Facts & Figures

We use indicators to facilitate comparison of our ecological, economic and social performance. This chapter illustrates the development of our indicators over the last several years. It furthermore presents our corporate responsibility objectives and describes our progress towards achieving these goals. Capping off the chapter, the Communication on Progress describes our efforts to implement the ten principles of the United Nations Global Compact.

Read More

Indicators

We use indicators to measure and assess our corporate responsibility performance. The following key figures have undergone a limited assurance by KPMG AG Wirtschaftsprüfungsgesellschaft. Sigma-Aldrich became part of the Merck Group in November 18, 2015. Because of the integration process currently underway, we have specified under each of the following tables whether the figures presented include or exclude Sigma-Aldrich.

Indicators: Economics

Net sales, operating result (EBIT) and research and development costs, by business sector (€ million)[1]

	Healthcare	Life Science	Performance Materials	Group[2]
2014				
Net sales[3]	6,620.5	2,682.5	2,059.8	**11,362.8**
Operating result (EBIT)	1,106.4	289.2	611.5	**1,762.0**
R&D costs	1,366.0	162.6	170.6	**1,703.7**
2015[4]				
Net sales[3]	6,933.8	3,355.3	2,555.6	**12,844.7**
Operating result (EBIT)	1,096.7	300.8	878.0	**1,843.2**
R&D costs	1,310.1	197.5	197.0	**1,709.2**

1 On January 1, 2015, the Merck Group changed its segment reporting structure to report on the three segments Healthcare, Life Science and Performance Materials.
2 As a non-operating segment, Corporate and Other is not shown here (see Annual Report 2015, Segment Reporting).
3 The composition of net sales has been changed, see "Changes to accounting and measurement principles and disclosure changes" in the Notes to the Group Accounts.
4 Merck including Sigma-Aldrich.

Indicators: Compliance

Internal audits on corruption and Human Rights Charter

	2012	2013	2014	2015[1]
Number of audits relating to corruption	40	30	36	49
% of audits relating to corruption	not recorded	64	68	64
Number of audits relating to the workplace section of the Merck Human Rights Charter	40	27	32	41

1 The figures exclude Sigma-Aldrich since the integration process is still underway.

Compliance violations reported via the SpeakUp Line

	2012	2013	2014	2015[1]
Number of reported compliance incidents	20	22	26	33
Number of confirmed cases	5	9	11	8

1 The figures exclude Sigma-Aldrich since the integration process is still underway.

Compliance training

	2012	2013	2014[1]	2015[2]
Total number of persons trained on anti-corruption guidelines	**22,890**	**24,168**	**7,519[3]**	**20,404[3]**
% of employees trained on anti-corruption	59	63	14	43
Number of employees Global Grade 10 or higher trained on anti-corruption	10,164	12,390	3,071	12,747
% of employees Global Grade 10 or higher trained on anti-corruption	60	69	17	64
% of employees Global Grade 9 or lower trained on anti-corruption	58	51	12	22

1 In Q1 – Q3 2014, Group Compliance performed a thorough analysis and review of its Compliance Training Program. No courses were scheduled for these quarters.
2 The figures exclude Sigma-Aldrich since the integration process is still underway.
3 Includes contractors, external supervised workers (e.g. temps) and contract partners working on-site who were trained on anti-corruption guidelines (2014: 2,023, 2015: 3,026).

In order to address the special responsibility held by management personnel, as well as by staff with HR responsibility, these employees are increasingly receiving training on anti-corruption guidelines. This applies to 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 do so in the future. Our compliance and anti-corruption principles are communicated to all our business partners, who undergo a Business Partner Risk Management (BPRM) process.

Legal actions

	2012	2013	2014	2015[1]
Total number[2] of legal actions pending or completed (for anti-competitive behavior, violations of anti-trust or violations of monopoly legislation)	**3**	**3**	**2**	**2**
pending	2	2	2	2
completed	1	1	0	0

1 Merck including Sigma-Aldrich.
2 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
- Annual Report 2015, pages 128-129 and pages 212-213, no. 27

Indicators: products

Customer privacy

	2012	2013	2014	2015[1]
Total number of substantiated complaints received from outside parties	not recorded	0	0	0
Total number of complaints from regulatory bodies	not recorded	0	1	0
Total number of identified leaks, thefts, or losses of customer data	not recorded	0	0	0

1 The figures exclude Sigma-Aldrich since the integration process is still underway.

A corporate directive regulates data protection within the Merck Group. We have received no significant complaints from customers, regulatory bodies or outside parties.

Indicators: Employees

Total number of employees

As of Dec. 31	2013	2014	2015 (Merck excl. Sigma-Aldrich)	2015 (Merck incl. Sigma-Aldrich)
Total number of employees	**38,154**	**39,639**	**40,718**	**49,613**
Men	22,253	23,273	23,891	28,997
Women	15,901	16,366	16,827	20,616

Number of employees by hierarchical level

As of Dec. 31	2013	2014[1]	2015 (Merck excl. Sigma-Aldrich)	2015 (Merck incl. Sigma-Aldrich)
Total employees	**38,154**	**39,639**	**40,718**	**49,613**
Senior management (Global Grade above 17)	63	63	75	–[2]
Low and middle management (Global Grade 14–17)	1,949	2,108	2,333	–[2]
Other employees (Global Grade below 14)	36,142	37,468	38,310	–[2]
% of women (total)	**42**	**41**	**41**	**42**
thereof in senior management (Global Grade above 17)	10	10	12	–[2]
thereof in low and middle management (Global Grade 14–17)	498	562	633	–[2]
thereof other employees (Global Grade below 14)	15,393	15,794	16,182	–[2]
% of men (total)	**58**	**59**	**59**	**58**
thereof in senior management (Global Grade above 17)	53	53	63	–[2]
thereof in low and middle management (Global Grade 14–17)	1,451	1,546	1,700	–[2]
thereof other employees (Global Grade below 14)	20,748	21,673	22,128	–[2]
by age group				
Up to 29 years old (%)	**15**	**15**	**15**	**15**
thereof in senior management (Global Grade above 17)	0	0	0	–[2]
thereof in low and middle management (Global Grade 14–17)	5	6	5	–[2]
thereof other employees (Global Grade below 14)	5,901	5,884	5,848	–[2]
30 to 49 years old (%)	**64**	**64**	**64**	**63**
thereof in senior management (Global Grade above 17)	27	24	29	–[2]
thereof in low and middle management (Global Grade 14–17)	1,233	1,340	1,469	–[2]
thereof other employees (Global Grade below 14)	23,302	24,082	24,680	–[2]
50 years or older (%)	**20**	**21**	**21**	**22**
thereof in senior management (Global Grade above 17)	36	39	46	–[2]
thereof in low and middle management (Global Grade 14–17)	711	762	859	–[2]
thereof other employees (Global Grade below 14)	6,939	7,502	7,782	–[2]

1 Figures do not include the employees of AZ Electronic Materials, a company acquired in July 2014, because our Global Grading System had not yet been implemented for them as of December 31, 2014. These employees are included under "thereof other employees (Global Grade below 14)".

2 The Global Grading System has not yet been implemented for employees of Sigma-Aldrich, a company acquired in November 2015. It is not possible to provide figures for them.

Average number of employees by functional area

Average number of employees	2013[1]	2014[1]	2015 (Merck excl. Sigma-Aldrich)[2]	2015 (Merck incl. Sigma-Aldrich)[2]
Group	**38,282**	**38,930**	**40,147**	**41,511**
Thereof women	**not recorded**	**16,110**	**16,600**	**17,180**
Production	9,985	10,176	11,122	11,563
Thereof women	not recorded	3,202	3,494	3,642
Logistics	1,779	2,207	2,345	2,581
Thereof women	not recorded	774	829	913
Marketing and Sales	12,214	12,113	12,553	12,871
Thereof women	not recorded	4,814	5,022	5,204
Administration	5,106	6,342	6,550	6,763
Thereof women	not recorded	3,557	3,664	3,757
Research and Development	4,433	4,738	4,954	5,097
Thereof women	not recorded	2,534	2,605	2,674
Infrastructure and Other	4,765	3,354	2,623	2,636
Thereof women	not recorded	1,230	986	990

1 Average Head Count (HC) 2014 and 2013 is calculated based on the End HC of the last 5 quarters divided by 5.
2 The average employee headcount for 2015 is calculated by adding up all employees at the end of each of the last 13 months (Dec. 31, 2014-Dec. 31, 2015), and dividing this total by 13. Employees of Sigma-Aldrich, a company acquired in November 2015, are only included in the employee headcount calculations as of November 2015.

Number of employees by region[1]

As of Dec. 31	2013	2014	2015 (Merck excl. Sigma-Aldrich)	2015 (Merck incl. Sigma-Aldrich)
Total	**38,154**	**39,639**	**40,718**	**49,613**
Employees in Europe	20,013	20,537	20,950	23,429
thereof women	8,755	8,893	9,114	10,316
Employees in North America	4,911	5,092	5,172	9,794
thereof women	2,246	2,272	2,290	4,183
Employees in Asia-Pacific (APAC)	8,862	9,488	9,839	11,096
thereof women	2,947	3,176	3,282	3,706
Employees in Latin America	3,798	3,883	4,032	4,352
thereof women	1,699	1,745	1,824	1,986
Employees in the Middle East and Africa (MEA)	570	639	725	942
thereof women	254	280	317	425

1 As regards segment reporting by country and region, the composition of regions was adjusted and the corresponding comparative year-earlier figures are presented. The regional reporting structure now comprises five regions: Europe, North America, Asia-Pacific, Latin America as well as Middle East and Africa.

Contractors such as temps are currently not logged in our employee data system. We are investigating possibilities for recording this information.

Employees by business sector[1]

As of Dec. 31	2013	2014	2015 (Merck excl. Sigma-Aldrich)	2015 (Merck incl. Sigma-Aldrich)
Healthcare employees	**17,278**	**17,757**	**18,566**	**18,566**
Thereof women	7,909	8,130	8,522	8,522
Thereof women (%)	46	46	46	46
Life Science employees	**9,837**	**9,796**	**9,716**	**18,611**
Thereof women	4,124	4,134	4,094	7,883
Thereof women (%)	42	42	42	42
Performance Materials employees	**4,709**	**5,995**	**6,228**	**6,228**
Thereof women	1,210	1,498	1,531	1,531
Thereof women (%)	26	25	25	25

1 On January 1, 2015, the Merck Group changed its segment reporting structure to report on the three segments Healthcare, Life Science and Performance Materials. The corresponding figures from the preceeding years have been retroacively adjusted.

