

corporate
responsibility
highlights
2015

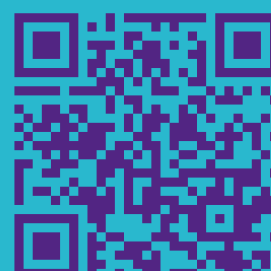


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This booklet reports on a selection of our corporate responsibility (CR) activities from 2015. Our interim CR Report for 2015 can be found on our website.

merckgroup.com/cr-report



"Hand-in-hand with our partners, we work every day to help create a bright future. We think in terms of generations instead of quarters and conduct our operations in a responsible manner. Our products and technologies are key to doing so – they play an important part in helping solve global challenges. And we know that success can only be sustainable if achieved responsibly."

Stefan Oschmann, Chairman of the Executive Board & CEO





WE ARE MERCK

We live in a world of possibilities. A world where exploration and discovery are celebrated. Our meticulous and research-driven businesses deliver diverse, high-quality products that enrich lives and enable us to share business success with our customers.

Founded in Darmstadt, Germany in 1668 by Friedrich Jacob Merck, we are the world's oldest pharmaceutical and chemical company. Today, the Merck family remains the majority owner of the company.

Over the course of nearly 350 years, we have become a truly global company. Our approximately 50,000 employees work across 66 countries and are united by their passion for new ideas, the possibilities of technology, and the potential to make a difference in the world.

We are known as Merck internationally. In the United States and Canada, however, we operate as EMD Serono in our Biopharma business, as MilliporeSigma in our Life Science business, and as EMD Performance Materials in our materials business.

We reported record results for 2015: Net sales of the Merck Group rose sharply by 13.0% to € 12.8 billion in 2015 (2014: € 11.4 billion). EBITDA pre exceptionals, the key financial indicator used to steer our operating business, climbed significantly by 7.1% to € 3.6 billion (2014: € 3.4 billion).

A PIONEERING COMPANY THAT ADVANCES TECHNOLOGIES FOR LIFE



Across healthcare, life science and performance materials, we bring high-quality, specialty products to the world.

Healthcare

From groundbreaking prescription medicines that treat conditions such as cancer and infertility, to over-the-counter products for colds and pain, our work makes a difference to millions of lives around the world.

Life Science

Providing scientists and engineers with best-in-class lab materials, technologies and services, we are dedicated to making research and biotech production simpler, faster and more successful.

Performance Materials

Developing specialty chemicals for particularly demanding applications, we provide groundbreaking liquid crystals for displays, effect pigments for coatings and color cosmetics, and high-tech materials for the production of integrated circuits.

WE TAKE RESPONSIBILITY EVERY DAY – AND HAVE BEEN DOING SO FOR NEARLY 350 YEARS.



Acting responsibly means looking, listening and doing things better. We respect the interests of our employees, customers, shareholders, and society, an approach that ensures our business success. This is an integral part of our corporate strategy, which in turn underpins our corporate responsibility (CR) strategy, the basis for the responsible governance we live each and every day.

In realizing our corporate responsibility, we focus our strengths on those areas where we can have the greatest impact. We pursue three strategic spheres of activity, namely health, environment and culture. In the process, we continuously seek to hone our competitive edge while working to sustainably secure our future.

OUR STRATEGIC SPHERES OF ACTIVITY



Health

Many people in low- to middle-income countries lack access to high-quality health solutions. We leverage our expertise and collaborate with strong partners to develop solutions for patients in developing healthcare systems. Take for example the fight against the worm disease schistosomiasis in Africa, or the quest for an improved antimalarial.



Environment

We work non-stop to improve the sustainability footprint of our products while also helping our customers achieve their own sustainability goals. Take for instance the development of liquid crystal technology. When used in smartphone and tablet displays, our liquid crystals reduce the power consumption of these devices.



Culture

Culture inspires people and broadens their horizons, which means that research and development benefits from creativity and enthusiasm. But cultural inspiration also opens people up to new ideas – it facilitates their acceptance of science, technological progress and innovation. This is why we support cultural initiatives and educational programs across the globe.



