Series (OHSAS) is an international occupational health and safety management system.

OLED
Organic light-emitting diodes, a new technology for displays and lighting used in applications such as mobile phones, MP3 players, and now also in televisions and lamps.

Organizational Health Index (OHI)
The Organizational Health Index was developed by the consultant firm McKinsey. It measures and tracks a company's health by using pre-defined parameters to benchmark the company against peers in the same industry, of the same size, orientation, etc. One component of the process is an employee survey on the organization's performance capacity.

PFOS
PFOS is the abbreviation for perfluorooctanesulfonic acid.

Pharmacogenomics
Pharmacogenomics is the study of how genes affect a person's response to drugs. It deals with the influence of genetic variation on drug response in patients and aims to optimize drug therapy with respect to the patient's genotype, thereby ensuring maximum efficacy with minimal adverse effects.

Pharmacovigilance
Pharmacovigilance is the continual, systematic monitoring of a drug's safety.

PNEC
This stands for "predicted no effect concentration" and represents the concentration below which the substance is not expected to adversely impact the environment.

Product Carbon Footprint (PCF)
A product carbon footprint quantifies the total amount of greenhouse gas emissions that a product causes throughout its entire life cycle, making transparent the extent to which a product adversely affects the climate.

PS-VA
Abbreviation for polymer-stabilized vertical alignment: A polymer layer pre-aligns the molecules inside the display in a certain direction. In the black state, the liquid crystals are not exactly vertical, but slightly tilted, which allows the liquid crystals to switch more quickly. The light transmittance of the display is significantly higher, thus reducing the backlighting, one of the most costly components to produce.

Public-private partnership (PPP)
A public-private partnership is a collaboration between public sector (government) organizations, private companies and/or non-profit organizations.

REACH
Registration, Evaluation, Authorization and Restriction of Chemicals: This is an EU regulation that entered into force in mid-2007 in order to further improve chemical safety.

RoHS
Restriction of Hazardous Substances: This EU directive, which was adopted in 2002, serves to limit the use of certain hazardous materials, such as lead and cadmium, in the manufacture of various types of electrical and electronic equipment in the European Union.

Schistosomiasis
Schistosomiasis is a parasitic disease that is spread in warm lakes and ponds by snails that serve as intermediate hosts.

Security
This term stands for all necessary measures and Governance activities to detect, analyze, handle, and mitigate security- and crime-based threats to the company. This helps to protect employees as well as the tangible and intangible assets of Merck KGaA, Darmstadt, Germany.

Stakeholder
Stakeholders are people or organizations that have a legitimate interest in a company, entitling them to make justified demands. Stakeholders include people such as employees, business partners, neighbors in the vicinity of our sites, and shareholders.

Stem cells
Stem cells are undifferentiated cells with the potential to develop into many different cell types that carry out different functions.

Sunshine Laws
The Sunshine Provisions of the U.S. Patient Protection and Affordable Care Act aim to create more transparent relationships between manufacturers of drugs, medical devices and medical aids on the one hand, and doctors and teaching hospitals on the other.

Total revenues
Sum of sales as well as royalty, license and commission income. Royalties are earned primarily through patents held by the biopharmaceuticals business.

UK Bribery Act
The UK Bribery Act is an anti-corruption law in the United Kingdom. It applies not only to UK companies, but also to all companies that do business in the United Kingdom in any way.

VCI
The German Chemical Industry Association (Verband der Chemischen Industrie) represents the economic policy interests of 1,600 German chemical companies.

VfA
The German Association of Research-Based Pharmaceutical Companies (Verband der forschenden Pharma-Unternehmen) represents the interests of 44 international research-based companies and over 100 subsidiaries in health care, research and economic policy.

VOC
Volatile Organic Compounds: A collective term for organic chemical compounds that evaporate readily and are gaseous even at low temperatures.

WHO
The World Health Organization is a specialized agency of the United Nations. WHO is the directing and coordinating authority for public health within the United Nations system.

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