

Facts & figures

Within this chapter:

125	Report profile	168	Sustainable Development Goals
127	Indicators	173	Non-financial report
127	Economics	180	GRI content index
128	Business ethics	180	General disclosures
132	Employees	185	Economic Standards
145	Environment	188	Environmental Standards
151	Community	191	Social Standards
153	Goals	198	Global Compact CoP
165	Recognition and rankings	202	

Report profile

Part of the non-financial report

We take pride in our commitment to corporate responsibility, especially on the occasion of our 350th anniversary. Our long-standing history of giving back to the community has also given rise to a tradition of reporting on our efforts, with this being our tenth Corporate Responsibility Report. Starting in 1993 as a series of environmental reports describing how we meet our obligations to society, in 2003 our reporting evolved into a full-blown compilation released every two years. In 2016, we started publishing the story of our dedication on an annual basis, a practice that continues to this day.

With transparency as a key goal, we aim to extensively inform our stakeholders of our activities and successes, as well as the challenges we face. Our 2018 Corporate Responsibility Report meets the requirements for a combined separate non-financial report as defined in the German Federal CSR Directive Implementation Act. The index to the [non-financial report](#) provides an overview of the relevant content.

This CR Report also documents the progress we have made in implementing the guidelines of the [United Nations Global Compact \(Communication on Progress\)](#) and meets the criteria of the German Sustainability Code (DNK) of the German Council for Sustainable Development (RNE), a body established by the Federal Government of Germany. Our Statement of Compliance with the German Sustainability Code can be accessed via the [DNK database](#).

Reporting framework

This CR report covers fiscal 2018 and pertains to our entire Group including our subsidiaries across 66 countries. Any deviations from this reporting framework are indicated on a case-by-case basis. On December 1, 2018, our Consumer Health business was transferred to Procter & Gamble (P&G) after having been classified as a discontinued operation as of April 2018, pursuant to IFRS 5. Upon completion of the sale in early December, around 3,300 employees were transferred to P&G. Unless otherwise stated, our data incorporate the Consumer Health business pro rata for an 11 month period. The majority of the figures we publish reflect the status as of December 31, 2018. As such, figures calculated as of this date exclude Consumer Health because the sale of this business had been completed entirely by that point in time.

Data collection and consolidation systems

Since 2005, we have been using a Group-wide electronic data acquisition system to collect environmental and occupational health and safety data, which is input locally at our individual sites and approved following review. To maximize the quality of this data, we support the sites in optimizing their collection processes and their corresponding quality assurance measures. Moreover, our Group function Environment, Health, Safety, Security, Quality (EQ) conducts internal EHS audits that review both the processes and the data provided.

We compile environmental performance indicators from all our production sites across the Group, as well as those warehouse and research sites that are relevant in terms of their environmental impact and employee headcount. The scope of consolidation therefore covers all Group sites that have relevant impacts on the environment.

The data on employees and community outreach pertain to our entire Group. All employee master data is continually updated in an SAP database. We use community data management software to log data pertaining to our community involvement at subsidiary level.

Some employee data is only disclosed for select sites or countries, which is accordingly indicated in the respective text passages.

Determining report content

We align the content of our CR Report with the internationally recognized guidelines of the Global Reporting Initiative (GRI), and the principles of completeness and materiality, as well as input from our stakeholders. This report has been prepared in accordance with the "GRI Standards: Comprehensive" option. Moreover, we have taken into consideration the requirements of the capital market for assessing companies' sustainability performance.

In 2018, we performed a comprehensive materiality assessment to determine the CR topics of relevance to our Group. Experts from our business sectors and relevant Group functions reviewed the findings and validated them. Moreover, as stipulated by Section 289c (2) of the German Commercial Code (HGB), we checked the topics validated in 2018 for "double materiality". We have derived the content of this CR report from the results of the materiality assessment, addressing all issues identified as material. Detailed information on the materiality assessment and the materiality matrix can be found under [Materiality analysis](#).

Our Executive Board has reviewed and approved this report. The content of the non-financial report has also been reviewed by the Supervisory Board in accordance with Section 111 (2) of the German Stock Corporation Act (AktG).

External audit

KPMG AG Wirtschaftsprüfungsgesellschaft has audited the annual financial statements and management report of our company for the fiscal year spanning January 1 to December 31, 2018 and issued an unqualified opinion. Furthermore, after undergoing a limited assurance audit, our company has received an independent audit certificate for the following chapters of this CR report:

- Strategy & management
- Business ethics
- Products
- Employees
- Environment
- Community
- Facts & figures

The additional content provided on the company's websites and external webpages linked in this report is not part of the non-financial report or the information assured by KPMG.

Contact:

We welcome your feedback and are happy to answer any questions.

Merck KGaA, Darmstadt, Germany

Corporate Affairs
Group Corporate Responsibility

Maria Schaad

Frankfurter Str. 250
64293 Darmstadt
Germany

Tel.: +49 6151 72-0
Fax: +49 6151 72-200

The previous CR Report was published in April 2018. Our next CR Report is scheduled for publication in April 2020.

indicators

ECONOMICS

Net sales, operating result (EBIT) and research and development costs, by business sector^{1,2}

€ million	Healthcare	Life Science	Performance Materials	Group
2017				
Net sales	6,190 ³	5,882	2,446	14,517³
Operating result (EBIT)	1,337 ³	834	689	2,423³
R&D costs	1,600 ³	241	225	2,108³
2018				
Net sales	6,246	6,185	2,406	14,836
Operating result (EBIT)	731	1,036	508	1,727
R&D costs	1,686	249	242	2,225

1 As a non-operating segment, Corporate and Other is not shown here as a separate item, but rather under Segment Reporting in our 2018 Annual Report.

2 Figures comprise the continuing operations of the Group excluding the Consumer Health business.

3 Figure retroactively adjusted; see Consolidated Financial Statements in our 2018 Annual Report.

business ethics

Part of the non-financial report

Internal audits on corruption and Human Rights Charter

	2015	2016 ¹	2017	2018 The Group ²	2018 thereof Merck KGaA, Darm- stadt, Germany ³
Number of audits relating to corruption	49	55	50	54	16
% of audits relating to corruption	64	68	65	69	21
Number of audits relating to the workplace requirements of our Human Rights Charter	41	47	45	46	14

1 Includes Sigma-Aldrich as of 2016

2 Consumer Health business has been out of Internal Auditing scope since September 2017.

3 Includes global audits which are conducted at the headquarters in Darmstadt and/or the management of the audited function is reporting into KGaA.

In 2018, we audited 18% of all Group subsidiaries (status June 2018, excluding minority holdings), covering approximately 27% of all sales generated between the third quarter of 2017 and the second quarter of 2018.

In 2018, during 46 of our audits conducted in 27 countries, we additionally reviewed workplace parameters as per our Human Rights Charter. No violations were identified.

Reported compliance violations

	2015	2016 ¹	2017	2018 The Group	2018 thereof Merck KGaA, Darm- stadt, Germany
Total number of reported compliance violations					
Number of reported compliance incidents	33	36	39	72	17
Number of confirmed cases	8	12	14	19	7
confirmed cases by category					
Violation of the Human Rights Charter	0	2	0	0	0
Bribery and Corruption	0	2	1	1	0
Violation of the Pharmaceutical Guidelines	2	4	2	2	0
Violation of Data Privacy and Confidentiality Guidelines	1	0	2	3	3
Manipulation of Business Documents	0	2	1	0	0
Violation of cartel laws and fair competition rules	1	0	0	1	0
Infringements in the areas of finance, accounting and banking	0	0	0	0	0
Theft and fraudulent Actions against the Group	2	1	1	5	1
Other violations of Compliance Principles for the relations with Business Partners of the Group	0	1	2	1	0
Other violations of values, internal guidelines or legal requirements	2	0	5	6	3

¹ Includes Sigma-Aldrich as of 2016

Compliance training

	2015	2016 ¹	2017 ¹	2018 The Group ²	2018 thereof Merck KGaA, Darm- stadt, Germany ²
Total number of persons trained on anti-corruption guidelines³	20,404	29,764	17,044	11,404	1,254
Total number of employees trained on anti-corruption guidelines	17,378	25,889	13,345	11,155	1,245
% of employees trained on anti-corruption	43	51	25	22	11
by employee category					
Number of Role 2+ employees trained on anti-corruption	12,747	14,379	7,080	9,257	1,017
% of Role 2+ employees trained on anti-corruption	64	84	27	36	19
% of employees below Role 2 trained on anti-corruption	22	34	23 ⁴	7	4
by region (%)⁵					
Europe	–	54	18	19	11
North America	–	57	46	36	not applicable
Asia-Pacific (APAC)	–	38	25	16	not applicable
Latin America	–	52	19	12	not applicable
Middle East and Africa (MEA)	–	66	29	18	not applicable

1 From 2016 on, these figures include Sigma-Aldrich, however as of Dec. 31, 2017 the job grading system had not yet been implemented for employees of Sigma-Aldrich legal entities in Germany, or for employees of Allergopharma. In the facts and figures, these employees are included under "employees below Role 2".

2 In 2018, our job grading system had not yet been applied to the employees of Sigma Aldrich in Steinheim (Germany), or to those of Allergopharma. In the facts and figures for 2018, these employees are included under "employees below Role 2".

3 Includes contractors, external supervised workers (e.g. temps) and contract partners working on-site who were trained on anti-corruption guidelines (2018: 249).

4 Figure retroactively adjusted.

5 As of 2016, we are also reporting the training rate by region. No such data was tracked for the preceding year.

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 Role 2+.

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

Training increased in 2016, due to the initial integration of employees of Sigma-Aldrich, a company acquired at the end of 2015.

Legal actions

	2015	2016	2017	2018 The Group ¹	2018 thereof Merck KGaA, Darmstadt, Germany
Total number² of legal actions pending or completed (for anti-competitive behavior, violations of anti-trust or violations of monopoly legislation)	2	2	3	3	2
pending	2	2	3	3	2
completed	0	0	0	0	0

1 Excludes Consumer Health

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 2015](#), pages 128-129 and pages 212-213, no. 27
- [Annual Report 2016](#), pages 135-136 and pages 228-229, no. 26
- [Annual Report 2017](#), pages 148-150 and pages 252-254, no. 27
- [Annual Report 2018](#), pages 146-148 and pages 247-251, no. 26

Customer privacy¹

	2015	2016	2017 ²	2018
Total number of substantiated complaints received from outside parties	0	0	0	0
Total number of complaints from regulatory bodies	0	0	0	0
Total number of identified leaks, thefts, or losses of customer data	0	1	0	1

1 This data only reflects incidents classified as significant.

2 Includes Sigma-Aldrich as of 2017

Employees

Part of the non-financial report

Total number of employees

As of Dec. 31	2015	2016	2017	2018 The Group	2018 thereof Merck KGaA, Darm- stadt, Germany
Total number of employees	49,613	50,414	52,941	51,749	11,133
Men	28,997	28,848	30,083	29,006	7,036
Women	20,616	21,566	22,858	22,743	4,097

Number of employees by hierarchical level

As of Dec. 31	2015 ¹	2016 ¹	2017 ¹	2018 The Group ²	2018 thereof Merck KGaA, Darm- stadt, Germany ²
Total employees	49,613	50,414	52,941	51,749	11,133
Senior management (Role 6+)	146	181	197	193	94
Middle management (Role 4 & 5)	2,211	2,685	2,927	3,095	1,155
Low management (Role 3)	6,622	8,139	8,904	9,019	2,661
Other employees (below Role 3)	40,634	39,409	40,913	39,442	7,223
% of women (total)	41	43	43	44	37
thereof in senior management (Role 6+)	21	25	30	36	17
thereof in middle management (Role 4 & 5)	611	805	917	1,025	368
thereof in low management (Role 3)	2,636	3,361	3,714	3,795	1,036
thereof other employees (below Role 3)	17,348	17,375	18,197	17,888	2,676
% of men (total)	59	57	57	56	63
thereof in senior management (Role 6+)	125	156	167	157	77
thereof in middle management (Role 4 & 5)	1,600	1,880	2,010	2,070	787
thereof in low management (Role 3)	3,986	4,778	5,190	5,224	1,625
thereof other employees (below Role 3)	23,286	22,034	22,716	21,554	4,547
by age group					
Up to 29 years old (%)	15	15	15	15	14
thereof in senior management (Role 6+)	0	0	0	0	0
thereof in middle management (Role 4 & 5)	5	7	3	5	3
thereof in low management (Role 3)	130	183	194	211	111
thereof other employees (below Role 3)	7,424	7,229	7,479	7,279	1,460
30 to 49 years old (%)	64	62	62	61	54
thereof in senior management (Role 6+)	68	76	72	69	32
thereof in middle management (Role 4 & 5)	1,407	1,670	1,782	1,829	692
thereof in low management (Role 3)	4,770	5,784	6,308	6,206	1,766
thereof other employees (below Role 3)	24,815	23,996	24,733	23,536	3,497
50 years or older (%)	21	23	23	24	32
thereof in senior management (Role 6+)	78	105	125	124	62
thereof in middle management (Role 4 & 5)	799	1,008	1,142	1,261	460
thereof in low management (Role 3)	1,722	2,172	2,402	2,602	784

1 From 2015 on, these figures include Sigma-Aldrich, however as of Dec. 31, 2017 the job grading system had not yet been implemented for employees of Sigma-Aldrich legal entities in Germany, or for employees of Allergopharma. In the facts and figures, these employees are included under "other employees (below Role 3)".

2 In 2018, our job grading system had not yet been applied to the employees of Sigma Aldrich in Steinheim (Germany), or to those of Allergopharma. In the facts and figures for 2018, these employees are included under "other employees (below Role 3)".

Number of employees by hierarchical level

As of Dec. 31	2015 ¹	2016 ¹	2017 ¹	2018 The Group ²	2018 thereof Merck KGaA, Darm- stadt, Germany ²
thereof other employees (below Role 3)	8,395	8,184	8,701	8,627	2,266

1 From 2015 on, these figures include Sigma-Aldrich, however as of Dec. 31, 2017 the job grading system had not yet been implemented for employees of Sigma-Aldrich legal entities in Germany, or for employees of Allergopharma. In the facts and figures, these employees are included under "other employees (below Role 3)".

2 In 2018, our job grading system had not yet been applied to the employees of Sigma Aldrich in Steinheim (Germany), or to those of Allergopharma. In the facts and figures for 2018, these employees are included under "other employees (below Role 3)".

Average number of employees by functional area¹

	2015	2016	2017	2018 ²
Group	41,511	50,439	52,053	53,809
Thereof women	17,180	21,136	22,353	23,388
Production	11,563	14,829	15,571	16,240
Thereof women	3,642	4,698	5,059	5,359
Logistics/Supply Chain ³	2,581	3,955	3,729	4,014
Thereof women	913	1,459	1,442	1,569
Marketing and Sales/Commercials ³	12,871	14,887	15,115	15,479
Thereof women	5,204	6,401	6,609	6,981
Administration	6,763	8,190	9,286	9,864
Thereof women	3,757	4,421	4,798	5,067
Research and Development	5,097	6,249	6,789	7,245
Thereof women	2,674	3,274	3,591	3,871
Infrastructure and Other	2,636	2,329	1,564	966
Thereof women	990	883	854	541

1 The average employee headcount is calculated by adding up all employees at the end of each of the last 13 months, 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.

2 The average employee headcount for fiscal 2018 incorporates the Consumer Health employees on a pro rata basis up until the end of November 2018 due to the divestment of the Consumer Health business as of December 1, 2018.

3 In conjunction with the new job architecture implemented in 2017, some functional areas have been renamed and reorganized. Due to the new structure from 2017 on, it will only be possible to deliver a limited trend forecast in a year-on-year comparison.