A JOURNEY TO HEALTH IN INDIA

India is a land of contrasts, with vast economic growth on the one hand and great poverty on the other. Around 900 million of the 1.29 billion inhabitants reside in rural areas with extremely limited access to medical care. Through the "Swaasthya Yaatra" program launched in 2012, we are helping support remote regions by providing our expertise and products. In doing so, we are improving the living conditions of people in India while also tapping into new markets.

70%

of India's population lives in rural areas and has very limited access to medical care.

Physicians and pharmacists in rural areas of India often lack the latest medical training. This is where we are taking action. Through our unique initiative "Swaasthya Yatra", which roughly means "journey to health", we have helped train around 3,000 physicians and 750 pharmacists in the states of Uttar Pradesh, Madhya Pradesh, West Bengal, and Bihar. The program keeps medical professionals up to date on the latest medical developments and also supplies them with drug samples.

To provide this service, specially equipped "health vans" drive along 50 routes every two months. These vehicles contain a video system, a flat-screen monitor, posters, informational material, and medicines. In 2015, we had three vans in operation. At locally held seminars, physicians and pharmacists are informed about new therapies and medicines. Videos teach basic information on subjects such as splinting broken bones and

suturing wounds, as well as primary care in diabetes, high blood pressure, cough treatment, and malaria prevention.

But we intend to do more than this. Through our expertise and medicines, we aim to expand our presence in rural areas of India while also making healthcare more accessible. We are continually working to build in-roads to other remote regions.

3,000

physicians and 750 pharmacists in rural parts of India have been provided with information on common illnesses and key treatment methods.

An invaluable program

Dr. Singh Chauhan has been practicing medicine for 35 years in Patan (Unnao district), a rural region located in the state of Uttar Pradesh, India.

Dr. Chauhan, what challenges do you face? Big hospitals, medical specialists, and modern medical devices are available in places such as Delhi, or even 90 kilometers away in Lucknow, the capital of Uttar Pradesh. But such things don't exist here, where water comes from a pump in the courtyard and electricity flows from the socket for just ten hours a day. I do what I can, yet the possibilities open to me here are sometimes very limited.

What are the ailments that you typically treat? The most frequent illnesses are diarrhea, malaria, fever, dehydration, anemia, and bowel inflammation. These complaints are often caused by poor-quality

water, insufficient knowledge about hygiene, poverty, an unbalanced diet, or malnutrition.

How has the Swaasthya Yatra program been helping you with your work?

Regular seminars provide me with invaluable information on new treatment methods and medicines, information to which I would otherwise never have access. My patients ultimately benefit from this as well.



SCHISTOSOMIASIS

RESEARCHING, COLLABORATING, ELIMINATING

Through our health solutions, we seek to be a dependable partner while also taking responsibility for the community. Take for example schistosomiasis, a tropical disease that is both devastating and neglected. An estimated 260 million people are infected with this worm disease; more than 200,000 die each year as a result, with the majority of the victims living in sub-Saharan Africa. We are partnering with the World Health Organization (WHO) to eliminate this disease.

In the 1970s we worked within a research consortium to co-develop praziquantel, a well-tolerated active ingredient that can be used to treat all forms of schistosomiasis. Since 2008, we have provided WHO with around 340 million tablets through the Merck Praziquantel Donation Program. We will soon increase the amount to up to 250 million per year – for as long as it takes to eliminate the disease in Africa. Around 74 million patients have been treated to date, primarily school children, a population segment particularly impacted by the condition's chronic systems. In 2015, we donated more than 100 million tablets to WHO for distribution to 23 countries in Africa.

However, no suitable drug formulation is currently available to treat children under the age of six. The Pediatric Praziquantel Consortium, a public-private partnership co-founded by Merck, is working to address this unmet need. The initial studies conducted in 2015 on a suitable formulation have yielded positive results. We hope to have an approved drug by 2019.

In June 2015, the consortium was once more awarded one of the prestigious research grants from the Global Health Innovation Technology Fund in Japan.

In addition to developing and donating medicines, we also support prevention and awareness efforts by developing educational material for schools and teachers in Africa, particularly in the countries of Mozambique, Malawi, Senegal, Cameroon, Zimbabwe, and Zanzibar. To date, we have supplied more than one million booklets and 75,000 posters to these countries.