Employees by contract type

As of Dec. 31	2013	2014	2015 (Merck excl. Sigma-Aldrich)	2015 (Merck incl. Sigma-Aldrich)
Total employees	**38,154**	**39,639**	**40,718**	**49,613**
Number of employees with permanent contracts	36,908	38,410	37,690	46,454
Number of employees with temporary contracts	1,246	1,219	3,028	3,159
% of employees with permanent contracts	97	97	93	94
% of employees with temporary contracts	3	3	7	6

full-time employees	34,911	37,573	38,627	47,292
% full-time	95	98	95	95
thereof women	13,524	14,497	14,963	18,557
thereof women (%)	39	39	39	39
part-time employees	1,994	2,066	2,091	2,321
% part-time	6	5	5	5
thereof women	1,839	1,869	1,864	2,059
thereof women (%)	92	90	89	89

New employees

	2013	2014	2015[1]
Total number of new employee hires	**5,007**	**6,212**	**5,710**
by age group			
Up to 29 years old	2,358	2,305	2,088
30 to 49 years old	2,397	3,361	3,252
50 or older	252	546	370
by gender			
Women	2,051	2,513	2,450
Men	2,945	3,689	3,260
by region			
Europe	1,757	2,312	2,119
North America	526	826	730
Asia-Pacific (APAC)	2,060	2,298	1,913
Latin America	548	619	780
Middle East and Africa (MEA)	116	157	168
Rate of new employee hires[2] (%)	**13**	**16**	**14**
by age group[3]			
Up to 29 years old	47	37	37
30 to 49 years old	48	54	57
50 or older	5	9	6
by gender[3]			
Women	41	41	43
Men	59	59	57
by region[3]			
Europe	35	37	37
North America	11	13	13
Asia-Pacific (APAC)	41	37	33
Latin America	11	10	14
Middle East and Africa (MEA)	2	3	3

1 These figures exclude the 8,975 Sigma-Aldrich employees, who are not classified as new hires because they joined Merck as part of the Sigma-Aldrich acquisition.

2 Formula for calculating the rate of new employee hires: Total number of new employee hires divided by Number of employees at the end of the fiscal year.

3 Formula for calculating the rate of new employee hires by age/gender/region: New employee hires of the focus group divided by the total number of new employee hires. In consequence of the modified calculation method and the new composition of our regions effective January 1, 2015 corresponding figures for the preceeding years have been retroactively adjusted.

Staff turnover[1]

	2013[2]	2014[2]	2015[3]
Total turnover rate	**14.61**	**11.01**	**10.38**
Turnover rate by gender			
Men	13.98	10.75	10.13
Women	15.00	11.38	10.73
Turnover rate by age group			
Up to 29 years old	21.55	18.71	17.49
30 to 49 years old	13.44	9.72	9.69
50 or older	13.01	9.49	8.08
Turnover rate by region			
Europe	14.61	7.05	6.22
North America	10.51	12.45	12.72
Asia-Pacific (APAC)[4]	not recorded	17.55	15.95
Latin America[4]	not recorded	13.67	15.29
Middle East and Africa (MEA)[4]	not recorded	13.62	12.00
Total number of leavers	**5,573**	**4,364**	**4,168**
by gender			
Men	3,110	2,502	2,386
Women	2,385	1,862	1,782
by age group			
Up to 29 years old	1,273	1,102	943
30 to 49 years old	3,300	2,474	2,505
50 or older	1,000	788	720
by region			
Europe	2,367	1,447	1,290
North America	516	634	638
Asia-Pacific (APAC)[4]	not recorded	1,665	1,540
Latin America[4]	not recorded	531	618
Middle East and Africa (MEA)[4]	not recorded	87	82

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

2 Employee turnover for fiscal 2013 and 2014 is calculated as follows: Total number of leavers of the past 12 months multiplied by 100 divided by the employee headcount as of December 31.

3 Employee headcount for fiscal 2015 is calculated as follows: Total number of leavers from the past 12 months divided by the average employee headcount of the past 12 months multiplied by 100. These figures exclude Sigma-Aldrich since it is still undergoing the integration process. In consequence of the modified calculation method for turnover rate, it is only possible to make a limited statement concerning interannual trends.

4 We have no 2013 data for the Asia-Pacific (APAC), Latin America, and Middle East and Africa (MEA) regions, which were realigned in 2015.

Core labor standards of the International Labour Organization (ILO)

As of Dec. 31	2013	2014	2015[1]
% of full-time employees (standard contract, excluding exempts) with contractually stipulated working hours of maximally 48 hours/week[2]	99	99	100
% of full-time employees (standard contract) with at least 15 vacation days/year[3]	98	95	97
% of female employees with access to maternity leave programs[4]	100	100	100
% of employees with the right to collective bargaining[5]	97	97	98
% of employees working at companies where collective agreements apply	68	66	71
% of sites that rule out complicity in child labor as described in ILO Convention 138	100	100	100
Age of youngest employees, excluding apprentices	16	17	17

1 The figures exclude Sigma-Aldrich since the integration process is still underway.
2 ILO: Hours of Work (Commerce and Offices) Convention, 1930 (No. 30).
3 ILO: Holidays with Pay Convention (Revised), 1970 (No. 132).
4 ILO: Maternity Protection Convention (Revised), 1952 (No. 103).
5 ILO: Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87).

Local minimum wage

As of Dec. 31	2013	2014	2015[1]
% of sites that guarantee a salary above the local minimum wage[2]	100	100	100

1 The figure does not include data from Sigma-Aldrich since the integration process is still underway.
2 Minimum wage as stipulated by law, or derived from other provisions such as collective agreements.

The Global Rewards Policy applies across all Merck 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.

Work-related accidents[1]

	2013	2014	2015[2]
Lost Time Injury Rate (LTIR=workplace accidents resulting in missed days of work per one million man-hours)	**2.2**	**1.8**	**1.5**
by region			
Europe	3.7	2.9	2.7
North America	0.9	1.0	0.8
Asia-Pacific (APAC)	0.3	0.5	0.2
Latin America	2.1	1.3	0.5
Middle East and Africa (MEA)	1.8	0.9	0.0
Number of deaths	**0**	**2**	**2**
by region			
Europe	0	0	1
North America	0	0	1
Asia-Pacific (APAC)	0	1	0
Latin America	0	1	0
Middle East and Africa (MEA)	0	0	0
by gender			
Women	0	1	1
Men	0	1	1

1 Including contractors.
2 The figures exclude Sigma-Aldrich since the integration process is still underway.

Despite our efforts at accident prevention, we've had four fatal workplace accidents over the last two years. In 2015, one employee died in a car accident in the USA, and in Germany one employee suffered a fatal accident involving a fork lift. In 2014, an employee died in Venezuela in a traffic accident, and in Pakistan an employee suffered a fatal incident doing maintenance work on a scissor lift.

Both Merck employees as well as contractors have been included in the calculation of these indicators.

Through the LTIR, we record work-related accidents 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 goods transport, as a result 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.

By 2020, we intend to sustainably lower the LTIR to 1.5. The aim is to permanently stabilize or outperform this challenging number, which we achieved for the first time in 2015.

For the Merck KGaA sites in Darmstadt and Gernsheim (about 19% of the employees of the Merck Group) we only report work-related illnesses if these have been diagnosed and verified by a physician. In the reporting period, no cases of work-induced illness were recorded.

We have defined the LTIR as a key indicator for the Merck Group. 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.

Spending on advanced training for employees (€)

	2013	2014	2015[1]
Average continuing education spending per employee	679	718	775

1 The figure does not include data from Sigma-Aldrich since the integration process is still underway.

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

	2013[1]	2014[2]	2015[3]
% of employees who receive a performance and development evaluation	**72**	**79**	**88**
by gender			
Women	75	84	90
Men	71	77	87
by employee category			
Senior management (Global Grade above 17)	100	97[4]	100
Low and middle management (Global Grade 14–17)	100	96[4]	100
Other employees (Global Grade below 14)	72	78[4]	88

1 The 2013 data is based on a reporting date of March 12, 2014.
2 The 2014 data is based on a reporting date of March 2, 2015.
3 The 2015 data is based on a reporting date of February 29, 2016. The figures exclude Sigma-Aldrich since the integration process is still underway.
4 The fluctuations in participant numbers by employee category can be explained by the process of the Merck's acquisition of AZ Electronic Materials.

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. The Performance and Talent Management Process is coordinated via the HR Suite IT system.

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 2015, around 36,017 employees worldwide were involved in the process.

Apprentices

As of Dec. 31	2013	2014[1]	2015[2]
Number of apprentices	516	498	506
% of apprentices	5.6	5.4	5.3

1 Only pertains to Merck KGaA sites in Darmstadt, Gernsheim and Grafing, Germany (which accounted for roughly 24% of the Merck Group's employees in 2014).
2 Only pertains to Merck KGaA (roughly 19% of the Merck Group's total employee headcount in 2015)

Internationality of employees

As of Dec. 31	2013	2014[1]	2015[2]
Number of nationalities	114	122	122
Number of nationalities in management positions (Global Grade 14 or above)	64	67	64
% of non-Germans in management positions (Global Grade 14 or above)	60	60	61

1 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.
2 The figures do not include data from Sigma-Aldrich since the integration process is still underway.

Employee age by region

As of Dec. 31

Number of employees	Worldwide	North America	Europe (including Germany)	Germany	Asia-Pacific (APAC)	Latin America	Middle East and Africa (MEA)
2014							
Up to 29 years old	5,890	512	2,427	1,513	2,256	538	157
thereof women	2,458	221	1,105	579	778	295	59
30 to 49 years old	25,446	2,804	12,979	6,359	6,444	2,818	401
thereof women	10,854	1,302	5,862	2,486	2,224	1,283	183
50 or older	8,303	1,776	5,131	3,319	788	527	81
thereof women	3,054	749	1,926	1,133	174	167	38
Average age	**40.6**	**44.5**	**42.0**	**42.7**	**36.1**	**39.2**	**37.2**
Total employees	**39,639**	**5,092**	**20,537**	**11,191**	**9,488**	**3,883**	**639**
2015 (Merck excluding Sigma-Aldrich)							
Up to 29 years old	5,853	529	2,497	1,544	2,121	539	167
thereof women	2,479	224	1,147	602	749	297	62
30 to 49 years old	26,178	2,790	13,149	6,421	6,841	2,929	469
thereof women	11,150	1,287	5,963	2,501	2,338	1,349	213
50 or older	8,687	1,853	5,304	3,357	877	564	89
thereof women	3,198	779	2,004	1,159	195	178	42
Average age	**41.1**	**45.2**	**42.4**	**42.9**	**36.9**	**39.8**	**37.8**
Total employees	**40,718**	**5,172**	**20,950**	**11,322**	**9,839**	**4,032**	**725**
2015 (Merck including Sigma-Aldrich)							
Up to 29 years old	7,565	1,314	2,912	1,624	2,496	666	177
thereof women	3,233	522	1,378	649	898	367	68
30 to 49 years old	31,047	5,117	14,589	6,775	7,651	3,092	598
thereof women	13,242	2,285	6,673	2,674	2,576	1,434	274
50 or older	11,001	3,363	5,928	3,539	949	594	167
thereof women	4,141	1,376	2,265	1,241	232	185	83
Average age	**41.2**	**44.2**	**42.4**	**43.0**	**36.7**	**39.5**	**39.5**
Total employees	**49,613**	**9,794**	**23,429**	**11,938**	**11,096**	**4,352**	**942**

Insurance and pension systems for employees

In addition to having statutory accident insurance, more than 95% of our employees are covered by locally arranged company accident insurance.