Number of employees by region

As of Dec. 31	2015	2016	2017	2018 The Group	2018 thereof Merck KGaA, Darm- stadt, Germany
Total	49,613	50,414	52,941	51,749	11,133
Europe	23,429	24,438	25,980	25,792	11,133
women	10,316	10,884	11,627	11,464	4,097
women (%)	44	45	45	44	37
Number of employees with temporary contracts	1,079	1,031	1,279	1,209	483
% of employees with temporary contracts	5	4	5	5	4
North America	9,794	10,037	10,520	10,978	0
women	4,183	4,308	4,518	4,742	not applicable
women (%)	43	43	43	43	not applicable
Number of employees with temporary contracts	22	122	138	148	not applicable
% of employees with temporary contracts	0.2	1	1	1	not applicable
Asia-Pacific (APAC)	11,096	10,754	11,294	10,486	0
women	3,706	3,981	4,298	4,348	not applicable
women (%)	33	37	38	41	not applicable
Number of employees with temporary contracts	1,888	2,231	2,603	2,846	not applicable
% of employees with temporary contracts	17	21	23	27	not applicable
Latin America	4,352	4,140	4,050	3,340	0
women	1,986	1,910	1,896	1,648	not applicable
women (%)	46	46	47	49	not applicable
Number of employees with temporary contracts	43	40	40	62	not applicable
% of employees with temporary contracts	1	1	1	2	not applicable
Middle East and Africa (MEA)	942	1,045	1,097	1,153	0
women	425	483	519	541	not applicable
women (%)	45	46	47	47	not applicable
Number of employees with temporary contracts	127	153	172	189	not applicable
% of employees with temporary contracts	13	15	16	16	not applicable

External contractors are currently not logged in our employee data system, nor do we currently have any plans to integrate them.

Employees by business sector

As of Dec. 31	2015	2016	2017	2018
Healthcare employees	18,566	18,837	19,795	17,456
Thereof women	8,522	9,090	9,656	8,884
Thereof women (%)	46	48	49	51
Life Science employees	18,611	19,178	19,607	20,667
Thereof women	7,883	7,928	8,276	8,837
Thereof women (%)	42	41	42	43
Performance Materials employees	6,228	5,469	5,529	5,278
Thereof women	1,531	1,427	1,455	1,411
Thereof women (%)	25	26	26	27

Employees by contract type

As of Dec. 31	2015	2016	2017	2018
Total employees	49,613	50,414	52,941	51,749
Number of employees with permanent contracts	46,454	46,837	48,709	47,295
% of employees with permanent contracts	94	93	92	91
thereof women	19,034	19,741	20,741	20,545
thereof women (%)	41	42	43	43
Number of employees with temporary contracts	3,159	3,577	4,232	4,454
% of employees with temporary contracts	6	7	8	9
thereof women	1,563	1,744	2,117	2,198
thereof women (%)	49	49	50	49
full-time employees	47,292	48,056	50,498	49,273
% full-time	95	95	95	95
thereof women	18,557	19,457	20,677	20,577
thereof women (%)	39	40	41	42
part-time employees	2,321	2,358	2,443	2,476
% part-time	5	5	5	5
thereof women	2,059	2,109	2,181	2,166
thereof women (%)	89	89	89	87

New employees

As of Dec. 31	2015 ¹	2016	2017	2018 The Group	2018 thereof Merck KGaA, Darm- stadt, Germany
Total number of new employee hires	5,710	7,085	7,285	7,129	696
by age group					
Up to 29 years old	2,088	2,930	2,940	2,967	332
30 to 49 years old	3,252	3,736	3,848	3,728	331
50 or older	370	419	497	434	33
by gender					
Women	2,450	3,388	3,412	3,401	298
Men	3,260	3,697	3,873	3,728	398
by region					
Europe	2,119	2,689	3,058	2,560	696
North America	730	1,348	1,603	1,524	0
Asia-Pacific (APAC)	1,913	2,201	1,955	2,222	0
Latin America	780	636	497	583	0
Middle East and Africa (MEA)	168	211	172	240	0
Rate of new employee hires² (%)					
	14	14	14	14	6
by age group³					
Up to 29 years old	37	41	40	42	48
30 to 49 years old	57	53	53	52	48
50 or older	6	6	7	6	5
by gender³					
Women	43	48	47	48	43
Men	57	52	53	52	57
by region³					
Europe	37	38	42	36	100
North America	13	19	22	21	not applicable
Asia-Pacific (APAC)	33	31	27	31	not applicable
Latin America	14	9	7	8	not applicable
Middle East and Africa (MEA)	3	3	2	3	not applicable

1 These figures exclude the 8,975 Sigma-Aldrich employees who are not classified as new hires because they joined our company 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.

Staff turnover^{1,2}

	2015	2016 ³	2017	2018 The Group ⁴	2018 thereof Merck KGaA, Darm- stadt, Germany
Total turnover rate	10.38	12.07	9.05	9.09	2.13
Turnover rate by gender					
Men	10.13	12.87	8.75	9.03	2.21
Women	10.73	10.96	9.46	9.18	1.99
Turnover rate by age group					
Up to 29 years old	17.49	19.20	13.66	14.24	3.51
30 to 49 years old	9.69	11.37	8.38	8.53	1.79
50 or older	8.08	9.19	7.87	7.39	2.10
Turnover rate by region					
Europe	6.22	6.23	6.22	5.73	2.13
North America	12.72	11.50	11.02	9.90	not applicable
Asia-Pacific (APAC)	15.95	22.37	12.53	14.51	not applicable
Latin America	15.29	18.85	13.74	15.41	not applicable
Middle East and Africa (MEA)	12	10.80	11.22	9.77	not applicable
Total number of leavers	4,168	6,087	4,710	4,613	233
by gender					
Men	2,386	3,771	2,596	2,578	153
Women	1,782	2,316	2,114	2,035	80
by age group					
Up to 29 years old	943	1,464	1,058	1,061	56
30 to 49 years old	2,505	3,589	2,713	2,649	106
50 or older	720	1,034	939	903	71
by region					
Europe	1,290	1,490	1,488	1,457	233
North America	638	1,132	1,143	1,064	0
Asia-Pacific (APAC)	1,540	2,543	1,387	1,468	0
Latin America	618	814	570	522	0
Middle East and Africa (MEA)	82	108	122	102	0

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 headcount is calculated as follows: Total number of leavers from the past 12 months divided by the average employee headcount multiplied by 100.

3 Includes Sigma-Aldrich as of 2016

4 Excludes Consumer Health

In 2018, the average length of service for employees Group-wide was 10 years (2017: 9.8 years), with 14.9 years (2017: 14.6 years) for Merck KGaA, Darmstadt, Germany employees.

Work-related accidents¹

	2015	2016	2017	2018 The Group	2018 thereof Merck KGaA, Darm- stadt, Germany
Lost Time Injury Rate (LTIR = work- place accidents resulting in missed days of work per one million man-hours)	1.4	1.3	1.5	1.3	2.8
by region					
Europe	2.6	2.2	2.4	1.9	2.8
North America	0.9	1.1	1.0	1.1	not applicable
Asia-Pacific (APAC)	0.3	0.4	0.3	0.3	not applicable
Latin America	0.7	0.4	1.3	1.5	not applicable
Middle East and Africa (MEA)	0.5	1.6	0.0	0.7	not applicable
Number of deaths	2	0	0	0	0
by region					
Europe	1	0	0	0	0
North America	1	0	0	0	0
Asia-Pacific (APAC)	0	0	0	0	0
Latin America	0	0	0	0	0
Middle East and Africa (MEA)	0	0	0	0	0
by gender					
Women	1	0	0	0	0
Men	1	0	0	0	0

¹ Including supervised workers

Both our 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. 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.

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

For Merck KGaA, Darmstadt, Germany (about 22% of the employees of the Group), we only report work-related illnesses if these have been certified as an occupational illness by the employers' liability insurance association. In 2018 period, two cases of work-induced illness were verified (as of the end of August 2018).

Employees who regularly receive a performance and development evaluation

	2015 ¹	2016 ²	2017 The Group ²	2018 The Group ^{3, 4}	2018 thereof Merck KGaA, Darmstadt, Germany
% of employees who receive a performance and development evaluation	88	97	97	98	100
by gender					
Women	90	97	97	99	100
Men	87	97	97	98	100
by employee category⁵					
Senior management (Role 6+)	100	100	100	100	100
Middle management (Role 4 & 5)	100	100	100	100	100
Low management (Role 3)	100	100	100	100	100
Other employees (below Role 3)	85	96	96	98	100

1 The 2015 data is based on a reporting date of February 29, 2016.

2 From 2016 on, figures include Sigma-Aldrich, but as of Dec. 31 2017, the job grading system had not yet been implemented for employees of Sigma-Aldrich legal entities in Germany and of Allergopharma. In the facts and figures for 2018, the employees whose positions had not been graded are included under "Other employees (below Role 3)".

3 Excludes Consumer Health

4 In 2018, our job grading system had not yet been applied to the employees of Sigma Aldrich in Steinheim (Germany), or to those of Allergopharma. In the facts and figures for 2018, the employees whose positions had not been graded are included under "Other employees (below Role 3)".

5 In 2017, we switched our job architecture from a Global Grading System to Roles. Figures have been retroactively adjusted for previous years.

Regular feedback and employee performance evaluations are essential to fairly ranking individual performance and to helping all employees follow their own career path. Our globally uniform Performance and Talent Management Process requires annual feedback meetings and performance assessments for all employees rated Role 2 and up in the job grading system that was used since 2017. Figures have been retroactively adjusted for previous years. Apart from evaluating employee performance, this helps us to identify individual development opportunities.

When it comes to applying this process, our individual subsidiaries can decide for themselves whether to include employees rated below Role 2. In Germany, all permanent employees have been participating in the Performance and Talent Management Process since 2013. In 2018, a total of 50,920 employees worldwide were involved in the process. The Performance and Talent Management Process is coordinated via our online platform HR4You.

Internationality of employees

	2015 ¹	2016 ²	2017 ²	2018 The Group ³	2018 thereof Merck KGaA, Darmstadt, Germany
As of Dec. 31					
Number of nationalities	122	129	131	136	90
Number of nationalities in management positions (Role 4 or above)	64	70	65	70	41
% of non-Germans in management positions (Role 4 or above)	61	65	64	64	17

1 These figures do not include the employees of Sigma-Aldrich, a company that was acquired in November 2015. As of December 31, 2015, the job grading system had not yet been implemented there.

2 From 2016 on, figures include Sigma-Aldrich. However, as of Dec. 31 2017, the job grading system had not yet been implemented for employees of Sigma-Aldrich legal entities in Germany or for employees of Allergopharma.

3 In 2018, our job grading system had not yet been applied to the employees of Sigma Aldrich in Steinheim (Germany), or to those of Allergopharma.

Employee age by region

As of Dec. 31

Number of employees	Worldwide	North America	Europe (including Germany)	Merck KGaA, Darmstadt, Germany	Asia-Pacific (APAC)	Latin America	Middle East and Africa (MEA)
2017							
Up to 29 years old	7,676	1,438	3,272	1,589	2,257	521	188
thereof women	3,512	608	1,585	634	945	294	80
30 to 49 years old	32,895	5,465	15,680	5,838	8,099	2,913	738
thereof women	14,540	2,423	7,287	2,195	3,074	1,405	351
50 or older	12,370	3,617	7,028	3,250	938	616	171
thereof women	4,806	1,487	2,755	1,069	279	197	88
Average age	41.4	44.1	42.5	42.6	36.9	40.3	39.4
Total employees	52,941	10,520	25,980	10,677	11,294	4,050	1,097

2018

Up to 29 years old	7,494	1,573	3,175	1,574	2,082	470	195
thereof women	3,534	661	1,537	633	966	285	85
30 to 49 years old	31,638	5,636	15,247	5,987	7,616	2,342	799
thereof women	14,238	2,511	7,044	2,281	3,123	1,183	377
50 or older	12,611	3,769	7,370	3,572	788	528	159
thereof women	4,971	1,570	2,883	1,183	259	180	79
Average age	41.7	44.1	42.8	42.9	36.9	40.4	39.2
Total employees	51,749	10,978	25,792	11,133	10,486	3,340	1,153

Age of youngest employee

As of Dec. 31	2015	2016 ¹	2017	2018
Age of youngest employee, excluding apprentices	17	17	18	17

¹ Includes Sigma-Aldrich as of 2016

Voluntary insurance benefits (voluntarily introduced and (co-) financed)

As of Dec. 31	2015	2016 ¹	2017	2018 The Group	2018 thereof Merck KGaA, Darm- stadt, Germany
% of employees with healthcare benefits ²	–	68 ³	68	67	0
% of employees with Group accident insurance ⁴	–	39	42	39	5
% of employees with life insurance ⁵	–	57	58	58	0
% of employees with disability insurance (short-term and long-term) ⁶	–	32	35	37	0

1 Since 2016, we have been reporting voluntary insurance benefits that we offer our employees. No such data was tracked for the preceding year.

2 Any spend on voluntarily introduced and (co-) financed healthcare benefits for employees and possibly their dependents. Not taking into consideration any mandatory social security cover (mostly covered by an insurance policy).

3 Figure retroactively adjusted.

4 Any spend on voluntarily introduced and (co-) financed accident insurance that pays a defined amount in case of death or disability caused by a work-related accident (not taking into consideration any mandatory social security cover, e.g. workman's compensation).

5 Any spend on voluntarily introduced and (co-) financed life insurance cover that pays a defined amount of money in case of natural death (not accidental).

6 Any spend on voluntarily introduced and (co-) financed insurance cover that disability pays for salary continuation in case of inability to work caused by an insured incident.

All our employees are covered by either statutory or voluntary accident and health insurance. Employees of Merck KGaA, Darmstadt, Germany are covered by statutory insurance as stipulated by the regulations in force in Germany.

We offer a company pension in numerous countries along with various programs for supplemental company pensions and survivor's benefits.

The global benefits listed in the table above are designed to provide additional security to our workforce and their families and to improve their quality of life. Benefits represent voluntarily employer-initiated as well as employer-financed assistance to our workforce in addition to the regular compensation package.

Our benefits offer meaningful choices, where possible, to support a diverse workforce and are sensitive to the needs and customs of the employees who use them, regardless of country, age, family status, interests, or values.

Long-term pension obligations and post-employment benefits

€ million	2015	2016	2017	2018
Present value of all defined benefit obligations as of Dec. 31	4,153	4,698	4,707	4,719
Pension expenses	210	226	304	295

Depending on the legal, economic and fiscal circumstances prevailing in each country, different retirement benefit systems are provided for our employees. Generally, these systems are based on the years of service and salaries of the employees. Pension obligations of the 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 Group, defined benefit plans are funded and unfunded (see our Annual Report 2018, Note on Provisions for pensions and other post-employment benefits).

Flexible working hours in Germany

As of Dec. 31	2015	2016 ¹	2017	2018 ²
% of employees utilizing the "mywork" working model	35	36	40	42

1 Includes Sigma-Aldrich as of 2016

2 Essentially reflects the figures of Merck KGaA, Darmstadt, Germany.

In coordination with their teams and supervisors, employees taking advantage of our "mywork" program can choose when and where they work.