At the end of 2014, we launched the Global Schistosomiasis Alliance in Ethiopia in an effort to combat schistosomiasis worldwide and address any remaining gaps in meeting the elimination target. Founding members include the Bill & Melinda Gates Foundation, the Schistosomiasis Control Initiative, the United States Agency for International Development, and World Vision International.

Jean-Baptiste's dream

Jean-Baptiste has a dream: He wants to become a teacher. Yet this young man from Ambatobe, a remote, rural village in the island nation of Madagascar, is currently unable to attend school. He has lost considerable weight, suffers from abdominal pain, has bloody urine, and is always tired. He has a parasitic disease known as schistosomiasis. His village has no access to clean drinking water. Their only source of water is a small lake, where the children also bathe and play. But the lake water is infested with schistosoma larvae, the cause of schistosomiasis. A team from the Madagascar Ministry of Public Health and Education goes to the village and diagnoses many of the school children with the disease. The children receive treatment free of charge, which kills the parasites. The symptoms quickly disappear; the children grow stronger, return to school, and work towards making their dreams a reality.

Up to **250**
million tablets

of praziquantel will be donated each year to the World Health Organization.



A TENTH OF A GRAM OF MAGIC CUTS DOWN ENERGY

Treating nature and its resources responsibly is the heart of sustainable behavior. Because we consider this to be our duty as well, we develop and commercialize products that help save energy. For instance, touchscreens containing our liquid crystals reduce the energy consumed by smartphones and tablets. This is made possible thanks to a liquid crystal technology we developed known as ultra-brightness fringe-field switching (UB-FFS), which earned us the 2015 German Innovation Award.



Touchscreen mobile devices have radically changed our day-to-day lives and fundamentally altered our communication culture. When people swipe their fingers over the touchscreen of their mobile device, they set into motion an array of liquid crystal molecules most likely produced by Merck. Only a tenth of a gram of such a liquid crystal mixture is needed to light up a smartphone or tablet.

Yet mobile devices these days must have more than vivid, high-resolution displays – they also need to consume as little energy as possible. To meet this challenge, we have developed the innovative liquid crystal technology known as UB-FFS, which was launched in 2014.

How does this technology work? Let's say you're watching a video on a display with the brightness turned all the way up, which accounts for half of a mobile device's power consumption. This is where UB-FFS comes into play. UB is short for "ultra brightness", called such because it allows the liquid

crystal layer to transmit up to 15% more of the display's backlighting. What's more, this "extra" light is utilized to provide superior image resolution. Devices with UB-FFS consume up to 30% less energy and have a longer battery life. This technology also improves display quality, which allows users to more easily read the screen from a variety of angles.

We hold more than 2,500 patents relating to liquid crystal technology. Backed by this expertise, we will continue to enhance the display properties of end devices.

15%

more light transmittance thanks to our liquid crystal mixtures.

30%

less energy consumed by the device thanks to our UB-FFS technology.

Our Displaying Futures Symposium

Our customers and partners inspire us to new heights – it is only through close cooperation that we can achieve pioneering developments such as our UB-FFS technology. We seek to more deeply engage with those who think far into the future and bring groundbreaking technologies to the world. This is why we instituted our annual Displaying Futures Symposium, which was held in November 2015 for the sixth time. Under the banner "The Future is HOW? Inspired by Performance Materials", a wide variety of experts from across the globe convened in San Francisco, CA (USA) to discuss the use of materials and high-tech chemicals in future high-quality applications.



RECYCLING RELOADED

TURNING SINGLE-USE PRODUCTS
INTO SOMETHING NEW

Many of the products we supply to our life science customers are used once and then discarded. This is primarily necessary to minimize the risk of contamination, but it also helps reduce costs. Because our customers do not have to clean these disposable items, they save time and natural resources such as energy and water. It's hard to recycle the plastic contained in our products, primarily due to inadequate recycling options, challenging material properties, and stringent regulatory requirements. We are continually working to identify new ways to minimize our environmental impacts and are collaborating closely with our customers to arrive at these solutions. One of the latest and most novel approaches we're taking is the development of new recycling processes.

33

metric tons of
single-use products
were recycled in
2015.

100%

of a single-use product can be
recycled thanks to the partnership
with Triumvirate Environmental.