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.

In addition to this, in numerous countries we also offer supplementary health insurance for employees and family members, an option utilized by roughly two-thirds of our employees.

Long-term pension obligations and post-employment benefits

€ million	2013	2014	2015[1]
Present value of all pension obligations as of Dec. 31	2,737	3,813	4,153
Pension expenses	147	157	210

1 Merck including Sigma-Aldrich.

Depending on the legal, economic and fiscal circumstances prevailing in each country, different retirement benefit systems are provided for the employees of the Merck Group. Generally these systems are based on the years of service and salaries of the employees. Pension obligations of the Merck Group include both defined benefit and defined contribution plans and comprise both obligations from current pensions and accrued benefits for pensions payable in the future. In the Merck Group, 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 2015, Note on Provisions for pensions and other post-employment benefits).

Flexible working hours

As of Dec. 31	2013	2014	2015[1]
% of employees with the option of working flexible hours	75	74	80

1 The figure does not include data from Sigma-Aldrich since the integration process is still underway.

Indicators: Environment

Spending on environmental protection, safety and health (€ million)

	2012	2013	2014	2015[1]
Spending	146	142	145[2]	148

1 The figure does not include data from Sigma-Aldrich since the integration process is still underway.
2 Figure retroactively adjusted.

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 impact mitigation, and energy efficiency.

Total greenhouse gas emissions (metric kilotons) (Scope 1 and 2 of the GHG Protocol)[1]

	2006[2]	2012	2013	2014	2015[3]
Total CO_2eq[4] emissions	**561**	**543**	**559**	**517**	**518**
Thereof					
direct CO_2eq emissions	316	318	348	321	327
indirect CO_2eq emissions	245	225	211	196	191
Biogenic CO_2 emissions	**6**	**5**	**6**	**11**	**54**

1 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).
2 Baseline for our emission targets is 2006.
3 This figure does not include data from Sigma-Aldrich since the integration process is still underway. The direct and indirect CO_2eq emissions (Scope 1 and 2) of the former Sigma-Aldrich sites add up to approximately 215 metric kilotons in 2015.
4 eq = equivalent

The increase in biogenic carbon emissions was caused by the biomass powerplants that were commissioned in Goa, India, and Jaffrey, New Hampshire (USA) at the end of 2014.

Our response to the Carbon Disclosure Project contains a detailed description of our calculation methods. We have included the following gases in 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 2015, we emitted 0.040 kg of CO_2eq per euro of net sales.

Other relevant indirect greenhouse gas emissions (Scope 3 of the GHG Protocol)

	2012	2013	2014	2015[2]
Total gross other indirect emissions (metric kilotons CO_2eq[1])	**49**	**64**	**319**	**349**
Fuel- and energy-related emissions, not included in Scope 1 or 2 (category 3)	not recorded	not recorded	97	95
Waste generated in operations (category 5)	not recorded	not recorded	96	123
Business travel - air travel (category 6)	48	63	74	79
Business travel - rail travel (category 6)	0.1	0.05	0.02	0.02
Business travel - rental car travel (category 6)	0.8	1.3	1.2	1.1
Employee commuting (category 7)	not recorded	not recorded	51	51
Upstream leased assets (category 8)	not recorded	not recorded	0[3]	0[3]
Processing of sold products (category 10)	not recorded	not recorded	0[4]	0[4]
Downstream leased assets (category 13)	not recorded	not recorded	0	0
Franchises (category 14)	not recorded	not recorded	0	0

1 eq = equivalent
2 The figure does not include data from Sigma-Aldrich since the integration process is still underway.
3 Already covered under Scope 1/2 emissions.
4 Merck produces 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.

No data is available for Scope 3 categories not listed above. Their relevance to Merck is assessed in the Scope 3 document.

Biogenic emissions (Scope 3), if present, are not being recorded.

Emissions of ozone-depleting substances (metric tons)

	2012	2013	2014	2015[1]
Total emissions of ozone-depleting substances	1.9	1.5	0.9	1.4
CFC-11eq[2]	0.10	0.08	0.05	0.08

1 The figures exclude Sigma-Aldrich since the integration process is still underway.
2 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)

	2012	2013	2014	2015[1]
Volatile organic compounds (VOC)	0.2	0.2	0.3	0.3
Nitrogen oxide	0.2	0.2	0.2	0.2
Sulfur dioxide	0.02	0.02	0.02	0.05
Dust	0.03	0.01	0.02	0.06

1 The figures exclude Sigma-Aldrich since the integration process is still underway.

The increase in dust and sulfur dioxide emissions was caused by the biomass power plant that was commissioned in Goa, India at the end of 2014.

The VOC, nitrogen oxide, sulfur dioxide, and dust emissions reported here are attributable to production activities as well as energy generation. 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 of finished goods, by means of transportation[1]

	2012	2013	2014	2015
% Truck	58	56	56	53
% Boat	36	37	38	41
% Airplane	6	7	6	6

1 Pertains to goods shipped by our Darmstadt, Gernsheim and Hohenbrunn sites in Germany (excluding Sigma-Aldrich). These figures pertain to the total weight of the transported products. Indicated here is the primary means of transport.

In shipping finished goods from our production sites to the local warehouses of our subsidiaries, we have been working to reduce the use of air shipping in favor of sea freight. This change aims to both reduce costs as well as lower transport-related CO_2 emissions.

Energy consumption[1]

in GWh	2012	2013	2014	2015[2]
Total energy consumption	**1,528**	**1,549**	**1,602**	**1,720**
Direct energy consumption	**924**	**991**	**1,056**	**1,171**
Natural gas	813	871	919	933
Liquid fossil fuels[3]	98	105	110	103
Biomass and self-generated renewable energy	13	15	27	135
Indirect energy consumption	**604**	**558**	**546**	**549**
Electricity	491	493	460	466
Steam, heat, cold	113	65	86	83
Total energy sold	**0.5**	**0.4**	**0.6**	**0.5**
Electricity	0.5	0.4	0.6	0.5
Steam, heat, cold	0	0	0	0

in TJ	2012	2013	2014	2015
Total energy consumption	**5,501**	**5,577**	**5,767**	**6,193**
Direct energy consumption	**3,327**	**3,568**	**3,801**	**4,216**
Natural gas	2,927	3,136	3,308	3,359
Liquid fossil fuels[3]	353	378	396	371
Biomass and self-generated renewable energy	47	54	97	486
Indirect energy consumption	**2,174**	**2,009**	**1,966**	**1,977**
Electricity	1,768	1,775	1,656	1,678
Steam, heat, cold	407	234	310	299
Total energy sold	**2**	**1**	**2**	**2**
Electricity	2	1	2	2
Steam, heat, cold	0	0	0	0

1 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).
2 The figures exclude Sigma-Aldrich since the integration process is still underway.
3 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), Ciudad de Guatemala (Guatemala), and Shanghai (China), we use photovoltaics to produce power. The increase in biomass and self-generated renewable energy consumption is attributable to the biomass power plants that were commissioned in Goa, India, and Jaffrey, New Hampshire (USA) in 2014.

Merck currently only records 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 not available. Data on local energy efficiency in electricity or heat generation are not available either. Our production sites are located in countries with a widely varying energy mix.

Our Darmstadt and Gernsheim sites in Germany consume the most energy, representing 37% of our Group-wide total. At these sites, fossil energy (coal, gas, etc.) accounts for approx. 55%, nuclear energy approx. 17% and renewable energies approx. 28% of the energy mix.

Renewable energies account for a higher share of electricity generation at production sites in Switzerland, with nuclear energy taking the lead in France. 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 2015. Based on an estimated global energy efficiency of 85% for heat/steam/cold, this results in a primary energy consumption of 98 GWh for 2015. This yields a total primary energy consumption of 1,358 GWh for 2015. 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 2015, Merck's energy intensity relative to net sales totaled 0.134 kWh/€.

Water consumption (millions of m^3)

	2012	2013	2014	2015[1]
Total water consumption	**16.3**	**9.6**	**11.1**	**11.6**
Surface water (rivers, lakes)	7.0	0.0	0.3	0.3
Groundwater	5.3	5.4	6.3	6.7
Drinking water (from local suppliers)	4.0	4.2	4.5	4.6
Rain water and other sources	0.01	0.01	0.03	0.03

1 The figures exclude Sigma-Aldrich since the integration process is still underway.

These figures do not include the ground water that we use for safety measures at the Gernsheim site in Germany. Here, the water is fed back directly into natural circulation.

Water reused (millions of m^3)

	2012	2013	2014	2015[1]
Water reused	17.8	16.6	16.0	23.0

1 The figure does not include data from Sigma-Aldrich since the integration process is still underway.

The increase in reused water in 2015 is attributable to the recirculating cooling system that went on line at our facility in Darmstadt, Germany. This system provides recirculating cooling water to both our new co-generation unit as well as our new cold and compressed air generator.

Wastewater volume and quality

	2012	2013	2014	2015[1]
Total wastewater volume (millions of m^3)	**8.5**	**8.6**	**10.1[2]**	**10.0**
Chemical oxygen demand (metric tons of O_2)	929	756	1,319[2]	1,384
Phosphorous (metric tons)	7	7	11	11
Nitrogen (metric tons)	76	77	81	108
Zinc (kg)	267	293	288	280
Chromium (kg)	21	23	36[2]	41
Copper (kg)	37	36	34	62
Nickel (kg)	101	110	128	126
Lead (kg)	35	42	55	53
Cadmium (kg)	10	10	10	13
Mercury (kg)	1	1	1	1
Arsenic (kg)	3	4	4	4

1 The figures exclude Sigma-Aldrich since the integration process is still underway.
2 Figures retroactively adjusted.

The wastewater volume includes indirect discharge into both public and Merck-owned wastewater treatment plants, as well as direct discharge (such as rainwater and cooling water).

The wastewater treatment plant at our Gernsheim, Germany site also treats wastewater from the neighboring municipality of Biebesheim. 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.