Parental leave in Germany

As of Dec. 31	2015 ¹	2016 ¹	2017 ²	2018 ²
Number of employees with a right to parental leave	317	359	353	308
thereof women (recorded via maternity leave in the respective year)	149	191	151	188
thereof men (recorded via special paternity leave in the respective year)	168	168	202	120
Number of employees who took parental leave ³	485	480	352	500
thereof women	301	303	150	240
thereof men	184	177	202	260
Number of employees on parental leave who worked part time during their leave	102	102	49	128
thereof women	99	95	47	109
thereof men	3	7	2	19
Number of employees who returned from parental leave	183	174	312	312
thereof women	51	62	143	65
thereof men	132	112	169	247
Return to work rate (%)	37.7	36.3	88.6	62.4
thereof women	16.9	20.5	95.3	27.1
thereof men	71.7	63.3	83.7	95.0
Number of employees still working for the Group one year after their return from parental leave	184	190	238	- ⁴
thereof women	55	73	89	- ⁴
thereof men	129	117	149	- ⁴
Retention rate (%)	96.8	95.6	89.8	- ⁴
thereof women	98.2	93.8	85.6	- ⁴
thereof men	96.3	96.8	92.5	- ⁴

- Figures only pertain to the Darmstadt and Gernsheim sites in Germany (which accounted for around 22% of the employees of the Group in 2018). Figures are calculated on the basis of the data from one entire year, which also includes those employees who took parental leave during the calendar year but who had not returned by Dec. 31.
- Figures pertain only to Merck KGaA, Darmstadt, Germany (which accounted for around 20% of the employees of the Group in 2017, and roughly 22% in 2018). Figures are calculated on the basis of the data from one entire year, which also includes those employees who took parental leave during the calendar year but who had not yet returned by Dec. 31.
- Since parental leave can be taken for a period ranging from one month to three years, it is possible for employees to be recorded across a period of up to four calendar years. This explains why the number of employees on parental leave exceeds the number of employees who have a right to it.
- Figure will be available on Dec. 31, 2019.

Employees with disabilities¹ (%)

As of Dec. 31	2015	2016	2017	2018
Employees with disabilities ¹	4.7	4.5	4.3	4.3

- Only pertains to Merck KGaA, Darmstadt, Germany (which accounted for around 22% of the employees of the Group in 2018, calculations based on the German Social Code IX - SGB IX).

Apprentices

As of Dec. 31	2015 ¹	2016 ²	2017 ²	2018
Number of apprentices	506	576	588	604
% of apprentices	5.3	4.6	4.4	4.5

1 Only pertains to Merck KGaA, Darmstadt, Germany (roughly 19% of the total employee headcount of the Group in 2015).

2 Only pertains to sites in Germany (approximately 25% of the Group's total workforce in 2016, 2017 and 2018). Essentially reflects the figures of Merck KGaA, Darmstadt, Germany.

Environment

Total greenhouse gas emissions (Scope 1 and 2 of the GHG Protocol)¹

metric kilotons	2006 ²	2015	2016	2017	2018
Total CO₂eq³ emissions	786	722	689	704	698
Thereof					
direct CO ₂ eq emissions	378	391	384	373	354
indirect CO ₂ eq emissions	408	331	305	331	344
Biogenic CO₂ emissions	0	13	14	13	13

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 as of Dec. 31 of the reporting year and retroactively adjusted for acquisitions (e.g. Sigma-Aldrich in 2015) or divestments of (parts of) companies, or for changes in emission factors (portfolio-adjusted).

2 Baseline for our emission targets is 2006.

3 eq = equivalent

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 CO₂eq emissions:

Direct CO₂ emissions: CO₂, HFCs, PFCs; CH₄/N₂O negligible; SF₆/NF₃ not available.

Indirect CO₂ emissions: CO₂.

In 2018, we emitted 0.047 kg of CO₂eq per euro of net sales.

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

	2015 ¹	2016 ^{1,2}	2017	2018 ³
Total gross other indirect emissions (metric kilotons CO₂eq⁴)	349	426	353	380
Fuel- and energy-related emissions, not included in Scope 1 or 2 (category 3)	95	127	118	131
Waste generated in operations (category 5)	123	127	68	80
Business travel - air travel (category 6)	79	103 ⁵	98	103
Business travel - rail travel (category 6) ⁶	0.02	0.02	0.02	0.02
Business travel - rental car travel (category 6)	1.1	0.6	0.6	1.4
Employee commuting (category 7)	51	68	68	66
Upstream leased assets (category 8)	0.0 ⁷	0.0 ⁷	0.0 ⁷	0.0 ⁷
Processing of sold products (category 10)	0.0 ⁸	0.0 ⁸	0.0 ⁸	0.0 ⁸
Downstream leased assets (category 13)	0	0	0	0
Franchises (category 14)	0	0	0	0

1 Because of the characteristics of the Scope 3 emissions data we do not correct these data subsequently.

2 Includes Sigma-Aldrich as of 2016

3 Excludes Consumer Health

4 eq = equivalent

5 This figure covers roughly 95% of the employees of the Group because the data for the employees of Sigma-Aldrich, acquired in November 2015, are only partially available.

6 German Railway

7 Already covered under Scope 1 and 2 emissions

8 The Group 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 the Group is assessed in the [Scope 3 document](#).

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

Emissions of ozone-depleting substances

metric tons	2015	2016	2017	2018 ¹
Total emissions of ozone-depleting substances	2.5	2.2	1.9 ²	1.5
CFC-11eq ³	0.1	0.1	0.1	0.1

1 Excludes Consumer Health

2 Figure retroactively adjusted.

3 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	2015	2016 ¹	2017	2018 ²
Volatile organic compounds (VOC)	0.3	0.3	0.3	0.3
Nitrogen oxide	0.3	0.2	0.2	0.3
Sulfur dioxide	0.05	0.05	0.03	0.01
Dust	0.06	0.02	0.04	0.01

1 Includes Sigma-Aldrich as of 2016

2 Excludes Consumer Health

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

	2015 ¹	2016 ²	2017	2018
% Truck	53	71	73	74
% Boat	41	18	15	14
% Airplane	6	11	12	12

1 The figures of 2015 pertain to goods shipped by our Darmstadt, Gernsheim and Hohenbrunn sites in Germany (excluding Sigma-Aldrich).

2 From 2016 on, the figures contain the volumes of the biggest global distribution centers of our Healthcare, Life Science and Performance Materials business sectors. These figures pertain to the total weight of transported products and indicate 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 CO₂ emissions.

Energy consumption¹

In GWh	2015	2016	2017	2018
Total energy consumption	2,141	2,117	2,194	2,232
Direct energy consumption	1,343	1,330	1,319	1,322
Natural gas	1,200	1,260	1,254	1,256
Liquid fossil fuels ²	110	36	32	32
Biomass and self-generated renewable energy	33	34	33	34
Indirect energy consumption	798	787	875	910
Electricity	702	692	729	761
Steam, heat, cold	96	95	146	149
Total energy sold	0.3	0.3	0.1	0.0
Electricity	0.3	0.3	0.1	0.0
Steam, heat, cold	0	0	0	0
In TJ				2018
Total energy consumption	7,708	7,621	7,898	8,035
Direct energy consumption	4,835	4,788	4,748	4,759
Natural gas	4,320	4,536	4,514	4,522
Liquid fossil fuels ²	396	130	115	115
Biomass and self-generated renewable energy	119	122	119	122
Indirect energy consumption	2,873	2,833	3,150	3,276
Electricity	2,527	2,491	2,624	2,740
Steam, heat, cold	346	342	526	536
Total energy sold	1.1	1.1	0.4	0.0
Electricity	1.1	1.1	0.4	0.0
Steam, heat, cold	0.0	0.0	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 as of Dec. 31 of the reporting year and retroactively adjusted for acquisitions or divestments of (parts of) companies, or for changes in emission factors (portfolio-adjusted).

2 Light and heavy fuel oil, liquefied petroleum gas (LPG), diesel and gasoline

At our sites in Billerica (MA, USA), Bedford (MA, USA), Molsheim (France), Tel Aviv (Israel), Rome (Italy), Guatemala City (Guatemala), Shizuoka-ken (Japan), and Shanghai (China), we use photovoltaics to produce power.

We currently only record purchased secondary energy – this is primarily electricity and, to a lesser extent, heat/steam/cold. Details on the local energy mix, including the respective percentage of primary energy, renewable energy, etc. are 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 29% of our Group-wide total. Here, fossil energy (coal, gas, etc.) accounts for approx. 50.7%, nuclear energy approx. 12.7% and renewable energies approx. 36.6% 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 2,050 GWh for 2018. Based on an estimated global energy efficiency of 85% for heat/steam/cold, this results in a primary energy consumption of 175 GWh for 2018. This yields a total primary energy consumption of 2,225 GWh for 2018. (The calculation is based on factors stated in the "Manual for energy management in practice - Systematically reducing energy costs" published by DENA, 12/2012.)

In 2018, the Group's energy intensity relative to net sales totaled 0.150 kWh/€.

Water consumption

millions of m ³	2015	2016	2017	2018 ¹
Total water consumption	13.7	13.8	14.0	14.7
Surface water (rivers, lakes)	1.8	1.8	1.9 ²	2.1
Groundwater	7.1	7.2	7.3	7.2
Drinking water (from local suppliers)	4.8	4.8	4.8 ²	5.3
Rain water and other sources	0.01	0.01	0.00 ²	0.05

- 1 Excludes Consumer Health
2 Figure retroactively adjusted.

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

Water reused

millions of m ³	2015	2016	2017	2018 ¹
Water reused	23.0	22.7	22.4	24.4

- 1 Excludes Consumer Health

The recirculating cooling system at our Darmstadt, Germany facility accounts for the majority of reused water as it allows the water to be re-utilized multiple times. The volume of reused water is thus greater than the total volume of consumed water.

Wastewater volume and quality

	2015	2016	2017	2018 ^{1, 2}
Total wastewater volume (millions of m³)	12.5³	12.9³	13.1³	13.5
Chemical oxygen demand (metric tons of O ₃)	1,240 ³	1,535	1,669 ³	1,589
Phosphorous (metric tons)	10	12	8	9
Nitrogen (metric tons)	487	379	234 ³	258
Zinc (kg)	491	448	351	- ²
Chromium (kg)	42	34	34	- ²
Copper (kg)	78	48	61	- ²
Nickel (kg)	29 ³	29 ³	32 ³	29
Lead (kg)	32 ³	31 ³	35 ³	28
Cadmium (kg)	9 ³	7 ³	6 ³	6
Mercury (kg)	2	2	1	0
Arsenic (kg)	5	4	3	- ²

- 1 Excludes Consumer Health
2 In alignment with ICCA reporting requirements specified by Cefic, we track heavy metal emissions from lead, cadmium, nickel, and mercury. These heavy metals are considered to be directly toxic to organisms and are also hazardous to human health due to their carcinogenic properties and their ability to cause harmful effects even in minute quantities. Due to having adopted ICCA reporting standards, we stopped tracking arsenic, chrome, copper, and zinc as of 2018.
3 Figure retroactively adjusted.

The wastewater volume includes indirect discharge into both public and Group-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	2015	2016	2017	2018 ¹
Total waste	324²	256²	255²	244
Hazardous waste disposed ³	55	47	43	44
Non-hazardous waste disposed ³	35	38	33 ²	54
Hazardous waste recycled ⁴	77 ²	82 ²	72 ²	74
Non-hazardous waste recycled ⁴	157	89	107 ²	72

1 Excludes Consumer Health

2 Figure retroactively adjusted.

3 Disposed = incineration (without energy recovery) and landfill

4 Recycled = incineration (with energy recovery) and material recycling

Exported/Imported hazardous waste

metric kilotons	2015	2016	2017	2018 ¹
Exported ²	5.1	4.6	4.9	4.5
Imported ³	0.010	0.010	0.005	0.000

1 Excludes Consumer Health

2 Disposal within the EU and the United States.

In 2018, approximately 4% of hazardous waste was shipped internationally.

Waste by disposal method

	2015	2016	2017	2018 ¹
Total waste (metric kilotons)	324²	256²	255²	244
Disposed waste (metric kilotons)	90	85	76²	98
Landfilled waste (metric kilotons)	16	15	13	35
Incinerated waste (metric kilotons)	74	70	63 ²	63
Recycled waste (metric kilotons)	234²	171²	179²	146
Material recycling (metric kilotons)	202 ²	139 ²	149 ²	126
Waste-to-energy (metric kilotons)	32	32	30	20
Recycling rate (%)	72	67²	70²	60

1 Excludes Consumer Health

2 Figure retroactively adjusted.

As in previous years, the total waste generated continues to be heavily influenced by the waste from construction and remodeling activities. Construction, excavation and demolition waste accounted for 31% of our waste in 2018. Around 40 metric kilotons of construction, excavation and demolition waste was recycled.

The following table is part of the non-financial report

Significant spills

	2015	2016	2017	2018 ¹
Total number of significant spills	0	0	0	0

1 Excludes Consumer Health

COMMUNITY

Spending on community involvement

€ million	2015	2016 ^{1,2}	2017	2018 ³
Total spending	100.0	43.0	33.8	35.7

1 Includes Sigma-Aldrich as of 2016

2 From 2016 on, we are separating spending on patient support programs such as our Erbitux[®] China Patients Assistance Program from our community involvement figures.

3 From 2018 on, we are separating spending on programmes of the Foundation sponsored by Merck KGaA, Darmstadt, Germany from our community involvement figures.

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.

Community involvement spending by region¹

	Europe	North America	Asia-Pacific (APAC)	Latin America	Middle East and Africa (MEA)
2017					
€ million	8.7	2.9	3.2	0.5	18.5
%	26	9	9	1	55
2018					
€ million	10.1	2.2	2.6	0.7	20.1
%	28	6	7	2	57

1 This table presents the regions across the globe in which we support initiatives. For projects that benefit multiple regions, we have calculated the amount per region by dividing the project spending evenly per country.

2 From 2018 on, we are separating spending on programmes of the Foundation sponsored by Merck KGaA, Darmstadt, Germany from our community involvement figures.

Focus of our local community involvement¹

%	2015	2016 ^{2,3,4}	2017	2018 ⁵
Global Health	33	35	38	34
Broad Minds: Education and culture	33	36	43	42
Sustainable Solutions: Environment	7	5	4	2
Disaster relief	6	2	2	2
Other	21	22	13	20

1 Based on number of projects

2 Includes Sigma-Aldrich as of 2016

3 Since 2016, we have integrated our global projects into our community outreach figures, specifically the Global Pharma Health Fund, the Praziquantel Donation Program and the Deutsche Philharmonie sponsored by Merck KGaA, Darmstadt, Germany. This change in approach was due to the increasingly international nature of our efforts. We are spearheading a rising number of global projects that account for a growing percentage of our project portfolio. To ensure maximal accuracy, we are therefore including all international initiatives in our figures as of 2016.

4 From 2016 on, we are separating spending on patient support programs such as our Erbitux[®] China Patients Assistance Program from our charitable spending figures.

5 From 2018 on, we are separating spending on programmes of the Foundation sponsored by Merck KGaA, Darmstadt, Germany from our community involvement figures.

Motivations for our community involvement¹

%	2015	2016 ^{2,3,4}	2017	2018 ⁵
Charitable activities	3	4	9	7
Community investment	92	87	84	88
Commercial initiatives in the community	5	9	7	5

1 Based on total spending on all projects

2 Including Sigma-Aldrich as of 2016

3 Since 2016, we have been integrating our global projects into our community outreach figures, specifically the Global Pharma Health Fund, the Praziquantel Donation Program and the Deutsche Philharmonie sponsored by Merck KGaA, Darmstadt, Germany. This change in approach was due to the increasingly international nature of our efforts. We are spearheading a rising number of global projects that account for a growing percentage of our project portfolio. To ensure maximal accuracy, we are therefore including all international initiatives in our figures as of 2016.

4 As of 2016, we are separating patient support programs such as our Erbitux[®] China Patients Assistance Program from our charitable spending.