In 2012, we began a program in collaboration with our customers and several waste management companies to develop a safe, robust and economical product recycling program. Pilot programs with five customers in the United States aimed to collect and recycle the plastic from products used in research labs and biopharma manufacturing processes. These recycling methods were too labor intensive because the various materials had to be separated before being recycled. We therefore needed to find an alternative solution.

That solution was presented to us at the end of 2014 by Triumvirate Environmental, a waste management company located in Somerville, Massachusetts (USA). This company had developed a novel process for recycling challenging waste streams like ours. This alternative process can recycle 100% of the product without needing to first separate the materials. The recycled material is then used in Triumvirate's production of

industrial grade plastic lumber, which is utilized in the construction industry. We began a new partnership with them and commercialized our recycling program at the beginning of 2015. During 2015, we recycled more than 33 metric tons of waste generated from the use of our products. A significant percentage of this volume came from two of our biopharma manufacturing customers. We are currently in the process of encouraging our customers to adopt our recycling program.

"This innovative program aligns with our corporate goal of not sending waste to landfill, but more importantly acts as a much needed solution in our efforts to create virtually zero waste in the first place."

Morgan Harriman, North American Zero Waste Program Manager, Sanofi Genzyme

Shredded, melted – new!

Thomas Aicardi is the Vice President of Triumvirate Environmental in Somerville, Massachusetts (USA), a waste management company we use for our recycling program.

Mr. Aicardi, can you briefly explain what happens to the waste after it arrives in your facility? The various disposable products and packaging are shredded; the metals are automatically separated out and then the plastic is ground up further. Regulated pharmaceutical waste is processed separately and sterilized, and then combined with the noninfectious waste plastics. Next, the entire mixture is dried and melted at approximately 150 degrees Celsius.

What happens to the melted mixture?

We end up with a malleable mass that we extrude to manufacture new products. These include items such as speed bumps or plastic construction materials that can be used in landscaping as a weather-proof substitute for wood.

How long does it take to go from waste to a new product? From receiving the waste to having a finished product currently takes 72 hours, which is made possible by the 47 employees involved in the process.



HOW LITERATURE BUILDS BRIDGES FOR SCIENCE

Literature gives people food for thought. It motivates and inspires, and can even stimulate scientific and social change. As a forward-looking science and technology company, we seek to leverage this potential, for culture can make people more receptive to new research while also increasing its visibility. This is why we award or support five literary prizes around the world, among them the Premio Letterario Merck in Italy. This award was presented for the 13th time at a ceremony held in Rome in July 2015.



People often have a hard time accepting new ideas; they are skeptical of change and consequently of our research as well. We believe that literature can build goodwill and foster understanding, that it can even push people's mental boundaries.

This is why, in 2003, we launched the Premio Letterario Merck in Italy, to recognize authors who do exactly that: use their writing to build bridges between literature and science, thereby making scientific topics more approachable to the general public. In 2015, our international jury chose David Quammen and Maylis de Kerangal for their ability to "impressively convey scientific subjects in literary style". The winners each received prize money of € 10,000.

At the Premio Letterario award ceremony in Rome, we also devoted time to shining a light on young creative writers. Since 2007, we've been using this auspicious occasion to honor the three winners of the "La scienza narrata" creative writing competition. The initiative is aimed at all high school students in Italy. As part of the program, we also offer creative writing laboratories in four Italian cities. In 2015, these were Rome, Varese, Caserta, and Lucca. In total, 405 adolescents participated in the workshops, weaving scientific topics into original short stories.

26 awards

along with eight honorable mentions and special prizes have been presented by Merck under the auspices of the Premio Letterario Merck since 2003.



The winners

The jury praised U.S. writer and scientific journalist **David Quammen** as a "lively, well-read author and a brilliant, sharp-minded chronicler with a consistently entertaining style". He received the award for his book "Spillover: Animal Infections and the Next Human Pandemic", in which he describes how quickly AIDS, SARS and Ebola have spread since spilling over from animals to humans. Quammen, born in 1948 in Cincinnati, Ohio (USA), addresses Darwin's theories in his book, showing how concrete the hope is today of conquering pandemics in the future.