Hazardous and non-hazardous waste (metric kilotons)

	2012	2013	2014	2015[1]
Total waste	**189**	**161**	**228[2]**	**295**
Hazardous waste disposed[3]	62	37	53	55
Non-hazardous waste disposed[3]	36	31	55	31
Hazardous waste recycled	48	50	49[2]	59
Non-hazardous waste recycled	43	43	71	150

1 The figures exclude Sigma-Aldrich since the integration process is still underway.
2 Figures retroactively adjusted.
3 Disposed = incineration and landfill.

The amount of "non-hazardous waste disposed" decreased in 2015 because there was less landfill needing disposal.

The increase in "non-hazardous waste recycled" can be attributed to the sharp rise in landfill, construction waste, and demolition waste. Landfill, construction waste, and demolition waste accounted for 47% of total waste in 2014, and 53% of total waste in 2015.

Exported/Imported hazardous waste (metric kilotons)

	2012	2013	2014	2015[1]
Exported[2]	not recorded	7.1	9.6[3]	4.3
Imported[4]	not recorded	0.01	0.003	0.01

1 The figures exclude Sigma-Aldrich since the integration process is still underway.
2 Disposal within the EU.
3 Figure retroactively adjusted.
4 As part of the return system for our cell tests, these kits are brought to our Gernsheim site in Germany for proper disposal.

Waste by disposal method

	2012	2013	2014	2015[1]
Total waste (metric kilotons)	**189**	**161**	**228**[2]	**295**
Disposed waste (metric kilotons)	**98**	**67**	**108**	**86**
Landfilled waste (metric kilotons)	19	13	37	12
Incinerated waste (metric kilotons)	79	54	71	74
Recycled waste (metric kilotons)	**91**	**94**	**120**[2]	**209**
Material recycling (metric kilotons)	67	69	93[2]	181
Waste-to-energy (metric kilotons)	24	25	27	28
Recycling rate (%)	**48**	**58**	**53**	**71**

1 The figures exclude Sigma-Aldrich since the integration process is still underway.
2 Figures retroactively adjusted.

The waste output of the Merck Group rose to 295 metric kilotons in 2015 (228 metric kt in 2014). Waste from construction and renovation projects accounted for the majority of the waste (2014: 47%; 2015: 53%), stemming in particular from the remodeling of our Global headquarters in Darmstadt. In 2014, roughly 50 metric kilotons of this waste was recycled, with approximately 124 metric kilotons recycled in 2015.

Significant spills

	2012	2013	2014	2015[1]
Total number of significant spills	0	0	0	0

1 The figure does not include data from Sigma-Aldrich since the integration process is still underway.

Indicators: Community

Spending on community involvement (€ million)

	2012	2013	2014	2015[1]
Total spending	11.8	46.2	50.8	100.0

1 The figure does not include data from Sigma-Aldrich since the integration process is still underway.

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 community involvement spending is attributable to the expansion of the Merck Praziquantel Donation Program (MPDP) as well as the expansion of the Erbitux® China Patient Assistance Program. In the Merck Praziquantel Donation Program, we are partnering with the World Health Organization to combat the worm disease schistosomiasis in African school children. Through the Erbitux® China Patient Assistance Program, roughly 90% of the costs for Erbitux® treatment can be covered for colorectal cancer patients with a good prognosis.

Spending on community involvement, by region (%)[1]

	2012	2013	2014	2015[2]
Europe	20	36	37	8
North America	13	1	< 2	1
Asia-Pacific (APAC)	59	61	60	91
Latin America	8	< 1	< 2	< 1
Middle East and Africa (MEA)	< 1	< 1	< 1	< 1

1 Excluding spending for the Global Pharma Health Fund, the Merck Praziquantel Donation Program and the Deutsche Philharmonie Merck. As regards segment reporting by country and region, the composition of regions was adjusted and the corresponding comparative year-earlier figures are presented. The regional reporting structure now comprises five regions: Europe, North America, Asia-Pacific, Latin America as well as Middle East and Africa.
2 The figures exclude Sigma-Aldrich since the integration process is still underway.

In 2015, the significant increase in spending on the Erbitux® China Patient Assistance Program led to a relative rise in spending in our Asia-Pacific (APAC) region, and a relative decrease in spending in other regions.

Focus of local community involvement (%)[1]

	2012	2013	2014	2015[2]
Disaster relief	3	6	4	6
Education	16	23	23	25
Environment	9	10	10	7
Health	30	23	33	33
Support for culture and sports activities near our sites	28	19	15	8
Other	14	19	15	21

1 Based on number of projects, excluding the Global Pharma Health Fund, Merck Praziquantel Donation Program and Deutsche Philharmonie Merck.
2 The figures exclude data from Sigma-Aldrich since the integration process is still underway.

Motivations for our community involvement (%)[1]

	2012	2013	2014	2015[2]
Charitable activities	32	20	9	3
Community investment	52	59	59	92
Commercial initiatives in the community	16	21	32	5

1 Based on total spending, excluding spending for the Global Pharma Health Fund, the Merck Praziquantel Donation Program and the Deutsche Philharmonie Merck.
2 The figures exclude Sigma-Aldrich since the integration process is still underway.

In 2015, the significant increase in spending on the Erbitux® China Patient Assistance Program, which falls under "Community investment", led to a relative decrease in spending in other areas.

We categorize the motivations for our activities based on the London Benchmarking Group model as well as the guidelines of the Bertelsmann Foundation for corporate social responsibility. Projects that primarily aim to make improvements within the community are classified as "community investment".

Initiatives that are predominantly aimed at company-relevant factors such as image or personnel recruitment are classified as "commercial initiatives in the community". "Charitable activities" covers any other projects that benefit a charitable organization, but cannot be listed under either of the other two motivation categories due to missing data or their narrow scope.

Goals

Our corporate responsibility goals set the course to be followed for the next several years. This section presents these objectives and reports on the progress we've made towards achieving them.

Products

Product safety

Goal: Establish a globally uniform hazard and risk communication standard for all relevant Merck chemical products in the supply chain based on the precautionary principle

Measure(s): Implementation of REACH: Register substances produced in quantities of 1-100 metric tons per year (phase 3 of REACH implementation) and register non-phase-in substances
By when: Mid-2018
Status description for 2015: We registered another 30 phase-3 substances in 2015.
Status: In progress

Measure(s): Implementation of the Global Product Strategy (GPS): Issue Product Safety Summaries for all hazardous substances registered under REACH
By when: End of 2020
Status description for 2015: Another three Product Safety Summaries were issued in 2015.
Status: In progress

Measure(s): Projects for hazard communication: Update safety data sheets for non-hazardous chemical products
By when: End of 2020
Status description for 2015: 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.
Status: In progress

Measure(s): Increase the number of safety data sheets in alignment with a globally uniform standard
By when: End of 2020
Status description for 2015: Software-based EHS (Environment, Health, and Safety) management system roll-outs in China, Japan, South Korea, and Taiwan paved the way to globally uniform standards in hazard communication.
Status: In progress

Measure(s): Implementation of US GHS/HazCom 2012: Classify pure substances, mixtures and sets in the United States according to HazCom 2012 criteria
By when: Mid-2015
Status description for 2015: All pure substances, mixtures and sets were classified and labeled in alignment with HazCom 2012 by the deadline.
Status: Goal achieved

Product-related crime

Goal: Protect customers and patients from harm by product-related crime

Measure(s): Continue to develop Group-wide product security guidelines for all relevant products
By when: End of 2016
Status description for 2015: The following internal guidelines were created in 2015 and adopted in January 2016:

- MACON Team Charter: Expands and professionalizes the Merck Anti-Counterfeiting Operational Network (MACON) by involving local experts in securing evidence, performing analyses, etc.
- Product security standard for Merck's Healthcare business sector

A product investigation standard is being created to expand knowledge and optimize processes at our subsidiaries with regard to handling product crime.
Since October 2015, we have been consolidating our Group-wide measures in order to harness synergies between our business sectors, making our battle against product-related crime even more effective.
Status: In progress

Measure(s): Monitor the numbers for unreported cases of counterfeit medicines in select countries
By when: End of 2016
Status description for 2015: In one of our markets, we have initiated a project to gather intelligence on cases of counterfeit medicines that are not officially reported. Based on the results, we are developing a method of monitoring these dark figures and applying it to other countries.
The Dark Web is constantly under surveillance for signs of Merck products.
Status: In progress

Measure(s): Support regional efforts against product-related crime
By when: End of 2016
Status description for 2015: In 2015, we supported investigations in India, China, the United States, and Mexico.
Status: In progress

Measure(s): Pilot a project to improve product safety in high-risk regions of Africa using software-based solutions
By when: End of 2016
Status description for 2015: We have developed an app called Check-My-Meds^{TM}, which was piloted in the United States in 2015. It is scheduled for launch in Africa in 2016.
Status: In progress

Measure(s): Conduct a risk assessment in our Healthcare business sector to identify strategically and commercially relevant data that have a greater need of protection
By when: End of 2016
Status: New goal

Measure(s): Increase internet searches to hunt down trademark infringement and counterfeit products
By when: End of 2016
Status: New goal

Goal: Increase internal awareness of strategic relevance of counterfeit pharmaceuticals

Measure(s): Expand scope of employee training and increase internal reporting
By when: End of 2015
Status description for 2015: We conducted three workshops at critical sites. Furthermore, during a meeting of the Global Security Network in Darmstadt, Germany, product crime officers gathered together to share their experience and best practices.
The reporting system for product-related crime was enhanced in order to improve the reporting process and raise awareness of the importance of reporting.
Status: Goal achieved

Measure(s): Host a conference of the Pharmaceutical Security Institute (PSI) with industry representatives
By when: End of 2015
Status description for 2015: Merck hosted a conference of the Pharmaceutical Security Institute (PSI).
Status: Goal achieved

Measure(s): Expand MACON network to include representatives from major sites
By when: End of 2016
Status: New goal

Measure(s): Conduct awareness workshops for employees
By when: End of 2016
Status: New goal

Access to health

Goal: Monitor and assess the progress and efficacy of our Access to Health programs.