5 From 2018 on, we are separating spending on programmes of the Foundation sponsored by Merck KGaA, Darmstadt, Germany from our community involvement figures.

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 cover 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





Part of the non-financial report

Legende:  New Goal  Goal achieved  In Progress  Goal not achieved

business ethics




Compliance

Goal: Bring Compliance closer to the business

Action(s):	By:	Progress as of end of 2018:	Status:
Quantum LEAP (Lean and Effective Approval and Publication): Develop and introduce an automated, lean process and tool landscape to support transparency reporting requirements and the streamlined processing of interactions with our partners in the Healthcare sector. Build on adapted compliance controls and enhance business ownership and accountability.	September 2018	The Quantum LEAP infrastructure has been successfully implemented in 60+ countries for the core components Quantum Connect and MDM (Master Data Management).	
Business Partner Risk Management Process update: Best practice risk mitigation to meet strict standards and organizational duties.	December 2019	In 2018, a new project has been set up to redesign the existing Business Partner Risk Management Process and to ensure compliance with 5th EU Anti-money Laundering Directive published in June 2018. The new process will fulfill current legal requirements in the areas of anti-corruption, anti-money laundering and fraud prevention.	
New Code of Conduct of Merck KGaA, Darmstadt, Germany: The Code has a strong relation to the company's Values, built on core principles to adhere to. Supported by a business specific roll-out and e-learning.	March 2018	We started the roll-out of our business sector-specific e-learning program centered on our new Code of Conduct.	
Self-monitoring as part of the Compliance Risk Assessment process: Integrate self-assessment of compliance program implementation status in existing Compliance Risk Assessment.	April 2019	We redesigned the existing Compliance Risk Assessment process and will introduce a new technical solution. The self-monitoring process has been added to document the status of the implementation of the compliance program across the Group businesses.	



Supply chain standards

Goal: Ensure that suppliers adhere to ethical, social, environmental, and compliance standards


Action(s):	By:	Progress as of end of 2018:	Status:
Perform a qualitative analysis of the available assessment and audit findings and define potential courses of action.	End of Q2/2019	In 2018, our Procurement unit worked on standard processes for the purchasing unit that describe the implementation of sustainability audits in the supply chain and follow-up measures.	
Development of a due diligence process for Responsible Minerals Sourcing according to the OECD guidance for upstream process and implementation in the working processes of the affected units.	End of Q3/2019	In 2018, we established an interdisciplinary working group, collected data to gain supply chain transparency and conducted first investigations of legal implications.	
Development of a due diligence process for palm oil sourcing according to international guidance and implementation in the working processes of the affected units.	End of 2019	We acquired first data from our Performance Materials business to gain better transparency on the supply chain.	

Animal welfare


Goal: Ensure consistently high quality across our animal facilities

Action(s):	By:	Progress as of end of 2018:	Status:
Inspect Life Science animal facilities in preparation for potential accreditation: Conduct a feasibility study and make a decision about accreditation.	End of 2018	In 2018, we completed the feasibility study. No additional activities are envisioned at this time.	
Re-accredit relevant animal facilities.	Ongoing	In 2018, two sites in the United States were due for re-accreditation (Billerica, MA and Rockville, MD). Both sites completed their re-accreditation and continue operations with full accreditation status. Re-accreditations are conducted every three years.	

Goal: Ensure animal welfare in our supply chain

Action(s):	By:	Progress as of end of 2018:	Status:
Develop and implement an audit plan for suppliers.	Ongoing	The audit plan is in place, audits have been scheduled and undertaken as planned.	

Goal: Promote the 3Rs (Reduce, Refine, Replace)

Action(s):	By:	Progress as of end of 2018:	Status:
Develop a Group-wide 3R program.	Ongoing	We further increased internal awareness for the 3R program through measures like the internal Merck KGaA, Darmstadt, Germany 3Rs Award.	


products

health for all

Global Strategy

We aim to improve access to health for underserved populations in low- and middle-income countries.






Goal: Awareness: Empower health workers, communities and people

Action(s):	By:	Progress as of end of 2018:	Status:
Engage in a dialogue to jointly identify the key access challenges and opportunities for our strategy for global access to healthcare.	End of 2018	In 2018, we conducted an Access Dialogue on the topics of open innovation and intellectual property.	

Focus programs





Hand in hand with our partners, we aim to eliminate the tropical worm disease schistosomiasis worldwide.

Goal: Eliminate schistosomiasis

Action(s):	By:	Progress as of end of 2018:	Status:
Donate up to 250 million praziquantel tablets annually to World Health Organization (WHO) for African school children.	Ongoing	In 2018, we donated almost 200 million tablets for distribution in 34 African countries in partnership with the WHO, and keep production capacities at a level sufficient for manufacturing 250 million praziquantel tablets a year.	
Optimize the praziquantel formulation. Milestone for 2019: complete analysis of bioequivalence study.	End of 2019	In 2018, we completed a first bio-equivalence study, which is currently being analyzed.	
Initiate new partnerships to promote behavioral change in African school children. Milestone for 2019: extend project to two further districts in Ethiopia.	End of 2019	Since 2017, we have been partnering with the NALA Foundation to raise awareness and encourage behavioral change. Together, we are supporting a national health project jointly carried out by the Ethiopian Federal Ministry of Health and the Foundation. The project was started in two districts, extension into two additional ones is planned.	
Position the Global Schistosomiasis Alliance (GSA) as a partner platform for advocacy, implementation, research, communication, and strategy development.	Ongoing	GSA has taken on the role to house and oversee the implementation of the Schistosomiasis Action Plan and adjusted its work program and working groups to drive progress on the Action Plan.	
Provide WHO with educational booklets to teach children about schistosomiasis and ways to prevent it.	Ongoing	The successful development and distribution of the booklets have been completed. The goal will be discontinued. Health promotion to leverage behavioral change will continue to be a central element in our fight against schistosomiasis. We will continue to support health education activities and create synergies with existing efforts and projects, for example the NALA Foundation in Ethiopia.	



We aim to improve global health for underserved populations in low- and middle-income countries, with a focus on combating infectious diseases.

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

Action(s):	By:	Progress as of end of 2018:	Status:
Develop a pediatric formulation of praziquantel for the treatment of schistosomiasis in children under six. Milestone: entry into Phase III.	2018	The current results from the Phase II study indicate that both developed formulations are well tolerated at all doses tested and confirmed the formulation for further development. Executive board approved decision to move into Phase III in 2018.	
Develop a pediatric formulation of praziquantel for the treatment of schistosomiasis in children under six. Milestone 2019: start of Phase III trial.	End of Q2/2019		
Develop a new antimalarial (PeEF2 inhibitor). Milestone for 2019: Completion of Phase I/Ib.	End of Q4/2019	The Phase I study in healthy volunteers allowed assessment of the safety of the compound and the Phase I/Ib study provided data to support clinical proof of principle. Additional cohorts were added in 2018, to fully define the profile of the new antimalarial compound	
Develop a new diagnostic kit to detect and characterize the type of malaria parasite. Milestone: Start of clinical trial.	End of 2018	In 2018, we introduced a diagnostic set for research purposes. At the end of 2018, we sold the underlying technology platform to the US laboratory supplier Luminex.	

Open innovation sharing

Goal: Affordability: Overcome inability to pay

Action(s):	By:	Progress as of end of 2018:	Status:
Establish a partnership to share intellectual property with a non-commercial organization.	End of 2018	Our collaboration with the DNDi NTD Booster moves forward as we have contributed compounds to 10+ screens. We entered into a partnership with the Drug for Neglected Diseases initiative (DNDi), under which we are participating in the Drug Discovery Booster project for neglected tropical diseases.	
Participate in at least one partnership with a public-sector partner in an effort to share our intellectual property and expertise in infectious and neglected tropical diseases.	End of 2018	Our collaboration via the WIPO-Re-Search platform moves forward. The University of Buea collaboration has completed the screening phase and is evaluating further options. We entered into a partnership with the University of California San Diego, United States.	

Pharmaceutical supply chain

Goal: Accessibility: Strengthen supply chains and provide localized health solutions

Action(s):	By:	Progress as of end of 2018:	Status:
Engage stakeholders in overcoming the challenges in creating an end-to-end secure supply chain and supplying goods in developing countries.	End of 2018	We presented the pharma industry point of view of supply chain challenges at the World Health Assembly that addressed Health Supply Chain and Delivery Challenges.	✓
Host one to two meetings under the auspices of the Accessibility Platform.	End of 2018	We held an Accessibility Platform meeting in 2017, and a Merck KGaA, Darmstadt, Germany Access Dialogue on Supply Chain & Delivery meeting in January 2018.	✓
Form a partnership to improve health-care at the point of care in developing countries.	End of 2019	We partnered with the NGO Business for Health Solutions (BHS) to help strengthen supply chains and delivery effectively at point of care to improve sustainable access to health in developing countries. A dozen Merck KGaA, Darmstadt, Germany Supply Chain employees agreed to provide their Supply Chain competences in supporting local healthcare organizations (mainly distributors from Tanzania) on customer demand planning, stock level management, warehouse operations and cold chain management.	✓
NTDeliver: Reach more than 1,000 schools via a school-based deworming campaign with praziquantel and Albendazole (GlaxoSmithKline).	End of 2018	Implementation has taken place. 12,000 schools were contacted, 8,900 reported back on the number of tablets distributed in 2018.	✓

Through the GPHF Minilab™, we seek to fight counterfeit medicines in developing and emerging economies.





Goal: Provide and further develop the GPHF Minilab™

Action(s):	By:	Progress as of end of 2018:	Status:
Conduct at least two Minilab training seminars, provide at least 30 Minilabs and spread their use.	End of 2018	GPHF and its partners conducted three Minilab trainings in 2018, and provided seven Minilabs. The demand for Minilab consumables for replenishment remained high.	✗
Develop new test methods for ten active ingredients and revise ten existing methods.	End of 2018	The development of ten test protocols for ten new drug compounds plus one new test protocol for an existing drug compound were successfully concluded. The review on further 30 existing test protocols was intensified.	✓
Update the Minilab manuals and consolidate all test methods into one single volume.	End of 2020	A print version of a consolidated English manual is expected to be available end of 2019. Work on French and Spanish versions will follow 2019 and 2020.	🔄

product safety and quality




Chemical product safety

Goal: Use precautionary principle to establish a globally aligned hazard and risk communication system for all our relevant chemical products in the supply chain

Action(s):	By:	Progress by end of 2018:	Status:
Implement REACH: Register substances produced in quantities of 1-100 metric tons per year (phase 3 of REACH implementation) and register non-phase-in substances.	Mid-2018	By June 2018, we had registered all 700 relevant phase 3 substances for the various subsidiaries of our Group.	
Implement the Global Product Strategy: Issue product safety summaries for all hazardous substances registered under REACH.	End of 2020	Because we were heavily focused on completing phase 3 REACH registrations on time, along with the subsequent updates, product safety summaries were not a priority in 2018.	
Projects for hazard communication: Update safety data sheets for non-hazardous materials.	End of 2020	By the end of 2018, we had updated 70% of the safety data sheets for non-hazardous substances within Performance Materials and 80% in Life Science.	
Harmonize safety data sheets to align with a globally uniform standard.	End of 2020	Within Performance Materials, all safety data sheets are drafted using a single system Group-wide, thereby harmonizing the information to the extent permitted by the variations in country-specific regulations. During the integration of Sigma-Aldrich, safety data sheet creation for products assigned to Performance Materials was transitioned to the Performance Materials process. Within Life Science, safety data sheets for all new product launches have been harmonized. Existing substances will be transitioned to the globally harmonized system by 2020.	


Patient safety

Goal: Increase patient safety


Action(s):	By:	Progress as of end of 2018:	Status:
Development of a new methodology and tools for earlier detection of signals and safety issues to ensure safety of our products.	2018	We implemented the new signal detection tool Empirica for safety signals and introduced a new process for the signal detection in the EudraVigilance database.	
Enhance the effective and timely communication to stakeholders in agreement with Health Authorities.	Ongoing	We successfully implemented a project to enhance internal and external communication on quantitative outcomes of benefit-risk analysis and safety profiles of our products. We engaged in stakeholder dialogues with health authorities on crisis communication in order to deliver appropriate information to patients and healthcare professionals concerning patient safety.	
Enhance patient centricity.	Ongoing	We made the mobile patient centric app for reporting adverse effects (agReporter) available in eight languages. In order to promote the patient use of the app to report adverse effects, we implemented a communication campaign called Patient 360 Series.	

Product-related crime


Goal: Integrate security into relevant business processes for our Healthcare and Life Science business sectors

Action(s):	By:	Progress by end of 2018:	Status:
Identify strategic and commercial data that require greater protection; minimize risks by modifying processes.	End of 2018	In 2018, our Healthcare business sector launched a project to standardize security features and thus protect relevant products in key markets. Moreover, we conducted a value chain analysis to identify risks to our Healthcare products. We made security audits a prerequisite for collaboration with contract production and packaging facilities.	

Goal: Step up interdisciplinary collaboration within global security network

Action(s):	By:	Progress as of end of 2018:	Status:
Expand organizational structures and certify employees who deal with product-related crime.	Ongoing	Our product crime officers participate in regular MACON conference calls and face-to-face meetings, thereby continuously improving their ability to combat product-related crime.	

Goal: Educate employees and other target groups on the strategic relevance of counterfeit medicines


Action(s):	By:	Progress as of end of 2018:	Status:
Host conferences and seminars; share best practices and lessons learned through international networks.	Ongoing	In 2018, we jointly organized two MACON conferences, one for countries in Europe, the Middle East and Africa (EMEA) and the other for countries in the Asia-Pacific (APAC) region. In the same period, conference calls attended by all product crime officers were held every two weeks to discuss strategic matters along with local situations and suspected cases of counterfeiting.	

Goal: Develop and implement security technology and solutions for supply chain authentication, identification, integrity, and security

Action(s):	By:	Progress as of end of 2018:	Status:
Support regional activities to counter product-related crime.	Ongoing	The 2018 MACON conferences featured working sessions to develop and implement security technologies, as well as to discuss appropriate solutions. In addition to these sessions, we took part in workshops and seminars to reinforce collaborative efforts with law enforcement agencies, for instance in Germany, Brazil, China, Italy, Colombia, Mexico, Romania, Singapore, and the United States.	
Step up internet searches to detect counterfeit products, illegal parallel imports as well as trademark infringements.	Ongoing	We continually scour the Internet for cases of product crime relating to our company, taking into account new developments, for example the growing importance of social media.	
Monitor counterfeit pharmaceuticals in conventional distribution channels as well as online sales.	Ongoing	In 2018, we enhanced our collaboration with monitoring service providers by systematizing the process for exchanging electronic data with one of them. This approach accelerates our efforts to discover counterfeit versions of our products and initiate countermeasures.	
Participate in and support the Disruption 18 project.	Early 2019	In 2018, we joined forces with other Pharmaceutical Security Institute (PSI) member companies to run Disruption 18, a project to combat online sales of counterfeit medicines. We support this project by providing both financial support and manpower.	

Transport and warehouse safety



Goal: Ensure warehouse and transport safety for our company and our suppliers

Action(s):	By:	Progress by end of 2018:	Status:
Harmonize transport and warehouse safety master data through Group-wide ERP systems.	End of 2022	By the end of 2018, we had finished harmonizing the transport and warehouse safety master data for the products in our Life Science portfolio.	