In her novel "Réparer les vivants" (Mend the Living), **Maylis de Kerangal** describes a 24-hour race against the clock to save a heart. According to the jury, Kerangal explains the complex topic of organ donations "with sharp insight". She "gives a voice to the pulsating epic of a heart and explores every corner of the universe with the elegance of great literature". Kerangal, born in Toulon, France in 1967, is considered one of the most important authors of contemporary French literature.

CAPTIVATING AND INSPIRING

THE DEUTSCHE PHILHARMONIE MERCK



Music connects people; it forges bonds that transcend national and cultural boundaries. Music – in particular classical music – is therefore an integral part of our corporate culture, one that is embodied by the Deutsche Philharmonie Merck. As our cultural ambassador, this ensemble spreads awareness of our Values, our identity, and our success across the globe. For us, providing people access to music is a key expression of our corporate responsibility.

The Deutsche Philharmonie Merck is an integral part of cultural life in Darmstadt, Germany, the city where we are headquartered. This ensemble of professional musicians gives regular performances, including benefit concerts. They host music workshops where children and adolescents get to practice with professionals and then perform a concert together. In addition to this, our orchestra also tours internationally.

In 2015, our musicians performed in places such as Brazil, Israel, the United Kingdom, and Mexico. With conductors José Areán and Martin Lukas Meister at the helm, the Deutsche Philharmonie Merck gave a concert to mark our 85th anniversary in Mexico City and another performance to celebrate the 40th anniversary of our production facility in Rio de Janeiro (Brazil). The tour was part of the "Rhythm of Latam" initiative.

Three local organizations benefited from the ticket proceeds, namely the Association against Cancer (Mexico), Together Against Cancer (Brazil), and the School of Music and Citizenship in Rio de Janeiro.

At this music school, the Deutsche Philharmonie Merck hosted an orchestra workshop similar to the ones held in Germany since 2010. The young participants loved it. Even our own musicians were moved by the musical result when they all joined together to give a gala concert before a large audience in Rio.

Thanks to this musical tour, roughly 2,000 people in Latin America thus experienced three captivating concerts.

26,000 people

attend the concerts of the Deutsche Philharmonie Merck every year.

Not a trace of routine

Stefan Reinhardt, aged 55, has been the director of the Deutsche Philharmonie Merck for nearly 30 years, making him possibly the longest-serving music manager of this type for a German cultural orchestra.

Mr. Reinhardt, what does an average workday look like for you? Highly interesting and varied. Backed by my team, I do marketing for the Deutsche Philharmonie Merck, work with the conductors to plan concerts, and hire suitable soloists; I book recording time for our CDs and plan concert tours.

What do you enjoy the most? The fact that the work never becomes routine, and that, after so many years on the job, I can still pursue exciting, sometimes crazy projects that take off. One example is our orchestra workshops. These enable young musicians to go beyond their own limits. The result is so good that you'd think the professional orchestra was playing.

What moments made your Latin American concert tour particularly special? In Rio de Janeiro, we ran an orchestra workshop for music students. For some children, the resulting concert was the happiest day of their lives, which makes us proud. Just as we're proud of the dedication of our musicians. Despite an overnight flight, they overcame their jetlag and invested amazing energy into helping these young people grow beyond themselves.



WHAT MAKES US PROUD

-8%

We have lowered our carbon emissions by 8% relative to 2006.

**We provided
7,000**

students at Asian and African universities with training to teach them how to manage chronic diseases, part of our Capacity Advancement Program (CAP).

People from
122

nations work at Merck.

26,000
people

attended the concerts held in 2015 by the Deutsche Philharmonie Merck.

400
measures

We initiated or implemented 400 measures to mitigate our impact on the climate and bolster our energy efficiency.

33
metric tons

of single-use products were recycled through our recycling program in the United States.

More than
€ 500,000

was invested in educational projects in 2015.

27%

of our managers are women.

More than
100
million
tablets

of praziquantel were donated to WHO in 2015 to help combat schistosomiasis.

Only **1.5**

accidents per one million man-hours: With a lost time injury rate (LTIR) of 1.5 in 2015, we exceeded our goal of lowering the LTIR to 2.5.

5

literary prizes

are awarded by Merck worldwide, specifically in Germany, India, Italy, Japan, and Russia.

30%

less power is consumed by smartphones and tablets thanks to our liquid crystals.

PUBLICATION CONTRIBUTORS

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