Measure(s): Develop quantitative and qualitative performance indicators for the 4 A's: Availability, Accessibility, Affordability, and Awareness
By when: End of 2016
Status description for 2015: In 2015, we began defining performance indicators that are used to monitor and assess the progress as well as efficacy of our Access to Health programs.
Status: In progress

Goal: Availability: Address unmet needs through the research, development and refinement of health solutions

Measure(s): Expand our R&D portfolio for infectious diseases within the scope of the Global Health Innovation Platform. We have created a three-year business plan for implementing this new entity within Global Health R&D, with focal areas being the development of a pediatric formulation to treat schistosomiasis in preschool-aged children, as well as the development of a new anti-malarial drug.
By when: End of 2017
Status description for 2015: Schistosomiasis: Successful completion of a Phase I trial with healthy subjects in South Africa, as well as a taste study with children in Tanzania. We are also working to identify new active ingredients.
Malaria: In March 2015, we obtained the rights to a promising new antimalarial compound that is in the preclinical phase and that we will continue to develop. In addition, our Healthcare and Life Science business sectors are currently developing a kit for malaria based on the Muse® Auto CD4/CD4% analysis system; the device will assess the presence and type of malaria parasite and potentially measure co-infection with HIV.
Status: In progress

Goal: Affordability: Address inability to pay

Measure(s): Through our WIPO Re:Search membership, engage in a partnership to share our intellectual property and knowledge to catalyze the development of medical products against infectious diseases
By when: End of 2016
Status description for 2015: In 2015 we finalized a collaboration agreement with the University of Buea in Cameroon that aims to repurpose compounds from our library to develop a treatment for onchocerciasis, also known as river blindness.
Status: Goal achieved

Goal: Awareness: Empower health workers, communities and patients

Measure(s): Develop an integrated initiative of our Healthcare and Life Science business sectors to raise awareness and empower people to make informed decisions
By when: End of 2016
Status description for 2015: In 2015, we were in the initial stages of developing a proposal that aims to take a holistic approach to tackling access to health challenges.
Status: In progress

Goal: Accessibility: Strengthen supply chains and provide localized solutions

Measure(s): Develop an initiative to reach patients, regardless of their geographic location, and ensure they have access to health solutions.
By when: End of 2016
Status description for 2015: In 2015, we started engaging a diverse array of stakeholders, including pharmaceutical companies, international organizations, governments, academics, and NGOs, among other private and public stakeholders, to address supply chain and delivery issues in developing countries.
Status: In progress

Animal research

Goal: Harmonize animal welfare Group-wide

Measure(s): Develop a Group-wide audit concept for the facilities of contract animal research organizations
By when: End of 2015
Status description for 2015: Merck's audit concept is described in our Animal Safety & Welfare Manual. The processes specified were implemented in 2015.
Status: Goal achieved

Goal: Harmonize the high quality of animal facilities used by our Biopharma business

Measure(s): Obtain AAALAC International accreditation for all Biopharma laboratory animal facilities
By when: End of 2015
Status description for 2015: In 2015, four of our five Biopharma animal facilities were (re-)accredited to AAALAC standards, while the fifth one has applied for accreditation.
Status: Goal not Achieved

Goal: Launch a Merck 3R award

Measure(s): Participate in the 3Rs IQ/AAALAC Award Program
By when: End of 2015
Status description for 2015: Instead of initiating our own internal award, we decided to support the world-renowned 3Rs IQ/AAALAC Award.
The first award was presented in 2015.
Status: Goal achieved

Transport and warehouse safety

Goal: Further improve warehouse and transport safety

Measure(s): Expand scope of transport safety audits to include contracted service providers
By when: End of 2016
Status description for 2015: The warehouses of all contracted service providers have been integrated into our audit process. We are currently working on a method of integrating transport companies into our audit process as well.
Status: In progress

Measure(s): Implement improvement programs in countries and regions selected on risks specific to the products being handled
By when: End of 2016
Status description for 2015: In 2015, we piloted a project in India to increase transport and warehouse safety. The first set of improvements have already been implemented. In 2016, we plan to examine the documentation and risk assessment of participating suppliers to find areas for improvement.
Status: In progress

Measure(s): Implement a process to further improve our management approach to transport and warehouse safety
By when: End of 2016
Status description for 2015: In the course of the assessment process, we utilized safety-relevant customer complaints to identify areas for improvement and then implemented measures such as the following:

- Improving the packaging concept for certain chemicals
- Warehouse audits of third-party companies

Status: In progress

Suppliers

Supplier management

Goal: Ensure our suppliers adhere to ethical, social, environmental, and compliance standards (part of our risk mitigation strategic procurement objective)

Measure(s): Systematically collect supplier assessments using the Together for Sustainability (TfS) methodology
By when: End of 2015
Status description for 2015: The TfS process has been implemented. TfS has given us access to evaluations for over 300 of our most important suppliers; roughly 100 of these were initiated in 2015 at our prompting. In addition, we also conducted TfS audits on nine vendors in 2015.
Status: Goal achieved

Measure(s): Establish a CR standard operating procedure
By when: End of 2015
Status description for 2015: A CR SOP was drafted in 2015; it will be adopted and implemented Group-wide in early 2016.
Status: In progress

Employees

Diversity and inclusion

Goal: Increase the percentage of management positions (Global Grade 14+) held by women to at least 25%-30%

Measure(s): Increase the percentage of management positions held by women through numerous initiatives that move women into those positions
By when: End of 2016
Status description for 2015: We are utilizing targeted communication activities to raise awareness of diversity within the company. Our HR processes, such as talent management, help ensure that women are included as well as empowered.
The percentage of management positions (Global Grade 14+) held by women is currently 27% Group-wide. Certain Group functions such as IT have a lower percentage of women in management positions. However, the figures are continuously increasing across the Group as a whole. We have reached our strategic goal of raising the percentage of management positions held by women to 25%-30% and intend to further increase this figure by the end of 2016.
Status: In progress

Attracting and retaining talent

Goal: Talent & Succession Management: Fill at least 2/3 of positions ranked Global Grade 16+ with internal candidates

Measure(s): Use the Talent Management Process to identify suitable employees with management potential and define a process to systematically develop them
By when: Ongoing
Status description for 2015: In 2013, we introduced the Talent & Succession Management Process in order to systematically foster and develop talent. In 2015, 70% of our vacant management positions were filled internally.
Status: ✓ Goal achieved

Goal: Have at least 50% of managers rated Global Grade 14+ take part in a management program

Measure(s): Expand the geographical range of the programs to reach a broader target group. Have senior management act as the official program sponsors.
By when: End of 2018
Status description for 2015: In 2015, we rolled out the Growth Markets Management Program for local managers in India and Latin America. This initiative covers both business administration as well as Merck-specific subject matter. To date, 35 managers from India and Latin America have taken part in the program, which is being offered in China and Turkey as well. Participants come from various countries and regions such as Africa, the Middle East, Japan, and Russia. In total, 98 managers Group-wide took advantage of this initiative in 2015.
On top of this, we expanded the scope of our Advanced Management Program and offered workshops in China and Thailand. The initiative aims to empower our managers to make decisions and unleash their innovative strength.
We also rolled out "Critical Conversations" and "Leader as a Coach" workshops.
Status: In progress

Goal: Build a talent pool that reflects the demographic structure of Merck

Measure(s): Identify talent, keep managers informed about Merck's demographic profile (e.g. age, nationality, gender)
By when: Ongoing
Status description for 2015: In 2015, we incorporated demographic information into our talent pool. Managers are now familiar with the demographic structure of the pool, and we can thus steer its development accordingly.
Status: In progress

Goal: Competency-based interviews with 20% of the talent with potential for a GG18+ position

Measure(s): Nominate suitable talent within the scope of the Talent & Succession Management program
By when: Ongoing
Status description for 2015: Annually, interviews are conducted with around 20% of the talent with potential for a GG18+ position.
Status: Goal achieved

Goal: Have 80% of all employees using the HR Suite IT system for their annual Performance Management Process assessment

Measure(s): Expand the HR Suite user group to new target groups
By when: Ongoing
Status description for 2015: In 2015, around 85% of our employees used the HR Suite IT system.
Status: Goal achieved

Goal: Position Merck as an attractive employer for university graduates

Measure(s): Participate in university fairs and organize events at Merck for graduates; position Merck as an attractive employer using employer branding channels (e.g. career websites, social media, image advertising)
By when: Ongoing
Status: New goal

Occupational health and safety

Goal: Reduce occupational accidents throughout the entire Merck Group (lost time injury rate = 2.5)

Measure(s): Implement the BeSafe! program; hold EHS forums on safety behavior change
By when: End of 2015
Status description for 2015: With a lost time injury rate of 1.5, we achieved the goal we set for 2015. The BeSafe! program was rolled out across all operational sites of the Merck Group (including warehouses) and contributed significantly to achieving our goal.
Status: Goal achieved

Goal: Reduce occupational accidents throughout the entire Merck Group (lost time injury rate = 1.5)

Measure(s): Implement the OHSAS 18001 occupational health and safety management system within all Performance Materials production sites
By when: End of 2016
Status description for 2015: Within the framework of a group certificate, nine of our 24 Performance Materials production sites achieved OHSAS 18001 certification in 2015.
Status: New goal

Measure(s): Roll out the BeSafe! program at all newly acquired sites and monitor the program via appropriate indicators
By when: End of 2020
Status: New goal

Environment

Environmental impact mitigation

Goal: Audit and implement environmental management systems at acquired sites

Measure(s): Certify environmental management systems at acquired sites
By when: Ongoing
Status description for 2015: Eight out of nine production sites of AZ Electronic Materials, which was acquired in 2014, have been incorporated into our group certificate. The ninth facility is still undergoing the process.
Next year we plan to transition the Sigma-Aldrich production sites with existing ISO 14001 certifications to the Merck Group certificate (ISO 14001).
A gap analysis is planned for the remaining Sigma-Aldrich production sites.
Status: In progress

Climate impact mitigation

Goal: Reduce the Merck Group's direct and indirect greenhouse gas emissions (Scope 1 and 2) by 20% relative to the 2006 baseline

Measure(s): Systematically examine the energy consumption at Merck's individual production sites
By when: End of 2020
Status description for 2015: We continued to systematically investigate ways to save energy at our production sites. We conducted energy audits based on the EU Energy Efficiency Directive at several facilities, including our sites in Eppelheim and Berlin (Germany), as well as Calais and Meyzeiu (France).
Status: In progress

Measure(s): Identify and implement ways to save energy
By when: End of 2020
Status description for 2015: In 2015, we lowered our greenhouse gas emissions by around 8% relative to the 2006 baseline, despite growth in our operating business. Around two-thirds of the EDISON projects planned Group-wide have already been or are being rolled out. In 2016, we intend to initiate 57 new projects.
Status: In progress

Measure(s): Reduce process-related emissions
By when: End of 2020
Status description for 2015: Our Life Science business sector plays an important role in helping reduce process-related emissions. In 2014 at our site in Jaffrey, New Hampshire (USA), we optimized processes and thereby achieved a two-thirds reduction in our process-related emissions per production unit. In 2015, we initiated a project to realize additional savings.
Status: In progress

Measure(s): Reduce greenhouse gas emissions of our Life Science business sector (includes only former Merck Millipore business - excludes Sigma-Aldrich, which was acquired in November 2015) by 10% by 2015 (2006 baseline)
By when: End of 2015
Status description for 2015: In 2015, our Life Science business sector (only includes former Merck Millipore business - excludes Sigma-Aldrich, which was acquired in November 2015) reduced greenhouse gas emissions by approx. 11% relative to the 2006 baseline.
Status: Goal achieved

Waste management

Goal: Improve waste and recycling management processes

Measure(s): Perform waste audits to identify ways to reduce waste or increase recycling efficiency
By when: End of 2015
Status description for 2015: Waste reduction and recycling activities continued through 2015. We have begun to investigate options to recycle production scrap that requires custom recycling techniques.