Employees

Attractive employer



Goal: Consistently fill at least two-thirds of leadership positions (Role 6+) with internal candidates

Action(s):	By:	Progress by end of 2018:	Status:
Use the Talent Management Process to identify suitable employees with leadership potential and optimize the process to systematically advance them.	Ongoing	In 2018, 87% of our vacant leadership positions/the positions (Role 6+) were filled internally.	
Build a high-potential pool that reflects our demographic structure.	Ongoing	We are continuously developing our high-potential pool, which is a reflection of the diversity within our company.	

Goal: Position our Group as an attractive employer for university graduates


Action(s):	By:	Progress by end of 2018:	Status:
Participate in university fairs and organize in-house events for graduates; position our company via employer branding channels.	Ongoing	We are continuously positioning ourselves as an attractive employer for university graduates via editorial articles on careerloft, through event information on e-fellows.net and through trainee and employee films on YouTube. By the end of 2018, all 40 planned trainee slots and direct hires were filled through our employer branding and talent sourcing efforts.	
Approach select target universities.	Ongoing	We have increased our visibility at our target universities through billboards, job advertisements and newsletters. Moreover, we make use of relevant social media channels (Facebook, Twitter, LinkedIn, XING, Instagram, and WeChat). We leveraged the tools available to continue presenting ourselves as an attractive employer for university graduates.	

Goal: Increase the share of employees (Group-wide) with development plans to 70% by 2020

Conduct extensive internal communications and people development campaigns and optimize existing tools.	End of 2020	The percentage of employees with development plans increased from 61% (2017) to 69.9% (2018).	
Create awareness and share knowledge.	End of 2020	To meet this goal, we are taking steps to raise awareness of development plans and help people create a good one. In 2018, these included new training documents and videos, along with printed materials such as the "Development Planning Guideline" and information on counseling career advancement options.	


Diversity

Goal: Our target for 2021 is to maintain a 30% representation of women in leadership roles (Role 4+)

Action(s):	By:	Progress by end of 2018:	Status:
Deploy teams at departmental level to develop goals and measures to move women into positions in various units and hierarchies.	End of 2021	The measures identified by the business sectors were expanded.	


Health and safety

Goal: Reduce the lost time injury rate Group-wide (to 1.5 or less)

Action(s):	By:	Progress by end of 2018:	Status:
Reinforce our safety culture to prevent behavior-related accidents/Roll out our BeSafe! program at all newly acquired sites and monitor ongoing implementation via appropriate performance indicators.	End of 2020	In 2018, we achieved a Group-wide LTIR of 1.3. Through manager training, safety tours and train-the-trainer programs, we continued to sustain a high level of safety awareness in 2018. We took these steps at numerous sites – including 20 newly acquired ones.	


Employee engagement

Goal: Measure and improve employee engagement

Action(s):	By:	Progress by end of 2018:	Status:
Implement a regularly occurring process to measure employee engagement and take actions to improve it.	Ongoing	In 2018, we once again conducted a Group-wide employee survey.	

Good leadership


Goal: Ensure that people managers are enabled to motivate and develop their employees

Action(s):	By:	Progress by end of 2018:	Status:
Have at least 50% of people managers rated Role 3+ take part in a management program.	End of 2018	3,133 of 5,281 people managers had taken part in a management program. In compiling participant data, we include the following programs: Managerial Foundation Program (MFP), Advanced Management Program (AMP), Global Leadership Program (GLP), Merck KGaA, Darmstadt, Germany University (MU), International Management Program (IMP), and Growth Markets Management Program (GMMP).	

Environment






Environmental stewardship

Goal: Incorporate all production sites into our Group ISO 14001 certificate for environmental management systems

Action(s):	By:	Progress by end of 2018:	Status:
At newly acquired production sites, introduce environmental management systems in line with our Group ISO 14001 certificate and certify them accordingly.	Ongoing	In 2018, two sites transferred their environmental management system to our Group certificate. All sites pertinent to the Group certificate have thus been transitioned to the new version of ISO 14001:2015.	


Climate action

Goal: 20% reduction in our direct and indirect greenhouse gas emissions (Scope 1 and 2) relative to the 2006 baseline

Action(s):	By:	Progress by end of 2018:	Status:
Systematically examine the energy consumption at our individual production sites.	End of 2020	In 2018, we conducted an energy audit at a production facility in Hamburg (Germany).	
Training on energy efficiency	End of 2018	In partnership with TU Darmstadt, our Darmstadt site offered day-long workshops on energy efficiency. The six workshops were attended by 80 people who play a major role in enhancing energy efficiency (such as plant engineers).	
Identify and implement potential energy savings.	End of 2020	In 2018, we implemented 34 Edison projects with a view to cutting carbon emissions by 75,000 metric tons in the medium term. Multiple projects had to be postponed until 2019.	
Reduce process-related emissions.	End of 2022	In 2018, we initiated two further projects aimed at lowering process-related emissions, one of which was completed in 2018, and yielded 10,000 metric tons of carbon savings. The second project is scheduled to run until 2022. Based on production volume in 2018, we are expecting to save roughly 40,000 metric tons of CO ₂ in this period. A third project is currently in the planning stages.	
Renewable energy	End of 2020	Full integration of the purchase of electricity from renewable sources is our goal.	



Waste and recycling

Goal: Reduce the environmental impact of our waste disposal (Waste Score of Merck KGaA, Darmstadt, Germany) by 5% by 2025 (baseline 2016)

Action(s):	By:	Progress by end of 2018:	Status:
Establish Waste Expert Network Groups.	End of 2018	We established a Group-wide and a U.S.-based Waste Expert Network Group comprising specialists from various areas who work together to integrate waste scoring and promote best practice sharing.	

Water management

Goal: Introduce a sustainable water management system at 24 of our manufacturing facilities with high water use by 2020

Action(s):	By:	Progress by end of 2018:	Status:
Meet the "progressed" requirements set out in the CEFIC flagship self-assessment tool (stage 2). This involves creating transparency regarding the situation in the vicinity of the respective sites and beginning the evaluation of the sites' influence on their environment.	End of 2018	During stage 2 of the self-assessment, we created transparency regarding the water situation in the vicinity of our individual sites. We successfully analyzed the results by the end of 2018.	
Meet the "advanced" requirements set out in the CEFIC flagship self-assessment tool (stage 3): This will assess our sites' impact on the water situation in the vicinity of each individual site.	May 2020	During stage 3 of the self-assessment, we will assess the environmental impacts arising from our discharged water. This process began in 2018, and will continue until May 2020 without an interim audit.	

Recognition and rankings

The following overview presents a selection of major awards and recognition that we have received or achieved. Information on additional recognition and accolades received by individual businesses or sites can be found in the respective chapter of our 2018 Corporate Responsibility Report, or on our company's website.

CR performance

Access to Medicine Index

In 2018, our company was ranked fourth place in the Access to Medicine Index, a position we have held since 2016, and one that has consistently put us among the top five companies in the listing. Published every two years by the international non-profit Access to Medicine Foundation, this initiative evaluates pharmaceutical companies in areas where they have the biggest potential and responsibility to bring about change in developing countries.

www.accesstomedicineindex.org

CDP climate and water

Since 2008, we've been reporting our climate impact mitigation activities to the CDP (formerly the Carbon Disclosure Project). In 2018, we scored a C in the CDP, versus a B in 2017. The CDP assesses the strategy used and the success achieved by companies in reducing their greenhouse gas emissions, as well as how they address the risks and consequences of climate change.

In addition to reporting on our climate action, since 2016 we have been reporting our water-related performance and processes to the CDP. In 2018, we received a B- for our water management practices, versus a B in 2017.

The CDP evaluates performance in the areas of climate and water on a scale from A to D-, with A being the top score.

www.cdp.net

EcoVadis rating

The independent rating agency EcoVadis evaluates suppliers from 120 countries across the categories of Environment, Labor and Human Rights, Ethics, and Sustainable Procurement. As a member of the Together for Sustainability initiative, we also undergo this assessment and, as in 2017, were once more awarded Gold status in 2018, putting us among the top 1% of all participating companies.

www.ecovadis.com

ESG rating from MSCI

MSCI is one of the world's largest providers of financial services for institutional investors as well as environment, social and governance ratings (ESG). This independent organization assesses companies according to their exposure to industry-significant ESG risks and their ability to manage those risks relative to industry peers. In May 2018, MSCI gave us an "AAA", their highest rating and one that puts us among the top 3% of all companies evaluated. They particularly praised our Group-wide ISO 9001 certification, our collaboration in industry-wide initiatives and our robust quality management system.

www.msci.com/esg-ratings

ESG rating from Sustainalytics

Sustainalytics is a company that rates the sustainability of listed companies based on their environmental, social and corporate governance (ESG) performance. In 2018, this organization awarded us 79 out of 100 points, putting us among the leading pharmaceutical companies. We received particularly high marks in the categories of corporate governance and community outreach, and even our environmental performance earned a high score that far exceeded the average.

www.sustainalytics.com

Good Company Ranking

In 2018, the management consultancy Kirchhoff Consult released its sixth Good Company Ranking, an index that is published every two years. Among the 30 DAX member companies, we took fourth place in this latest round, having moved up six positions from our 2016 rating.

<http://www.kirchhoff-consult.com>

Institute for Ecological Economy Research ranking

In 2018, the Institute for Ecological Economy Research (IÖW) and "future e. V. – verantwortung unternehmen" issued their tenth ranking of sustainability reporting by major German companies. This index assesses factors such as the environmental impacts of production processes, transparent communication and efforts to enhance supply chain sustainability. Our 2017 CR Report achieved a score of 426 in the latest ranking, putting us in sixth place.

www.ranking-nachhaltigkeitsberichte.de/en

oekom-research sustainability rating

In 2018, the sustainability ratings agency oekom research AG gave our company a B- on a scale of A+ (top mark) to D-, once more granting us oekom Prime Status ("good" to "very good") as they did in 2017.

www.oekom-research.com

sustainability indices

Ethibel Sustainability Index (ESI) Excellence Europe and Ethibel EXCELLENCE Investment Register

In 2015, we were added to the ESI Excellence Europe, a sustainability index that includes the 200 top-rated European companies based on their corporate responsibility performance. We are also a member of the Ethibel EXCELLENCE Investment Register.

www.forumethibel.org

Euronext-Vigeo Eurozone 120 Index

Since 2015, we have been members of the Euronext-Vigeo Eurozone 120, an index that features the 120 most successful European companies in terms of their environmental, social and governance practices.

www.vigeo-eiris.com

FTSE4Good Index

Since 2008, we have been included in the FTSE4GOOD Index, a leading international sustainability rating that annually measures the performance of companies in demonstrating strong environmental, social and ethical practices.

www.ftse.com

STOXX® Global ESG Leaders Index

In 2018, our company was once again included in STOXX Global ESG Leaders, a sustainability index that assesses companies based on key environmental, social and governance criteria.

www.stoxx.com

CR awards

Annual Report Competition ARC Awards

In October 2018, our 2017 CR Report won three gold international ARC awards in the categories of Interactive Annual Report, Design/Graphics and Interior Design. MerComm, Inc. has been presenting the ARC Awards since 1987, in an effort to reward and recognize achievements in report design, imagery and content.

www.mercommawards.com

Building Public Trust Award

In October 2018, we received a Building Public Trust Award in the category of "Non-Financial Reporting DAX 30". In presenting this prize, auditing company PricewaterhouseCoopers (PwC) recognized the non-financial reporting required by the German CSR Directive Implementation Act, the first time this organization has done so.

www.pwc.de/en

Econ Awards

Presented by German publisher Econ, the Econ Awards recognize outstanding concepts and practices in corporate communications. In October 2018, we won a Gold Econ Award for our digital 2017 CR Report, with special mention made of its user-friendliness, high-level content and attractive design.

www.econforum.de (German only)

sustainable Development Goals

In 2015, the United Nations adopted the Sustainable Development Goals (SDGs), a set of aspirations aimed at all countries and organizations across the globe. We too are making every effort to help reach these objectives. Recently, for instance, we conducted a materiality analysis to identify the goals with which our daily operations currently align.

Our approach

Underpinned by 17 Sustainable Development Goals, the international community has identified 169 targets aimed at facilitating the actions necessary to accomplishing the mission. We recognize that companies too are duty-bound to support the implementation of the Sustainable Development Goals. In 2018, we examined the SDG targets in an effort to pinpoint the ones where our business activities make the greatest direct impact.

A closer look at our efforts

With our CR commitments we especially support the goals of Good Health & Well-Being (SDG 3), Quality Education (SDG 4) and Affordable & Clean Energy (SDG 7) (see graphic below). However, our contribution towards achieving the SDGs does not limit itself to the strategic spheres of activity established in our [corporate responsibility strategy](#). This means that we not only contribute to solving global challenges within the areas of "Global Health", "Sustainable Solutions" and "Broad Minds", but rather that many of our activities have positive effects that go beyond. This is the case with **seven of the 17 SDGs**. In our 2018 CR-report, for the first time, we show which SDG targets we support with our management approaches and projects. Beyond these seven SDGs, we are also pursuing activities in support of eight other goals, albeit to a lesser extent. For this reason we do not report on them on a target level.



SDG 3: Good health and well-being

Ensure healthy lives and promote well-being for all at all ages.

Across the globe, two billion people lack access to medicines, with an estimated 400 million lacking access to effective and affordable essential health services. Given this reality, we are striving to rectify the situation through our [Global Health Strategy](#). However, recognizing that we cannot solve these challenges alone, we have joined forces with strong partners to work towards a solution.

Target 3.3: By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases.

- [Access to Medicine Index Ranking 2018](#)
- [Strategy for preventing and treating infectious diseases](#)
- [Joining forces to improve access to health](#)

Target 3.b: Support the research and development of vaccines and medicines for the communicable and noncommunicable diseases that primarily affect developing countries, provide access to affordable essential medicines and vaccines, in accordance with the Doha Declaration on the TRIPS Agreement and Public Health, which affirms the right of developing countries to use to the full the provisions in the Agreement on Trade-Related Aspects of Intellectual Property Rights regarding flexibilities to protect public health, and, in particular, provide access to medicines for all.

- [Access to and control of intellectual property](#)
- [Collaborating on open innovation: WIPO Re:Search](#)
- [Drugs for Neglected Diseases initiative](#)
- [Global Health Institute research on neglected tropical diseases](#)

SDG 4: Quality education

Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.

- [Community outreach in the mica supply chain](#)
- [Igniting a passion for science with the global volunteer program SPARK](#)
- [Scientific junior labs at the Technical University, Darmstadt, Germany](#)
- [Education for teachers and school partnerships](#)

SDG 5: Gender equality

Achieve gender equality and empower all women and girls.

- [Women in leadership roles: Requirements and targets](#)
- [Revealing unconscious bias](#)
- [Networks to bolster diversity](#)

SDG 6: Clean water and sanitation

Ensure availability and sustainable management of water and sanitation for all.

Around the world, the number of areas suffering from water scarcity is on the rise. At our sites, we are dependent on a reliable supply of water. We have made sustainable water management a key focus of our environmental stewardship.

Target 6.3: By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally.

- [High marks for our water management practices](#)
- [Antibiotic residues in wastewater](#)
- [Water protection measures in India](#)
- [Clean water for China](#)

SDG 7: Affordable and clean energy

Ensure access to affordable, reliable, sustainable and modern energy for all.

- Investing in renewable energies
- Subsidies for our employees
- Developing energy-efficient products

SDG 8: Decent work and economic growth

Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.

We expect all suppliers and vendors to adhere to the same high social standards as we do. These are set forth in the [core labor standards](#) of the International Labour Organization (ILO) and the [United Nations Global Compact](#).

Target 8.4.: Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10-Year Framework of Programmes on Sustainable Consumption and Production, with developed countries taking the lead.

- Our commitment: [Guiding principles, charters and laws](#)
- [Monitoring our supply chain](#)

SDG 9: Industry, innovation and infrastructure

Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.

We are always on the lookout for pioneering developments and trends. We develop products and technologies that improve people's lives. New technologies, especially advances in digitalization, enable us to create innovative products, services and business models.

Target 9.4: By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities.

- [Making packaging more sustainable](#)
- [Recycling program updated](#)
- [Using biotechnology to produce meat in laboratories \(clean meat\)](#)
- [Material investments in environmental impact mitigation](#)
- [Investing in renewable energies](#)
- [Recharging facilities at our sites](#)

SDG 10: Reduced inequalities

Reduce inequality within and among countries.

- [Shared data platform for increasing the transparency of medicine donation supply chains](#)
- [Providing integrated primary healthcare service facilities \(CURAFA\)](#)
- [Low-price second brands](#)
- [Generics](#)

SDG 11: Sustainable cities and communities

Make cities and human settlements inclusive, safe, resilient and sustainable.

We take on social responsibility. Focusing especially on those areas where we can best leverage our expertise, we promote health, education and cultural projects. Beyond these efforts, we provide disaster relief and assist people in need in the countries where we operate, particularly in the immediate vicinity of our sites.

Target 11.6: By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management.

- ISO 14001:2015 environmental certification
- Clear target for reducing the environmental impacts of waste

SDG 12: Responsible consumption and production

Ensure sustainable consumption and production patterns.

Respect for the environment is the bedrock of our approach to sustainability. We see it as our duty to not only conserve resources when developing our own products, but also to help our customers enhance the sustainability of theirs.

Target 12.4: By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment.

- Our processes for sustainable product design
- Green chemistry assessment tool
- Registration of chemical compounds
- Safety analysis during product development

Target 12.5: By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse.

- Award for our Waste Scoring System
- Clear target for reducing the environmental impacts of waste

Target 12.6: Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle.

- Our processes for sustainable product design
- Green chemistry assessment tool
- Our CR strategy
- Yearly sustainability reporting

SDG 13: Climate action

Take urgent action to combat climate change and its impacts.

- Emissions lowered despite growth
- Strategic climate program
- Educating employees about climate impact mitigation
- Switching to sea freight

SDG 14: Life below water

Conserve and sustainably use the oceans, seas and marine resources for sustainable development.

Our wastewater may contain traces of substances such as heavy metals or pharmaceutical active ingredients. For us, sustainable water management means not negatively impacting the aquatic ecosystems from which we obtain freshwater, or into which we discharge purified wastewater.

Target 14.1: By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution.

- High marks for our water management practices
- Avoid antibiotic residues in wastewater
- Water protection measures in India
- Alternatives to microplastic in cosmetics

SDG 15: Life on land

Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

- Biodiversity: Nagoya Protocol and access and benefit sharing
- Biodiversity at our sites

SDG 16: Peace, justice and strong institutions

Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.

- Clear chain of command for reporting violations
- Responsible governance

SDG 17: Partnerships for the goals

Strengthen the means of implementation and revitalize the global partnership for sustainable development.

- Engaging stakeholder: our approach
- Engaging stakeholders about health for all
- Discussions on an international level
- Engaging stakeholders about compliance
- Engaging stakeholders about environmental stewardship

Non-financial report

Part of the non-financial report

Index for the combined separate integrated non-financial report

Through our combined separate integrated non-financial report, we fulfill the requirements arising from the CSR Directive Implementation Act. The separate non-financial report of the Group has been combined with the separate non-financial report of the parent undertaking, Merck KGaA, Darmstadt, Germany, in accordance with Section 289b (3) sentence 2 in conjunction with Section 298 (2) of the German Commercial Code, and integrated into our Corporate Responsibility Report. The following index provides an overview of the contents of the non-financial report and contains links to the relevant passages in the CR report. External references within our CR Report are not part of the non-financial report.

To provide the type of framework stipulated in Section 289b in conjunction with Section 315c (3) of the German Commercial Code, we have applied the standards of the Global Reporting Initiative (Option: Comprehensive) for this report.

Description of business model

We describe our business model, corporate structure, governance, and Group strategy under [Company profile](#).

Strategic and organizational approach to sustainability

Under [Governance](#), we present external guidelines and initiatives to which we've committed ourselves, along with Group-wide guidelines that are the cornerstone of our responsible governance. Our [CR strategy](#) sets out how we practice corporate responsibility, both in terms of strategy and at the organizational level.

Material aspects and issues

To determine the aspects and issues of relevance to the non-financial report, we conducted a [materiality assessment](#) that identified several issues that could not be assigned to any of the five aspects defined as minimum contents under Section 289c (2) of the German Commercial Code. Along with these five aspects, we have therefore decided to report on the following additional relevant issues:

Aspect	Issue
Environmental matters	<ul style="list-style-type: none"> ■ Environmental stewardship ■ Pharmaceutical and chemical residues in the environment (incl. abandoned hazardous waste) ■ Plant and process safety
Employee-related matters	<ul style="list-style-type: none"> ■ Recruiting and retaining employees (incl. Employee development, Work 4.0, diversity and equal opportunities, good leadership, employee engagement as well as health and safety)
Social matters	<ul style="list-style-type: none"> ■ Patient safety ■ Product-related crime ■ Responsible marketing ■ Data protection
Respect for human rights	<ul style="list-style-type: none"> ■ Bioethics (incl. genome editing) ■ Clinical studies
Anti-corruption and anti-bribery	<ul style="list-style-type: none"> ■ Compliance ■ Interactions with health systems
	<ul style="list-style-type: none"> ■ Chemical product safety (incl. labeling of chemicals) ■ Transport and warehouse safety ■ Prices of medicines ■ Innovation and R & D ■ Digitalization

Within our approach to comprehensive risk and opportunity management, we also identify current and potential risks and opportunities in the areas of environment, community and governance. This includes information on the gross risks in terms of potential damage and probability, as well as the residual net risks remaining after mitigation measures have been effected. We did not identify any net risks that fulfill the materiality criteria as set forth by Section 289c (3) no. 3 and 4 of the German Commercial Code. Additional risks are described in the [Report on Risks and Opportunities](#) in the combined management report.

Aspect: Environmental matters

Within our Group, environmental matters fall under environmental stewardship. In the following section, we report on the measures implemented to further environmental stewardship, enhance plant and process safety, and address pharmaceutical and chemical residues in the environment (incl. abandoned hazardous waste).

Issue	Concepts incl. due diligence processes and outcome of activities
Environmental stewardship	<ul style="list-style-type: none">■ Organizational structure of the Group function EQ■ Standards and standard operating procedures for environmental stewardship■ Assessing environmental impacts, auditing our sites and reporting violations■ ISO 14001 Group certificate and certification of new sites■ Stakeholder dialogue■ Goals and progress: Environment
Pharmaceutical and chemical residues in the environment (incl. abandoned hazardous waste)	<ul style="list-style-type: none">■ Type and amount of provisions for environmental impact mitigation■ Remediation of contamination at Gernsheim site
Plant and process safety	<ul style="list-style-type: none">■ Organizational structure: Plant and process safety within EQ■ EHS standards and processes■ Tracking EHS performance indicators■ „Risk Management Process“■ Employee training and sharing lessons learned■ EHS Incident Rate■ Substance spills and environmental impacts

Aspect: Employee-related matters

Within our Group, employee-related matters fall under the purview of Human Resources (HR). Under this aspect, we report on concepts pertaining to recruiting and retaining employees. (incl. „Employee development“, „Work 4.0“, „Diversity and equal opportunity“, „Good leadership“, „Employee engagement“ as well as „Health and safety“).

Issue	Concepts incl. due diligence processes and outcome of activities
Recruiting and retaining employees (incl. employee development, Work 4.0, diversity and equal opportunities, good leadership, employee engagement as well as health and safety)	<ul style="list-style-type: none"> ■ Employer brand and approach to recruiting and retaining employees ■ Organization of HR ■ People Development & Learning Policy, Corporate guideline on “flexwork” and global standards ■ Concept and number of participants: Performance and Potential Management Process ■ Performance-based and gender-neutral pay ■ Qualified university graduates, number of trainees and apprentices, and hiring rates ■ Vocational training ■ Digitalization of work and use of digitalization ■ Finding work-life balance, flexible working models, part-time and parental leave ■ Good standing in employer rankings ■ Goals and progress: Employees ■ Indicators: Employees ■ Diversity strategy ■ Organizational structure of diversity ■ Industry-wide diversity initiatives ■ Diversity awareness and trainings on unconscious bias ■ Gender-neutral communication with candidates ■ Networks to bolster diversity and our activities in such areas ■ SpeakUp Line and taking action against discrimination ■ Integration and key figures of international employees ■ Addressing demographic change and health campaigns ■ Indicators: Business ethics ■ Structural organization for engagement and inclusion ■ Employee engagement surveys and improvement of the workplace environment ■ Promoting and rewarding innovative ideas, number of participants in such programs 2018, Merck KGaA, Darmstadt, Germany Awards, HR Innovation Campaign and our TED program ■ Innovation center and teams working there ■ Keeping employees informed, encouraging dialogue as well as availability of “pro” and EVA ■ Deepening employee engagement ■ Competency model ■ Management and talent programs for leaders, University program for our company and participant numbers ■ Programs in growth markets and number of participants ■ Organizational structure of health and safety ■ Policies and bylaws ■ OHSAS 18001 safety certification ■ Safety culture program “BeSafe!” and initiatives, campaigns and awareness-raising measures for the program in 2018 ■ Workplace health management and health projects ■ Reduce the number of accidents

Aspect: Social matters

"Social matters" encompasses our relationship with consumers. Under this heading, we report on concepts relating to patient safety, product-related crime, responsible marketing, and data protection.

Issue	Concepts incl. due diligence processes and outcome of activities
Patient safety	<ul style="list-style-type: none"> ■ Approach to patient safety ■ Pharmacovigilance ■ Infrastructure for patient safety ■ Patient safety guidelines ■ Pharmacovigilance monitoring through inspections and audits ■ Product labeling and changing product labels ■ Internal and external training ■ Share knowledge and pharmacovigilance campaigns
Product-related crime	<ul style="list-style-type: none"> ■ Approach to product-related crime ■ Product-related crime organization ■ Product-related crime guidelines and standards ■ Monitoring and reporting systems ■ Supporting customers and patients: Our approaches ■ Industry-wide exchange ■ Raising awareness of product crime, training sessions and reference book ■ Safety audits for contract manufacturers and distributors as well as findings ■ Goals and progress: Products
Responsible marketing	<ul style="list-style-type: none"> ■ Infrastructure for responsible marketing ■ Code of conduct and industry-wide rules ■ Reviewing marketing material ■ Addressing violations of standards and regulations ■ Employee training and number of participants ■ Direct marketing only in certain countries ■ Marketing chemicals and preventing chemical misuse
Data protection	<ul style="list-style-type: none"> ■ Organization: Integrated into Compliance ■ Policy for Data Protection and Personal Data Privacy as well as European General Data Protection Regulation ■ Data privacy management system ■ Indicators: Business ethics

Aspect: Respect for human rights

Under "Respect for human rights", we report on concepts related to bioethics (including genome editing) and clinical studies.

Issue	Concepts incl. due diligence processes and outcome of activities
Bioethics (including genome editing)	<ul style="list-style-type: none"> ■ Organizational structure for addressing bioethical issues ■ Current discussions within our Bioethics Advisory Panel (MBAP) of Merck KGaA, Darmstadt, Germany ■ Genome Editing Technology Principle ■ Stem Cells Principle ■ Fertility Principle ■ Guidelines and standard operation procedures for biosampling and biobanking ■ Guidelines on off-label use
Clinical studies	<ul style="list-style-type: none"> ■ Fundamental requirements for clinical studies ■ Organizational structure for clinical studies ■ Clinical study guidelines and agreements ■ Supervision of clinical studies ■ Teaming up to get results, auditing contract research organizations and findings ■ Close dialogue with patients and advocacy groups as well as participation in EUPATI ■ Responsible data sharing and data publication ■ Early Access Program and position paper on the program ■ Support of independent human subject research ■ Marketing approval for Avelumab

Aspect: Anti-corruption and anti-bribery matters

Within our corporate structure, anti-corruption efforts fall under Compliance Management, so we report here on compliance and interactions with health systems.

Issue	Concepts incl. due diligence processes and outcome of activities
Compliance	<ul style="list-style-type: none"> ■ Structural organization: Group Compliance ■ Compliance guidelines and standards ■ Compliance audits ■ Compliance training, e-learning course for our code of conduct and number of participants ■ Inform employees, for example through the initiative "Compliance. Because We Care" ■ SpeakUp Line, reported and confirmed cases of non-compliance ■ Business Partner Risk Management, risk analysis and training ■ Alliance for Integrity ■ Goals and progress: Business ethics ■ Indicators: Business ethics
Interactions with health systems	<ul style="list-style-type: none"> ■ Organizational structure for interactions with health systems ■ Group-wide guidelines and industry-wide standards ■ Transparent reporting, new regulations on transparency and publication of an EFPIA transparency report ■ Collaboration with patient advocacy groups ■ Transparent promotion of research and education ■ Introduction of a new compliance tool

Other matters

In the following section, we report on significant issues that are not covered in any of the five minimum aspects stipulated in section 289c (2) of the German Commercial Code:

Issue	Concepts incl. due diligence processes and outcome of activities
Chemical product safety (incl. Labeling of chemicals)	<ul style="list-style-type: none"> ■ Organizational structure for product safety ■ Group-wide and industry-wide guidelines ■ REACH registration ■ Supporting our Global Product Strategy ■ Assessing safety during product development ■ Our approach to nanotechnology ■ Standardized product safety information, number and languages of safety data sheets ■ ScIDeEx ■ Goals and progress: Products
Transport and warehouse safety	<ul style="list-style-type: none"> ■ Structural organization: EQ and dangerous goods manager ■ Globally applicable standards ■ Transport and warehouse safety audits, number and results of audits ■ Strengths and weaknesses profile ■ Employee training and regular discussions ■ Proper transport ■ Transport vehicles ■ Goals and progress: Products
Prices of medicines	<ul style="list-style-type: none"> ■ Structural pricing organization ■ Medicine price guidelines and principles ■ Data-based pricing ■ Customer-centric contracting models and examples ■ Pricing schemes to serve low-income patients and examples ■ Low-price second brands and examples ■ Generics and examples ■ Patient access programs and examples
Innovation and R & D	<ul style="list-style-type: none"> ■ Continuous innovation process ■ Structural organization of research and development as well as strategic partnerships ■ Our three innovation fields in the Innovation Center ■ Innovation Center and projects ■ Start-ups and cross-industry collaboration ■ "Innospire" and "Innovator Academy" ■ Displaying Futures Award ■ Research and development spending ■ M Venture Fund
Digitalization	<ul style="list-style-type: none"> ■ Structural organization of research and development ■ Five strategic focus areas ■ "Inclusive Innovation Challenge" ■ Examples from the strategic focus areas

GRI content index

General disclosures

The CR Report 2018 has been prepared in accordance with the GRI Standards: 'Comprehensive' option. The following GRI content index provides an overview of general disclosures, the GRI Standards and management approaches that were identified to be relevant. It also indicates where the corresponding information can be found. The GRI content index, as a part of the [CR report 2018](#), has received an independent audit certificate after undergoing a [limited assurance audit](#).