Status: Goal achieved

Water

Goal: 10% reduction (2006 baseline) in the water use of our Life Science business sector (only includes former Merck Millipore business - excludes Sigma-Aldrich, which was acquired in November 2015)

Measure(s): Implement water reuse and reduction initiatives
By when: End of 2015
Status description for 2015: Despite significant increases in production volume, our Life Science business sector (only includes former Merck Millipore business - excludes Sigma-Aldrich, which was acquired in November 2015) reduced water consumption by approx. 5% between 2006 and 2015.
Status: Goal not Achieved

Goal: 10% reduction (2014 baseline) in water use at sites with relevant levels of water consumption in water-scarce regions (i.e. areas of high water stress)

Measure(s): Implement sustainable water management processes at production facilities with high levels of water consumption, as well as those sites located in water-scarce regions.
By when: End of 2020
Status: New goal

Community

Merck Praziquantel Donation Program

Goal: Eliminate schistosomiasis in African school children

Measure(s): Provide praziquantel tablets free of charge to treat school children in Africa
By when: Ongoing
Status description for 2015: In 2015, we provided WHO with more than 100 million praziquantel tablets.
Status: In progress

Measure(s): Incrementally increase annual tablet donation by a factor of ten, from 25 milion in 2012 to up to 250 million
By when: End of 2016
Status description for 2015: We increased the number of tablets donated annually to WHO to more than 100 million.
Status: In progress

Measure(s): Optimize the praziquantel formulation
By when: End of 2019
Status description for 2015: We have finished developing the formulation, which we plan to submit to regulatory authorities in 2017.
Status: In progress

Measure(s): Research a new praziquantel formulation for children under the age of six
By when: End of 2019
Status description for 2015: In 2015, we completed the Phase I bioavailability trials with healthy subjects in South Africa, as well as the taste study with children in Tanzania.
For 2016, we are planning to conduct a Phase 2 trial with children under six in the Ivory Coast.
Status: In progress

Combating counterfeit medicines

Goal: Fight counterfeit medicines by providing and optimizing the GPHF Minilab™

Measure(s): Develop new test methods for five active ingredients and expand manuals to describe the new testing methods
By when: End of 2015
Status description for 2015: In 2015, five new test methods were developed, which means that 80 test methods total are now available. Instruction manuals have been updated accordingly.
Status: Goal achieved

Measure(s): Conduct three seminars on how to use the GPHF Minilab™; sell 25-30 Minilabs™
By when: End of 2015
Status description for 2015: In 2015, we held two seminars to teach people how to use the GPHF Minilab™; one workshop was postponed to the beginning of 2016. On top of this, we sold 45 Minilabs™.
Status: Goal achieved

Measure(s): Develop new test methods for five active ingredients and expand manuals to describe the new testing methods
By when: End of 2016
Status: New goal

Measure(s): Conduct two seminars on how to use the GPHF Minilab™; sell 40 Minilabs™
By when: End of 2016
Status: New goal

Global Compact

Implementation of the ten principles of the UN Global Compact

Period: January 2015 to December 2015

The Global Compact (GC) is a 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 has been a Global Compact participant since 2005. The following Communication on Progress (COP) presents the key measures that we took in 2015 to implement the principles of the Global Compact.

CEO's declaration

Ladies and Gentlemen,
Dear Friends of Merck,

As a global science and technology company, we at Merck spend every day searching for answers to the question: What kind of world do we want to live in? And we're seeking solutions that improve the lives of people across the globe.

We have thus been supporting the United Nations Global Compact and its principles since 2005, which cover human rights, labor standards, environmental protection, and anti-corruption. We live these principles in our day-to-day work and intend to keep doing so in the future as well.

Taking responsibility is the bedrock of our business. Through our ideas and technologies, we are helping solve global issues in numerous areas. As a company about to celebrate its 350th anniversary, we know that business success can only be sustained if achieved responsibly.

In this report, you will find a selection of our CR activities from 2015. They are just as diverse and international as our company. Our efforts show that much can be achieved through good ideas and the courage to take responsibility.

To best leverage our corporate responsibility activities, we have defined three strategic spheres of activity: environment, health and culture. In each of these areas, Merck can contribute special expertise and skills.

In the chapter on culture, for instance, we describe the literary prizes we present to recognize writers and translators. Why does literature fit so well to a science and technology company such as Merck? As an innovative, research-driven company, we bring people together who ask questions and never stop pondering the answers. We depend on creative ideas – and on a society that is receptive to innovation. Literature can open doors because it not only builds bridges between cultures, but also inspires people, expands their minds and makes them more receptive to new ideas.

The chapter on our environmental activities spotlights our UB-FFS technology. This development for liquid crystal displays enables brilliant colors while consuming up to 30% less energy than conventional display technologies, which significantly boosts the battery life of smartphones and other portable devices. In recognition of this achievement, Merck has been honored with the German Innovation Award. We are the global market and technology leader in liquid crystals and are constantly working on new ideas such as UB-FFS. After all, innovation not only improves products, but also helps find answers to global issues such as energy conservation.

In the chapter on health, you can see how we're working to improve access to health for people around the world. In rural areas especially, millions of people lack adequate access to health information, medical care, and medicines. But we want to remedy this situation. We examine local needs and organize awareness campaigns, provide physicians with advanced training and manage mobile clinics. After all, we believe that everyone should have access to health, no matter where they live.

Our report shows how, again and again, Merck exercises its corporate responsibility every day, how we're seeking answers to the question: what kind of world do we want to live in? Merck is working towards a world that's open to new concepts, in which ideas both improve our lives and reduce our impact on the environment - a world in which everyone has access to health. After all, Merck is taking responsibility, now and in the future.

Yours,
Karl-Ludwig Kley

Human rights

Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights; and
Principle 2: make sure that they are not complicit in human rights abuses.

Commitment, principles & goals

- **Code of Conduct:** The Merck Code of Conduct is a compulsory set of rules for all employees. It explains the principles for dealings with business associates, general partners, co-workers, and employees, as well as the communities in which we operate. The Code thus guides our employees in taking an ethical course of action – not only in their interactions with one another, but also outside the company.
- **Human Rights Charter:** Our Human Rights Charter supports our commitment to respecting and protecting human rights. This document consolidates 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. Our Human Rights Charter has three goals: first, to define our expectations; second, to increase awareness of human rights within the company; and third, to more accurately assess Group-specific risks as well as align our business operations with our Values.
- **Procurement Policy:** Through our Group Procurement Policy, we ensure that our procurement processes embody corporate responsibility standards.This includes the selection, assessment and management of suppliers. This policy reflects numerous internal and external guidelines, such as our Code of Conduct, our Human Rights Charter, and our EHS policy.
- **Merck Responsible Sourcing Principles:** To complement our Procurement Policy, we have developed the Merck Responsible Sourcing Principles and integrated them Group-wide into our general terms and conditions. These principles define what we require of our suppliers with regard to responsible conduct, highlighting the responsibility of our suppliers to apply our corporate responsibility standards to their upstream value chain.

  As a member company of the German Federal Association for Materials Management, Purchasing and Logistics (BME), we support the BME Compliance Initiative in the fight against corruption, cartels and child labor.

- **Access to Health Charter:** Access to health (A2H) is of great strategic importance to us. Our A2H strategy aims to help overcome access obstacles faced by underserved populations and communities in developing health care systems. There is no one-size-fits-all solution for this complex and multifaceted challenge, which is why we've tailored our programs and initiatives to suit global, regional and local needs. Our holistic, needs-driven approach consists of four strategic components: Availability, Affordability, Awareness, and Accessibility. To achieve sustainable results, we focus especially on partnerships, collaboration and ongoing dialogue with all stakeholders. We have consolidated our principles into our Access to Health in Developing Countries Charter, which addresses the topics of pricing, intellectual property, research and development for neglected tropical diseases (NTDs), and anti-counterfeiting measures, as well as medicine donations and philanthropic activities.

  We support the United Nations Sustainable Development Goals (SDGs) and are partnering with various other organizations to achieve them. Access to health is an integral component of these efforts. In low- to middle-income countries, we work with global stakeholders in helping strengthen health systems.

Taking action and gauging the results

- **Compliance management:** The Group function Compliance, headed by the Group Compliance Officer (GCO) and supported by further specialists, is responsible for maintaining and driving our compliance program.
- At our subsidiaries, local compliance officers are responsible for implementing our compliance measures. Group Compliance provides these officers with guidance as well as training documents, along with other support. At this time, local compliance officers report to the GCO at regular intervals. In 2015, we appointed a compliance officer for each of our business sectors (Healthcare, Performance Materials and Life Science) in order to better address the needs of each specific business sector.
- The GCO reports at least once a month to the Merck Executive Board, updating them on compliance activities, compliance risks, and serious compliance violations. At least once a year, the Executive Board updates Merck's supervisory bodies on key compliance issues. Our compliance management procedures are continuously adapted to meet current requirements.
- **Compliance training:** We provide our employees with regular training on compliance issues via classroom courses and online classes. In 2015, a total of 20,404 persons completed anti-corruption courses. In 2014, we designed an e-course to introduce our new anti-corruption guidelines, and in 2015 we translated the course into 16 different languages, which has allowed numerous employees worldwide to complete the course in their local language. In 2015, we also developed a special e-course for our pharmaceutical business that explains the guidelines specific to this field. In addition, we regularly review our compliance training plan, adapting classes and workshops in response to new developments and local needs.
- **Compliance audits:** The Group function Internal Auditing conducts audits Group-wide. Our audit program covers the topic of anti-corruption as well as the requirements of our Human Rights Charter, all of which are reviewed during the general audits conducted on our facilities. In the course of the compliance audits, Internal Auditing verifies whether compliance guidelines, processes and structures are in place and assesses the quality thereof. We furthermore check whether individual facilities are violating our Code of Conduct or the social standards stipulated in our Human Rights Charter. A total of 49 anti-corruption audits were conducted in 2015. Across 31 countries, we also performed 41 audits relating to the workplace clause of our Human Rights Charter. The audits found no violations.

- **Central SpeakUp Line for compliance violations:** All employees are called upon to report compliance violations to their supervisor, Legal, HR, or other relevant departments. Employees can report violations via the SpeakUp Line, a central reporting system, doing so in their respective national language. Available as a telephone hotline or a web-based application, they can report such incidents free of charge and, if they wish, anonymously.

  The reports received are reviewed by the Group Compliance Officer (GCO) and submitted to the Compliance Committee, which then coordinates the necessary investigation into the matter. The Compliance 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, where necessary, against the employee who has committed a compliance violation. These actions may range from a simple warning up to dismissal of the employee, depending on the severity of the violation.

  In 2015, 33 compliance reports were received via the SpeakUp Line, eight of which were confirmed as being violations of our Code of Conduct. These incidents were investigated and reported to the Compliance Committee; corrective actions were taken and monitored by the Group Compliance Officer. We take such misconduct very seriously and will not hesitate to take appropriate action, including dismissal in accordance with applicable laws. The majority of these compliance violations were attributed to the misconduct of individual employees; they represented minor, isolated incidents which mostly entailed improper distribution and marketing methods to boost sales, or inappropriate interactions with medical professionals. In all cases, disciplinary action was taken against the employees responsible for the infractions.
- **Supplier management:** Supplier management is one of Group Procurement's key tasks; it comprises the entire process of assessing, rating, developing, and terminating vendor relationships. Underpinned by a transparent, globally standardized approach, our supplier management efforts aim to optimize the performance of our entire supply chain in order to create added value for Merck. We expect our suppliers to obey fundamental rules, such as bans on corruption and child labor, and we set minimum requirements regarding work standards.

  In the course of 2015, we largely replaced the supplier CR assessments and CR audits used previously with the equivalent tools set forth in the Together for Sustainability (TfS) standards. The audit results can be utilized by all TfS member companies. We thus have access not only to the evaluations of suppliers selected because of their risk rating, but also to assessments and audit results for other vendors who provide us goods and services.

  More detailed information can be found under Suppliers (p. 17).

- **Merck Praziquantel Donation Program:** Our efforts to combat schistosomiasis represent a key element in our access to health activities. We've been supporting the World Health Organziation (WHO) since 2007 in the fight against this global tropical worm disease in Africa. Since launching the program, we have donated more than 340 million praziquantel tablets. In total, over 74 million patients have been treated, primarily school age children. Our goal is to continue the fight until the disease has been eliminated in Africa. To this end, we are increasing the number of tablets donated and intend to provide WHO with up to 250 million tablets per year.

  More detailed information on our product donations can be found under Community (p. 29).
- **Global Schistosomiasis Alliance:** To combat schistosomiasis over the long term, in May 2014 we called on various stakeholders engaged in the fight against neglected tropical diseases (NTDs) to form the Global Schistosomiasis Alliance (GSA). The GSA's founding members include, among others, Merck, World Vision, the United States Agency for International Development, and the Bill & Melinda Gates Foundation. The alliance seeks to pool resources and overcome the obstacles to eliminating schistosomiasis worldwide. Three working groups kicked off at the end of 2014. The first working group helps monitor, manage and track the distribution of praziquantel tablets. The second one is working to boost awareness of schistosomiasis in order to raise additional funds and resources. The third group is dedicated to research and development.
- **Capacity Advancement Program (CAP):** Through our Capacity Advancement Program (CAP), we are striving to improve the quality of and access to healthcare in Africa and Asia. The program also seeks to increase awareness and prevention of non-communicable diseases such as diabetes and cancer, as well as to educate the public about fertility treatment. Our goals are to raise awareness of these conditions by educating healthcare providers, as well as to support healthcare systems with measures to prevent, diagnose and treat them effectively.
  In 2015, we provided 7,000 students at African and Asian universities with training to teach them how to manage chronic diseases. By the end of 2018, we intend to provide more than 25,000 students in Africa, Asia, Latin America, and the Middle East with advanced training on managing and preventing non-infectious diseases.
  To fight infertility, we launched the More than a Mother campaign in Kenya in 2015, an initiative that provides med students and general practitioners with crucial medical knowledge on infertility. Additionally, we intend to help the Kenyan government develop concepts that facilitate access to safer, more effective infertility treatment. In Africa, women affected by infertility are often severely stigmatized, which is why the campaign also seeks to challenge the perception of the roles and worth of these women in society.
  On top of this, in May 2015 we also launched the Cancer Control Program in partnership with the Africa Oxford Cancer Foundation and the Universities of Nairobi (Kenya), Makerere (Uganda) and Muhimbili (Tanzania). Through this program, we are seeking to raise the early detection rates of cancer as well as improve the prevention of cancer in Kenya, Uganda and Tanzania. To this end, we are providing training to students and healthcare professionals, as well as educating communities through awareness campaigns.

Labor standards

Principle 3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;
Principle 4: the elimination of all forms of forced and compulsory labor;
Principle 5: the effective abolition of child labor; and
Principle 6: the elimination of discrimination in respect of employment and occupation.

Commitment, principles & goals

Our entrepreneurial approach as a conscientious, responsible company includes ethical conduct as well as a commitment to human rights and core international labor standards.

The Human Rights Charter listed under Principles 1 and 2 is the primary policy document on compliance with core labor standards within the Merck Group.

At Merck, it goes without saying that we treat all employees with respect, handling them fairly and in compliance with local statutes and regulations. We abide by the core labor standards of the International Labour Organization (ILO), especially with respect to the following issues: freedom of association; child labor; forced labor; discrimination; equal opportunity; compensation; working hours; occupational health and safety; and prevention of abuse and harassment. We furthermore regularly audit our facilities to ensure that these requirements are being met.

Occupational health and safety is governed by our Group-wide EHS Policy (Environment, Healthy and Safety). This policy is the basis for internal, Group-wide EHS standards, as well as for site-specific guidelines and directives on compliant behavior. Our guidelines are aligned to the Responsible Care Global Charter, which was instituted by the international chemicals industry. One of our primary goals is to reduce the number of workplace accidents. In 2010, we set the goal of reducing the Lost Time Injury Rate (LTIR - the number of workplace accidents resulting in missed work per one million man-hours) to 2.5 by 2015. After having once more exceeded this goal by the end of 2014 with an LTIR of 1.8, we set a new, more ambitious target: to reduce the LTIR to 1.5 by 2020.

We believe that workforce diversity nurtures innovation and better team performance. A good balance between different cultures, nationalities, and age groups as well as between male and female employees is conducive to our business success. We are therefore aiming to further workforce diversity and include all employees in company operations in the best possible way (inclusion). Increasing the proportion of women in management positions is important to us. We have thus set the goal of increasing the percentage of management positions (Global Grade 14+ as per the Towers Watson Global Grading System) held by women to 25%-30% by the end of 2016. In 2015, we endorsed the Equal Opportunity Charter of the German Mining, Chemical and Energy Industrial Union (IG BCE), which underscores our commitment to fairness and tolerance in the workplace.

Taking action and gauging the results

In order to monitor and assess adherence to our Human Rights Charter both within the Merck Group as well as among our suppliers, we conduct the audits mentioned under Principles 1 and 2; we furthermore have a SpeakUp Line that allows employees to report compliance violations. In addition to this, we collate key indicators every year and publish them in our Corporate Responsibility Report (p. 34).

- **Occupational health and safety:** Occupational health and safety in the Merck Group is an integral part of our Environmental, Health & Safety (EHS) management system. Kai Beckmann, Member of the Merck Executive Board, bears ultimate responsibility for environmental, health, and safety matters. The Group function Environment Health Safety Security Quality (EQ) is responsible Group-wide for our strategic alignment along with oversight of these issues, while the operational units at our sites are in charge of implementing procedures. In 2015, we started to implement an OHSAS 18001 group certificate for the production facilities of our Performance Materials business sector. By the end of 2015 this certificate covered nine out of 23 sites, including two sites from Sigma-Aldrich, a company that was acquired in November 2015. On top of that, we already have individual OHSAS 18001 certificates, or equivalent, for four other Merck Group facilities. For 2016, we are aiming to achieve OHSAS 18001 certification for additional sites.

  We provide regular training to educate employees and supervisors on potential accident risks and hazards. In addition to this, we bolster our safety culture by rewarding good performance at individual sites (e.g. our Safety Excellence Award for zero workplace accidents), and through best practice sharing at regional EHS forums. To continuously improve our EHS performance, we not only offer training and certification programs, but also conduct EHS audits throughout the Merck Group. Corrective actions as well as accidents and other incidents are reported across all production facilities. We use specific indicators to take monthly stock of our EHS performance.

  We also implement preventive occupational health and safety measures to protect our employees, efforts that are managed and carried out primarily at the local level. These include fitness activities, information on healthy nutrition, and early detection screening for diabetes or cancer.

  Data on occupational health and safety are collated and evaluated on a monthly basis and published in-house. In 2015, our lost time injury rate (LTIR - the number of workplace accidents resulting in missed work per one million man-hours) was 1.5. Despite our efforts to prevent incidents, there were unfortunately two workplace accidents resulting in fatalities in 2015. In the United States, one employee died in a car accident, while in Germany, one unfortunate employee had a fatal mishap involving a forklift.

  Our internal Safety Excellence Award, which recognizes production sites with no workplace accidents, was presented to 41 out of 61 production sites Group-wide.

- **Diversity management:** The Chief Diversity Officer (CDO) is responsible for promoting workplace diversity. In addition to this, we have a Diversity Council consisting of representatives from all our business sectors. This committee works to enhance and hone our diversity strategy, driving its implementation and monitoring progress. In order to foster diversity and inclusion within the company, we engage in numerous activities both Group-wide and at a local level. These include communications programs and special advanced training on topics such as leadership skills and self-marketing. Diversity and inclusion at Merck is also furthered by internal networks initiated by Merck employees, such as the International Community, the Rainbow Network for LGBT employees, and Women at Merck.

  In 2013, 25% of the global management positions (Global Grade 14+) at Merck were held by women, with 26% in 2014, thereby reaching our strategic goal of boosting this percentage to 25%-30%. We intend to increase this figure even further by the end of 2016. As of December 31, 2015, 27% of management positions (GG 14+) were held by women. People from 122 different nations work at Merck. Only 26% of our employees are German citizens, and 72% work outside of Germany.
- **Monitoring the mica supply chain:** We utilize mica sourced from the Indian state of Jharkhand as the primary raw material for the manufacture of effect pigments. Jharkhand is a region where child labor is very common. As a signatory to the UN Global Compact, we are actively fighting to end this practice. We require our suppliers to do the same and contractually prohibit them from utilizing child labor. In line with our general supply chain strategy, we have taken all measures needed to ensure that all suppliers comply with our requirements for mica procurement. We also support health and education projects in order to improve the social situation and living conditions of families in mica mining regions.

  More detailed information can be found under Suppliers. (p. 17)

Environmental protection

Principle 7: Businesses should support a precautionary approach to environmental challenges;
Principle 8: undertake initiatives to promote greater environmental responsibility; and
Principle 9: encourage the development and diffusion of environmentally friendly technologies.

Commitment, principles & goals

Merck is committed to conserving natural resources as well as mitigating our impact on the environment. Our responsibility to the environment is an extension of our Values and our Group strategy. Adherence to Merck's Values is a key component of the Merck Code of Conduct, which is described under Principles 1 and 2.