GRI Content Index: General disclosures

GRI Standards and Disclosure Number	Comment	Reference
Organizational profile		
102-1	Name of the organization	Company profile
102-2	Activities, brands, products, and services	Company profile Products & Industries
102-3	Location of headquarters	Company profile
102-4	Location of operations	Company profile List of shareholdings
102-5	Ownership and legal form	Company profile
102-6	Markets served	Company profile Macroeconomic and Sector-Specific Environment
102-7	Scale of the organization	Company profile Indicators: employees Indicators: environment Net sales Capitalization Consolidated Balance Sheet
102-8	Information on employees and other workers	Supervised workers such as temps are not logged in our employee data system. Indicators: employees Attractive employer
102-9	Supply chain	Supply chain standards Mica supply chain Pharmaceutical supply chain
102-10	Significant changes to the organization and its supply chain	Company profile Supply chain standards Fundamental Information about the Group
102-11	Precautionary Principle or approach	CR strategy Environmental stewardship Transport and warehouse safety Health and safety Climate action Plant and process safety Chemical product safety

102-12	External initiatives	CR strategy Governance Compliance Human rights Sustainable Development Goals
102-13	Membership of associations	Stakeholder dialogue Compliance Global strategy Environmental stewardship
Strategy		
102-14	Statement from senior decision-maker	Letter from the CEO
102-15	Key impacts, risks, and opportunities	Letter from the CEO CR strategy Materiality analysis Goals Report on Risks and Opportunities
Ethics and integrity		
102-16	Values, principles, standards, and norms of behavior	CR strategy Governance Compliance Human rights Health for all Diversity Good leadership Bioethics Clinical studies Animal welfare Sustainable products Environmental stewardship
102-17	Mechanisms for advice and concerns about ethics	Compliance Diversity Mica supply chain Human rights Bioethics Clinical studies Animal welfare
Governance		
102-18	Governance structure	CR strategy Management Statement on Corporate Governance
102-19	Delegating authority	CR strategy Procedures of the corporate bodies
102-20	Executive-level responsibility for economic, environmental, and social topics	CR strategy
102-21	Consulting stakeholders on economic, environmental, and social topics	CR strategy Stakeholder dialogue Materiality analysis Compliance Global strategy Environmental stewardship Employee engagement

102-22	Composition of the highest governance body and its committees	Management Statement on Corporate Governance The Executive Board The Supervisory Board Objectives of the Supervisory Board with respect to its composition
102-23	Chair of the highest governance body	Management Statement on Corporate Governance
102-24	Nominating and selecting the highest governance body	Diversity The Executive Board Statement on Corporate Governance Gender quota Diversity policy Objectives of the Supervisory Board with respect to its composition
102-25	Conflicts of interest	Compliance Information on corporate governance practices
102-26	Role of highest governance body in setting purpose, values, and strategy	CR strategy Values and compliance Report of the Supervisory Board
102-27	Collective knowledge of highest governance body	CR strategy The Executive Board Statement on Corporate Governance
102-28	Evaluating the highest governance body's performance	Company profile Board of Partners The Supervisory Board Articles of Association Statement on Corporate Governance
102-29	Identifying and managing economic, environmental, and social impacts	CR strategy Materiality analysis Stakeholder dialogue Compliance Report profile Report on Risks and Opportunities Statement on Corporate Governance
102-30	Effectiveness of risk management processes	CR strategy Report profile Report on Risks and Opportunities Report of the Supervisory Board
102-31	Review of economic, environmental, and social topics	CR strategy Report profile Report on Risks and Opportunities Report of the Supervisory Board

102-32	Highest governance body's role in sustainability reporting		Report profile
102-33	Communicating critical concerns		Compliance Values and compliance
102-34	Nature and total number of critical concerns		Compliance Values and compliance
102-35	Remuneration policies		Compensation report
102-36	Process for determining remuneration		Compensation report
102-37	Stakeholders' involvement in remuneration		Attractive employer Compensation report Voting results Annual General Meeting 2018
102-38	Annual total compensation ratio	Competitive salaries and additional benefits not only increase our attractiveness as an employer; they also motivate our people and build loyalty to the company. The compensation we offer is based on market analyses in the relevant field and the value of the respective position, as well as the employee's skill set and performance. Our Global Rewards Policy defines the framework for compensation and benefits across the entire Group. As far as possible, we strive to offer all our employees comparable compensation structures. Furthermore, we monitor compliance with minimum standards. We do not consider the information required under GRI 102-38 and GRI 102-39 to be relevant to assessing the fairness of our compensation structures.	
102-39	Percentage increase in annual total compensation ratio	Competitive salaries and additional benefits not only increase our attractiveness as an employer; they also motivate our people and build loyalty to the company. The compensation we offer is based on market analyses in the relevant field and the value of the respective position, as well as the employee's skill set and performance. Our Global Rewards Policy defines the framework for compensation and benefits across the entire Group. As far as possible, we strive to offer all our employees comparable compensation structures. Furthermore, we monitor compliance with minimum standards. We do not consider the information required under GRI 102-38 and GRI 102-39 to be relevant to assessing the fairness of our compensation structures.	
Stakeholder engagement			
102-40	List of stakeholder groups		Stakeholder dialogue
102-41	Collective bargaining agreements		Employee engagement
102-42	Identifying and selecting stakeholders		Stakeholder dialogue Materiality analysis

102-43	Approach to stakeholder engagement	Stakeholder dialogue Materiality analysis
--------	------------------------------------	--

102-44	Key topics and concerns raised	Stakeholder dialogue Materiality analysis
--------	--------------------------------	--

Reporting practice

102-45	Entities included in the consolidated financial statements	Report profile Company profile
--------	--	-----------------------------------

102-46	Defining report content and topic Boundaries	Report profile Materiality analysis
--------	--	--

102-47	List of material topics	Materiality analysis
--------	-------------------------	----------------------

102-48	Restatements of information	Report profile
--------	-----------------------------	----------------

102-49	Changes in reporting	Report profile Materiality analysis
--------	----------------------	--

102-50	Reporting period	Report profile
--------	------------------	----------------

102-51	Date of most recent report	Report profile
--------	----------------------------	----------------

102-52	Reporting cycle	Report profile
--------	-----------------	----------------

102-53	Contact point for questions regarding the report	Report profile
--------	--	----------------

102-54	Claims of reporting in accordance with the GRI Standards	GRI content index
--------	--	-------------------

102-55	GRI content index	GRI content index
--------	-------------------	-------------------

102-56	External assurance	Report profile Assurance report GRI content index
--------	--------------------	---

Economic standards

GRI Content Index: Economic Standards

GRI Standards and Disclosure Number	Comment	Reference
GRI 201: ECONOMIC PERFORMANCE 2016		
103-1	Explanation of the material topic and its Boundary	Materiality analysis Statement on Corporate Governance
103-2	The management approach and its components	Economic performance Pension schemes
103-3	Evaluation of the management approach	Report on Risks and Opportunities
201-1	Direct economic value generated and distributed	Indicators: community Indicators: employees Indicators: economics Consolidated Income Statement Consolidated Cash Flow Statement Information by business sector /country and region Personnel expenses
201-2	Financial implications and other risks and opportunities due to climate change	We report in detail on various aspects of climate change as part of our participation in the CDP (formerly known as the Carbon Disclosure Project). Climate action Water management Global Compact CoP CDP Report on Risks and Opportunities
201-3	Defined benefit plan obligations and other retirement plans	Indicators: employees Pension schemes
201-4	Financial assistance received from government	Accounting: Property, plant and equipment Property, plant and equipment Research and development costs

GRI 202: MARKET PRESENCE 2016

103-1	Explanation of the material topic and its Boundary		Attractive employer Good leadership
103-2	The management approach and its components		Diversity Employee engagement Materiality analysis
103-3	Evaluation of the management approach		
202-1	Ratios of standard entry level wage by gender compared to local minimum wage	This indicator is not relevant to us, which is why we do not collect data on the ratio of the standard entry level wage compared to local minimum wage. Our Global Rewards Policy applies to all our subsidiaries worldwide and guarantees a systematic compensation structure. Both base pay and short-term variable compensation are oriented to the median base pay of the relevant reference market. Our pay brackets are reviewed on an annual basis and reflect market conditions. It goes without saying that we always adhere to local minimum wage levels.	Attractive employer
202-2	Proportion of senior management hired from the local community	We encourage both local hiring and international appointments across all levels of the company. The percentage of local managers is not recorded as it is not relevant to our strategic personnel planning.	Diversity Good leadership

GRI 204: PROCUREMENT PRACTICES 2016

103-1	Explanation of the material topic and its Boundary		Supply chain standards Mica supply chain Materiality analysis
103-2	The management approach and its components		
103-3	Evaluation of the management approach		
204-1	Proportion of spending on local suppliers		Supply chain standards

GRI 205: ANTI-CORRUPTION 2016

103-1	Explanation of the material topic and its Boundary		Compliance Interactions with health systems Materiality analysis
103-2	The management approach and its components		
103-3	Evaluation of the management approach		
205-1	Operations assessed for risks related to corruption		Compliance Indicators: business ethics Values and compliance Report on Risks and Opportunities
205-2	Communication and training about anti-corruption policies and procedures		Governance Compliance Responsible marketing Indicators: business ethics
205-3	Confirmed incidents of corruption and actions taken	As applicable, we report on risks from litigation and legal proceedings in our Report on Risks and Opportunities.	Compliance Responsible marketing Indicators: business ethics Report on Risks and Opportunities

GRI 206: ANTI-COMPETITIVE BEHAVIOR 2016

103-1	Explanation of the material topic and its Boundary	Compliance Materiality analysis
103-2	The management approach and its components	
103-3	Evaluation of the management approach	
206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	Indicators: business ethics

Additional material topics

TECHNOLOGY (Innovation and R&D, Digitalization)

103-1	Explanation of the material topic and its Boundary	Innovation and digitalization Materiality analysis
103-2	The management approach and its components	
103-3	Evaluation of the management approach	

DATA PROTECTION

103-1	Explanation of the material topic and its Boundary	Compliance Materiality analysis
103-2	The management approach and its components	
103-3	Evaluation of the management approach	

Environmental standards

GRI Content Index: Environmental Standards

GRI Standards and Disclosure Number	Comment	Reference
GRI 301: MATERIALS 2016		
103-1	Explanation of the material topic and its Boundary	Sustainable product design Packaging and recycling
103-2	The management approach and its components	Environmental stewardship Waste and recycling
103-3	Evaluation of the management approach	Materiality analysis
301-1	Materials used by weight or volume	Waste and recycling Sustainable product design Packaging and recycling
301-2	Recycled input materials used	Waste and recycling Sustainable product design Packaging and recycling
301-3	Reclaimed products and their packaging materials	Waste and recycling Sustainable product design Packaging and recycling
GRI 302: ENERGY 2016		
103-1	Explanation of the material topic and its Boundary	Environmental stewardship Climate action
103-2	The management approach and its components	Sustainable product design Materiality analysis
103-3	Evaluation of the management approach	
302-1	Energy consumption within the organization	Climate action Indicators: environment
302-2	Energy consumption outside of the organization	Climate action
302-3	Energy intensity	Climate action Indicators: environment
302-4	Reduction of energy consumption	Climate action Indicators: environment
302-5	Reductions in energy requirements of products and services	Sustainable product design

GRI 303: WATER AND EFFLUENTS 2018

103-1	Explanation of the material topic and its Boundary		Environmental stewardship Water management Materiality analysis
103-2	The management approach and its components		
103-3	Evaluation of the management approach		
303-1	Interactions with water as a shared resource		Water management Indicators: environment
303-2	Management of water discharge-related impacts		Water management
303-3	Water withdrawal	The amount of seawater, produced water and other water withdrawn and discharged is not significant and is therefore not reported separately.	Water management Indicators: environment
303-4	Water discharge	The amount of seawater, produced water and other water withdrawn and discharged is not significant and is therefore not reported separately.	Water management Indicators: environment
303-5	Water consumption		Water management Indicators: environment

GRI 304: BIODIVERSITY 2016

103-1	Explanation of the material topic and its Boundary		Biodiversity Materiality analysis
103-2	The management approach and its components		
103-3	Evaluation of the management approach		
304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	Land use planning takes impacts on biodiversity into account, with appropriate measures being taken on a case-by-case basis.	Biodiversity
304-2	Significant impacts of activities, products, and services on biodiversity		Biodiversity
304-3	Habitats protected or restored		Biodiversity
304-4	IUCN Red List species and national conservation list species with habitats in areas affected by operations	Land use planning takes impacts on biodiversity into account, with appropriate measures being taken on a case-by-case basis.	Biodiversity

GRI 305: EMISSIONS 2016

103-1	Explanation of the material topic and its Boundary		Environmental stewardship Climate action Materiality analysis
103-2	The management approach and its components		
103-3	Evaluation of the management approach		
305-1	Direct (Scope 1) GHG emissions		Climate action Indicators: environment
305-2	Energy indirect (Scope 2) GHG		Climate action Indicators: environment
305-3	Other indirect (Scope 3) GHG emissions		Climate action Indicators: environment CDP
305-4	GHG emissions intensity		Indicators: environment

305-5	Reduction of GHG emissions		Climate action Indicators: environment Sustainable product design Packaging and recycling CDP
305-6	Emissions of ozone-depleting substances (ODS)	This disclosure is not material to the Group.	Indicators: environment
305-7	Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions	This disclosure is not material to the Group.	Indicators: environment

GRI 306: EFFLUENTS AND WASTE 2016

103-1	Explanation of the material topic and its Boundary		Environmental stewardship Waste and recycling Packaging and recycling Materiality analysis
103-2	The management approach and its components		Packaging and recycling Materiality analysis
103-3	Evaluation of the management approach		
306-1	Water discharge by quality and destination	Please note that the effluents-related content in the current GRI 306: Effluents and Waste 2016 Standard has been updated and can be found in GRI 303: Water and Effluents 2018.	
306-2	Waste by type and disposal method		Waste and recycling Packaging and recycling Indicators: environment
306-3	Significant spills		Plant and process safety Indicators: environment
306-4	Transport of hazardous waste		Indicators: environment
306-5	Water bodies affected by water discharges and/or runoff	Please note that the effluents-related content in the current GRI 306: Effluents and Waste 2016 Standard has been updated and can be found in GRI 303: Water and Effluents 2018.	

GRI 307: ENVIRONMENTAL COMPLIANCE 2016

103-1	Explanation of the material topic and its Boundary		Environmental stewardship Materiality analysis
103-2	The management approach and its components		
103-3	Evaluation of the management approach		
307-1	Non-compliance with environmental laws and regulations		Environmental stewardship

GRI 308: SUPPLIER ENVIRONMENTAL ASSESSMENT 2016

103-1	Explanation of the material topic and its Boundary		Supply chain standards Materiality analysis Mica supply chain
103-2	The management approach and its components		
103-3	Evaluation of the management approach		
308-1	New suppliers that were screened using environmental criteria		Supply chain standards Mica supply chain
308-2	Negative environmental impacts in the supply chain and actions taken		Supply chain standards Mica supply chain

social standards

GRI Content Index: Social Standards

GRI Standards and Disclosure Number	Comment	Reference	
GRI 401: EMPLOYMENT 2016			
103-1	Explanation of the material topic and its Boundary	Attractive employer Diversity	
103-2	The management approach and its components	Health and safety Human rights Materiality analysis	
103-3	Evaluation of the management approach		
401-1	New employee hires and employee turnover	Indicators: employees	
401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	At Merck KGaA, Darmstadt, Germany (22% of the company's total work-force), part-time employees receive the same job benefits as full-time workers. Employees with temporary contracts, however, are not entitled to all company benefits, such as a company pension.	Indicators: employees Attractive employer
401-3	Parental leave	Attractive employer Indicators: employees	
GRI 402: LABOR/MANAGEMENT RELATIONS 2016			
103-1	Explanation of the material topic and its Boundary	Attractive employer Health and safety	
103-2	The management approach and its components	Employee engagement Materiality analysis	
103-3	Evaluation of the management approach		
402-1	Minimum notice periods regarding operational changes	The regulations on periods of notice vary worldwide. We apply the rules that are in force locally. There is no need for us to track periods of notice at Group level.	