The policy document underlying environmental impact mitigation is the EHS Policy described under Principles 3, 4, 5, and 6.

We aim to continually improve our performance by utilizing energy, water and materials economically and efficiently. In addition to this, we seek to boost our energy efficiency in order to reduce CO_2 emissions, thus mitigating our impact on the global climate. We have set ourselves the goal of reducing our total direct and indirect greenhouse gas emissions (Scope 1 and 2) by 20% by 2020, relative to the 2006 baseline. For 2016, as in the four preceding years, the Executive Board has once more earmarked funds specifically for measures to conserve energy and reduce greenhouse gas emissions.

We strive to continually enhance the sustainability footprint of our products, developing suitable product and process innovations in order to do so. At the same time, we seek for our products to minimize not only our own environmental impacts, but those of our customers as well. In doing so, the safety and ethical conformity of our products is always our top priority.

Taking action and gauging the results

Measures to mitigate our impact on the environment have been implemented in our production processes in the form of the EHS management system described under Principles 3, 4, 5, and 6.

- **EDISON program for climate impact mitigation and energy efficiency:** We have consolidated our climate impact mitigation and energy efficiency activities into the EDISON program. Under this program, energy audits are conducted at various sites and energy saving processes implemented. Since 2012, we have initiated more than 400 EDISON projects Group-wide, around 60% of which have already been or are being rolled out.

  Through these efforts, we are aiming to cut CO_2 emissions by about 90,000 metric tons per year in the medium term. In 2015, we lowered our greenhouse gas emissions by approximately 8% relative to the 2006 baseline, despite growth in our operating business.

- **EHS audits:** The aforementioned internal EHS audits serve to scrutinize the Merck Group's compliance with those regulatory requirements, standards, and business requirements specifically relating to environmental impact mitigation activities.

  In 2015, our annual external audit once more confirmed our group certificate for our ISO 14001 environmental management system.

  In addition to this, we conduct supplier audits (described under Principles 1 and 2) to ensure that our vendors are adhering to environmental standards.
- **EHS data management:** Our Group-wide EHS data management system is used to regularly collect environmentally relevant data at our individual sites and relay it to the EQ Group function. In 2015, Merck emitted a total of 518,000 metric tons of CO_2, which represents an 8% reduction from 2006 levels.
- **Product safety management:** Through our Group-wide Product Safety Chemicals policy, we have established global processes for defining, steering and implementing product safety, and have also established the corresponding management structures to do so. This policy incorporates all relevant national and international chemical regulations, such as the Globally Harmonised System of Classification and Labeling of Chemicals (GHS) and its implementation in regional legislation (such as the CLP regulation in the EU and HazCom 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). The policy also incorporates legal standards that relate to the transport of hazardous substances, biocides, cosmetics, chemicals used in food and animal feed, etc.

  The Group Product Safety Committee (GPSC) initiates and steers the measures needed to respond to regulatory requirement changes worldwide; the Merck Executive Board Member responsible for chemical product safety is a member of this committee. Corporate Regulatory Affairs, a department within the Group function Environment Health Safety Security Quality (EQ), is responsible for compliance with the relevant regulatory requirements for product safety, a responsibility that it shares with local units as well.

- **Product development:** In line with the Green^3 concept, our Performance Materials business sector offers our customers products that improve the sustainability of their own products - for instance our innovative materials for energy-efficient displays. We furthermore help our customers develop more environmentally sustainable production processes. To meet the requirements of the WEEE Directive (EU Waste Electrical and Electronic Equipment Directive), we have developed recycling methods for used LC (Liquid Crystal) displays. We have also expanded the Green^3 concept to include cosmetic products in our Performance Materials business sector. Here, we are working to sustainably source and manufacture cosmetic actives, as well as to optimize the associated production processes.

  Through our Green Product Policy, we have committed ourselves to complying with all international and country-specific laws and regulations (REACH, RoHS EU Directive) for products from our Performance Materials business sector. This policy also includes voluntary substance bans and self-imposed restrictions, such as our Halogen-free Policy. Our voluntary safety policy furthermore forbids the use of acutely toxic, mutagenic, or otherwise hazardous substances that remain present in the end product.

  As part of the Design for Sustainability program, our Life Science business sector has developed a process to drive sustainability across the product development process. This program is also aimed at reducing our customers' own environmental impacts, including their carbon footprint and water use. An analysis in 2015 showed that around 12% of our Life Science products (only includes former Merck Millipore business - excludes Sigma-Aldrich, which was acquired in November 2015) exhibit one or more of the sustainability aspects that we've defined.

Anti-corruption

Principle 10: Businesses should work against corruption in all its forms, including extortion and bribery.

Commitment, principles & goals

Merck does not tolerate bribery, extortion or corruption. We are expressly committed to fighting these crimes across the globe. The primary policy document governing these issues is the Code of Conduct mentioned under Principles 1 and 2, as well as Merck's Group-wide anti-corruption guideline.

Taking action and gauging the results

Our Code of Conduct and anti-corruption guidelines are applied within Merck through our compliance management process, as well as the internal compliance training and workshops mentioned under Principles 1 and 2.

- **Global Business Partner Risk Management Policy:** We adopted our Global Business Partner Risk Management Policy in 2012. It constitutes a fundamental component of the selection process for business partners, along with their overall assessment. This policy aims to ensure that business partners are selected diligently in order to minimize the danger of legal and financial risks, or damage to our reputation. This process is especially concerned with fighting corrupt practices.
- **Guidelines on interactions with the health industry:** Our Compliance Policies for our Biopharma and Consumer Health businesses guide our employees' interactions with medical professionals and other representatives of the health industry. These guidelines aim to ensure that all payments are made for a legally valid reason and never in exchange for prescribing our products. The policies are backed by a modern electronic compliance management system in which interactions with medical professionals and other representatives of the health industry are recommended, approved, documented, monitored, and, as relevant, disclosed. Our suppliers are subject to the supplier management process that is likewise described in these guidelines.

  In Europe effective 2016, companies must disclose all donations not connected to research that are made to physicians and healthcare organizations, with the recipients individually named. This is a requirement stipulated by the transparency initiative of the European Federation of Pharmaceutical Industries and Associations (EFPIA). Our Compliance organization started initiating the measures necessary to satisfy this disclosure obligation in 2014. Our goal is to disclose the required information by June 30, 2016.
- **Code of Conduct audits:** In order to monitor and assess adherence to our Code of Conduct within the Merck Group as well as among our suppliers, we conduct the audits described under Principles 1 and 2. We furthermore have a SpeakUp Line that allows employees to report compliance violations. In 2015, 49 audits were conducted with respect to corruption.

Assurance report

Independent Assurance Report[1]

To the Executive Board of Merck KGaA, Darmstadt

We have performed an independent limited assurance engagement on the information published in the chapter "facts & figures – indicators" in the online "Merck Corporate Responsibility Report Update 2015" (further "The Report") including the accompanying explanatory notes, for the business year 2015 of Merck KGaA, Darmstadt (further "Merck"), published at http://reports.merckgroup.com/2015/cr-report.

Management's Responsibility for the Report

The legal representatives of Merck are responsible for the accurate preparation of the Report in accordance with the Reporting Criteria. Merck applies the principles and standard disclosures of the G4 Sustainability Reporting Guidelines 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, as described in the section of the Report "about this report", as reporting criteria.

This responsibility of the legal representatives includes the selection and application of appropriate methods to prepare the Report and the use of assumptions and estimates for individual qualitative and quantitative sustainability disclosures which are reasonable in the circumstances. Furthermore, this responsibility includes designing, implementing and maintaining systems and processes relevant for the preparation of the Report in a way that is free of – intended or unintended – material misstatements.

Independence and quality assurance on the part of the auditing firm

We have complied with the independence and other ethical requirements of the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants (IESBA-Code), which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior.

The quality assurance system of the KPMG AG Wirtschaftsprüfungsgesellschaft is based on the International Standard on Quality Control 1 "Quality Control for Audit, Assurance and Related Service Practices" (ISQC 1) and, in addition on national statutory requirements and professional standards, especially the Professional Code for Certified Accountants as well as the joint statement of WPK (Chamber of Public Accountants) and IDW (Institute of Public Auditors in Germany): Requirements for quality assurance in the auditing practice (VO 1/2006).

Practitioner's Responsibility

Our responsibility is to express a conclusion based on our work performed and the evidences obtained on the information disclosed in the abovementioned chapter.

Nature and extent of the assurance engagement

We conducted our work in accordance with the International Standard on Assurance Engagements (ISAE) 3000 (Revised): "Assurance Engagements other than Audits or Reviews of Historical Financial Information" and the International Standard on Assurance Engagements (ISAE) 3410: "Assurance Engagements on Greenhouse Gas Statements" of the International Auditing and Assurance Standards Board (IAASB). These standards require that we comply with our professional duties and plan and perform the assurance engagement to obtain a limited level of assurance to preclude that the above mentioned qualitative and quantitative sustainability disclosures are not prepared, in all material respects, in accordance with the aforementioned Reporting Criteria. In a limited assurance engagement the evidence gathering procedures are more limited than in a reasonable assurance engagement and therefore less assurance is obtained than in a reasonable assurance engagement. The choice of audit procedures is subject to the auditor's own judgement. This includes the assessment of the risk of material misstatement in the Report under consideration of the Reporting Criteria.

Within the scope of our engagement, we performed amongst others the following procedures when conducting the limited assurance:

- 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 the sites Darmstadt (Germany) and Gernsheim (Germany) as well as Cork (Ireland) and Mollet de Vallès (Spain) to assess local data collection, validation 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, 2015 of Merck KGaA 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 information, including the explanatory notes, within the scope of our engagement

Conclusion

Based on the procedures performed and evidences received to obtain limited assurance, nothing has come to our attention that causes us to believe that the information published in the chapter "facts & figures – indicators" in the online "Merck Corporate Responsibility Report Update 2015" including the accompanying explanatory notes, for the business year 2015 is in all material respects, not prepared in accordance with the Reporting Criteria.

This assurance report is issued based on an assurance engagement agreed upon with Merck. The assurance engagement to obtain limited assurance is issued on purpose of Merck and the assurance report is solely for information purposes of Merck on the results of the assurance engagement. This assurance report must not be used as basis for (financial) decision-making by third parties of any kind. We have responsibility only towards Merck. We do not assume any responsibility for third parties.

Frankfurt am Main, April 11, 2016

KPMG AG
Wirtschaftsprüfungsgesellschaft

Fischer
Wirtschaftsprüferin
[German Public Auditor]

Glöckner
Wirtschaftsprüfer
[German Public Auditor]

[1] Our engagement applies to the German version of the Merck Corporate Responsibility Report Update 2015. This is a translation of the independent assurance report, which is authoritative in German language.