GRI 403: OCCUPATIONAL HEALTH AND SAFETY 2018

103-1	Explanation of the material topic and its Boundary		Health and safety Materiality analysis
103-2	The management approach and its components		
103-3	Evaluation of the management approach		
403-1	Occupational health and safety management system		Health and safety
403-2	Hazard identification, risk assessment, and incident investigation		Health and safety
403-3	Occupational health services		Health and safety
403-4	Worker participation, consultation, and communication on occupational health and safety	<p>Occupational health and safety committees are required by law in Germany. All employees of Merck KGaA, Darmstadt, Germany are therefore represented by such committees, which operate at the site level. These employees account for around 22% of our total workforce. The majority of facilities outside Germany also have health and safety committees to represent their employees. Each individual site is responsible for arranging and maintaining such committees.</p> <p>Health and safety issues are governed Group-wide by our EHS Policy. The organizational implementation of the policy is the responsibility of our individual sites and is subject to local laws and regulations. Merck KGaA, Darmstadt, Germany, which accounts for approximately 22% of our total workforce, has bylaws on occupational health and safety in place.</p>	Health and safety
403-5	Worker training on occupational health and safety		Health and safety
403-6	Promotion of worker health		Health and safety
403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships		Health and safety
403-8	Workers covered by an occupational health and safety management system		Health and safety
403-9	Work-related injuries	We have identified the lost time injury rate (LTIR) as a key performance indicator for our company.	Health and safety Indicators: employees
403-10	Work-related ill health		Indicators: employees

GRI 404: TRAINING AND EDUCATION 2016

103-1	Explanation of the material topic and its Boundary		Attractive employer Good leadership
103-2	The management approach and its components		Diversity Materiality analysis
103-3	Evaluation of the management approach		
404-1	Average hours of training per year per employee	We do not keep track of the average hours our employees spend on vocational training and continuing education because this indicator does not have any bearing on the quality or success of our efforts.	Compliance Responsible marketing Interactions with health systems Animal welfare Patient safety Product-related crime Transport and warehouse safety Attractive employer Diversity Health and safety Good leadership Environmental stewardship Plant and process safety
404-2	Programs for upgrading employee skills and transition assistance programs		Attractive employer Diversity Good leadership
404-3	Percentage of employees receiving regular performance and career development reviews		Attractive employer Indicators: employees

GRI 405: DIVERSITY AND EQUAL OPPORTUNITY 2016

103-1	Explanation of the material topic and its Boundary		Diversity Attractive employer
103-2	The management approach and its components		Materiality analysis Objectives of the Supervisory Board with respect to its position
103-3	Evaluation of the management approach		
405-1	Diversity of governance bodies and employees	Since there is no globally uniform definition of the term "minority", we do not record this sort of data. Moreover, many countries in which we operate have strict data privacy regulations governing the recording of personal employee data.	Diversity Indicators: employees The Executive Board The Supervisory Board Objectives of the Supervisory Board with respect to its position
405-2	Ratio of basic salary and remuneration of women to men	The salaries we offer are predicated on the respective job description and are based on our Global Job Catalog, which has fixed salary bands that are identical for men and women. Variable salary components that fall under performance-based compensation are paid on the basis of whether mutually agreed targets have been achieved. A performance management system governs this process.	Attractive employer

GRI 406: NON-DISCRIMINATION 2016

103-1	Explanation of the material topic and its Boundary	Diversity Materiality analysis
103-2	The management approach and its components	
103-3	Evaluation of the management approach	
406-1	Incidents of discrimination and corrective actions taken	Diversity

GRI 407: FREEDOM OF ASSOCIATION AND COLLECTIVE BARGAINING 2016

103-1	Explanation of the material topic and its Boundary	Supply chain standards Mica supply chain Attractive employer Human rights Compliance Materiality analysis
103-2	The management approach and its components	
103-3	Evaluation of the management approach	
407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	Supply chain standards Mica supply chain Human rights Attractive employer

GRI 408: CHILD LABOR 2016

103-1	Explanation of the material topic and its Boundary	Supply chain standards Mica supply chain Human rights Attractive employer Compliance Materiality analysis
103-2	The management approach and its components	
103-3	Evaluation of the management approach	
408-1	Operations and suppliers at significant risk for incidents of child labor	Supply chain standards Mica supply chain Human rights Attractive employer Indicators: employees

GRI 409: FORCED OR COMPULSORY LABOR 2016

103-1	Explanation of the material topic and its Boundary	Supply chain standards Mica supply chain Attractive employer Human rights Compliance Materiality analysis
103-2	The management approach and its components	
103-3	Evaluation of the management approach	
409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	Supply chain standards Mica supply chain Attractive employer Human rights

GRI 412: HUMAN RIGHTS ASSESSMENT 2016

103-1	Explanation of the material topic and its Boundary	Human rights Compliance
103-2	The management approach and its components	Materiality analysis
103-3	Evaluation of the management approach	
412-1	Operations that have been subject to human rights reviews or impact assessments	Human rights
412-2	Employee training on human rights policies or procedures	Human rights
412-3	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	Human rights

GRI 414: SUPPLIER SOCIAL ASSESSMENT 2016

103-1	Explanation of the material topic and its Boundary	Supply chain standards Mica supply chain
103-2	The management approach and its components	Materiality analysis
103-3	Evaluation of the management approach	
414-1	New suppliers that were screened using social criteria	Supply chain standards Mica supply chain
414-2	Negative social impacts in the supply chain and actions taken	Supply chain standards Mica supply chain

GRI 415: PUBLIC POLICY 2016

103-1	Explanation of the material topic and its Boundary	Stakeholder dialogue Materiality analysis
103-2	The management approach and its components	
103-3	Evaluation of the management approach	
415-1	Political contributions	Stakeholder dialogue

GRI 416: CUSTOMER HEALTH AND SAFETY 2016

103-1	Explanation of the material topic and its Boundary	Patient safety Responsible marketing
103-2	The management approach and its components	Interactions with health systems Clinical studies
103-3	Evaluation of the management approach	Chemical product safety Sustainable product design Plant and process safety Materiality analysis Report on Risks and Opportunities

416-1	Assessment of the health and safety impacts of product and service categories		Patient safety Clinical studies Chemical product safety Sustainable product design Plant and process safety
416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	As applicable, we report on risks from litigation and legal proceedings in our Report on Risks and Opportunities.	Report on Risks and Opportunities
GRI 417: MARKETING AND LABELING 2016			
103-1	Explanation of the material topic and its Boundary		Patient safety Chemical product safety Responsible marketing
103-2	The management approach and its components		Interactions with health systems
103-3	Evaluation of the management approach		Materiality analysis
417-1	Requirements for product and service information and labeling	Within our businesses, product labels are both important and mandatory. All pharmaceuticals and chemicals are subject to reporting and notification requirements that we fulfill. The individual requirements are reported in the respective chapters.	Patient safety Responsible marketing Interactions with health systems Chemical product safety
417-2	Incidents of non-compliance concerning product and service information and labeling		Patient safety Chemical product safety Report on Risks and Opportunities
417-3	Incidents of non-compliance concerning marketing communications	As applicable, we report on risks from litigation and legal proceedings in our Report on Risks and Opportunities.	Responsible marketing Report on Risks and Opportunities
GRI 418: CUSTOMER PRIVACY 2016			
103-1	Explanation of the material topic and its Boundary		Clinical studies Compliance Materiality analysis
103-2	The management approach and its components		
103-3	Evaluation of the management approach		
418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data		Indicators: business ethics Clinical studies Compliance
GRI 419: SOCIOECONOMIC COMPLIANCE 2016			
103-1	Explanation of the material topic and its Boundary		Compliance Materiality analysis Report on Risks and Opportunities
103-2	The management approach and its components		
103-3	Evaluation of the management approach		
419-1	Non-compliance with laws and regulations in the social and economic area	As applicable, we report on risks from litigation and legal proceedings in our Report on Risks and Opportunities.	Indicators: business ethics Report on Risks and Opportunities

Additional material topics

ETHICAL CONDUCT (bioethics, clinical studies, animal welfare)

103-1	Explanation of the material topic and its Boundary	Bioethics Clinical studies
103-2	The management approach and its components	Animal welfare Materiality analysis
103-3	Evaluation of the management approach	

HEALTH FOR ALL (access to health, prices of medicines, health awareness)

103-1	Explanation of the material topic and its Boundary	Global strategy Focus programs
103-2	The management approach and its components	Open innovation sharing Prices of medicines Health awareness
103-3	Evaluation of the management approach	Materiality analysis

PRODUCT-RELATED CRIME

103-1	Explanation of the material topic and its Boundary	Product-related crime Materiality analysis
103-2	The management approach and its components	
103-3	Evaluation of the management approach	

COMMUNITY INVOLVEMENT

103-1	Explanation of the material topic and its Boundary	Community involvement Global Health
103-2	The management approach and its components	Broad Minds Materiality analysis
103-3	Evaluation of the management approach	

WORK 4.0

103-1	Explanation of the material topic and its Boundary	Attractive employer Materiality analysis
103-2	The management approach and its components	
103-3	Evaluation of the management approach	

Global Compact CoP

2018 Communication on progress (CoP) in implementing the ten principles of the Global Compact

We have been a UN Global Compact participant since 2005. As a signatory of the initiative, we have committed ourselves to ten principles based on key UN conventions regarding human rights, labor standards, environmental protection, and anti-corruption. At the same time, the UN Global Compact calls on its signatories to actively engage in propagating the principles within their own sphere of influence.

The following table summarizes the key measures we took in 2018, to support and implement the principles of the Global Compact.

[undefined]

Link: www.unglobalcompact.org

UNGC-Principleien:	Key measures in 2018:	Relevant GRI disclosures:	Reference:
Human rights			
<p>Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights.</p>	<p>Key measures in 2018:</p> <ul style="list-style-type: none"> ■ Hosted a workshop on modern slavery ■ 194 people managers took part in the online course on our Human Rights Charter ■ Donated nearly 200 million praziquantel tablets to the World Health Organization to treat schistosomiasis, a donation that included Burkina Faso, Niger and Sierra Leone for the first time ■ Formed an internal, cross-functional human rights working group ■ Added the topic of human rights to our manual for new managing directors in an effort to heighten awareness at the executive level ■ Started the process of updating our Human Rights Charter 	<p>Relevant GRI disclosures:</p> <p>410-1, 411-1, 103-2: 412, 412-2, 413-1, 413-2</p>	<p>Reference:</p> <p>Compliance Human rights Focus programs</p>
<p>Principle 2: Businesses should make sure that they are not complicit in human rights abuses.</p>	<p>Key measures in 2018</p> <ul style="list-style-type: none"> ■ Took initial steps in response to the human rights self-assessment we conducted at our sites ■ 194 people managers took part in the online course on our Human Rights Charter ■ Conducted internal and external audits, assessments and inspections of suppliers regarding corporate responsibility, and collected self-reported information ■ Added human rights issues to our compliance risk reporting 	<p>Relevant GRI disclosures:</p> <p>412-3, 414-1, 414-2</p>	<p>Reference:</p> <p>Human rights Compliance Supply chain standards</p>

Labor standards

<p>Principle 3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining.</p>	<p>Key measures in 2018:</p> <ul style="list-style-type: none"> ■ Took initial steps in response to the human rights self-assessment we conducted at our sites ■ Conducted internal audits on workplace aspects of our Human Rights Charter ■ Conducted internal and external audits, assessments and inspections of suppliers regarding corporate responsibility, and collected self-reported information 	<p>Relevant GRI disclosures:</p> <p>102-41, 402-1, 407-1</p>	<p>Reference:</p> <p>Human rights Compliance Employee engagement Supply chain standards</p>
<p>Principle 4: Businesses should support the elimination of all forms of forced and compulsory labor.</p>	<p>Key measures in 2018</p> <ul style="list-style-type: none"> ■ Conducted internal audits on workplace aspects of our Human Rights Charter ■ Took initial steps in response to the human rights self-assessment we conducted at our sites ■ Issued our UK Modern Slavery Statement, which has been endorsed by our Executive Board and is available on our website ■ Conducted internal and external audits, assessments and inspections of suppliers regarding corporate responsibility, and collected self-reported information 	<p>Relevant GRI disclosures:</p> <p>409-1</p>	<p>Reference:</p> <p>Human rights Compliance Supply chain standards</p>
<p>Principle 5: Businesses should support the effective abolition of child labor.</p>	<p>Key measures in 2018</p> <ul style="list-style-type: none"> ■ Took initial steps in response to the human rights self-assessment we conducted at our sites ■ Conducted internal audits on workplace aspects of our Human Rights Charter ■ Assumed the presidency of the Responsible Mica Initiative until 2020, and supported its work ■ Engaged with the Indian organization IGEP to conduct monthly inspections of mica mines and processing plants ■ Conducted internal and external audits, assessments and inspections of suppliers regarding corporate responsibility, and collected self-reported information 	<p>Relevant GRI disclosures:</p> <p>408-1</p>	<p>Reference:</p> <p>Human rights Compliance Supply chain standards Mica supply chain</p>
<p>Principle 6: Businesses should support the elimination of discrimination in respect of employment and occupation.</p>	<p>Key measures in 2018</p> <ul style="list-style-type: none"> ■ Reviewed and revised our Diversity Strategy ■ Conducted internal audits on workplace aspects of our Human Rights Charter ■ Identified key measures to achieve our 2021 target of maintaining a 30% representation of women in leadership roles (Role 4+) ■ Expanded internal diversity programs ■ Conducted a pilot training program on unconscious bias 	<p>Relevant GRI disclosures:</p> <p>102-8, 202-1, 202-2, 401-1, 401-3, 404-1, 404-3, 405-1, 405-2, 406-1</p>	<p>Reference:</p> <p>Human rights Compliance Diversity</p>

Environmental stewardship

<p>Principle 7: Businesses should support a precautionary approach to environmental challenges.</p>	<p>Key measures in 2018</p> <ul style="list-style-type: none"> ■ Added two new sites to our ISO 14001:2015 Group certificate (Group certificate for 81 facilities) ■ Annually reduced CO₂ emissions (2020 reduction target: 20% versus 2006 baseline) ■ Implemented more than 360 climate impact mitigation projects since 2012 ■ Introduced two new Group-wide water standards ■ Implemented measures to ensure product safety (e.g. REACH, GHS, Global Product Strategy) as well as plant and process safety (e.g. risk management process) ■ Performed internal and external EHS audits ■ Used our Waste Scoring System with the goal of reducing the environmental impact of our waste by 5% by 2025 ■ Established two Waste Expert Network Groups 	<p>Relevant GRI disclosures:</p> <p>201-2, 301-1, 302-1, 303-1, 305-1, 305-2, 305-3, 305-6, 305-7</p>	<p>Reference:</p> <p>Environmental stewardship Climate action Water management Waste and recycling Plant and process safety Sustainable product design Packaging and recycling Patient safety Chemical product safety Transport and warehouse safety</p>
<p>Principle 8: Businesses should undertake initiatives to promote greater environmental responsibility.</p>	<p>Key measures in 2018</p> <ul style="list-style-type: none"> ■ Systematically examined potential energy savings at our production facilities ■ Labeled products to provide information on their use and disposal ■ Launched the online platform "Troc" at our site in Corsier-sur-Vevey (Switzerland) to raise employee awareness for waste minimization. ■ Commercialized greener products such as Cyrene™ ■ Offered employees sustainable mobility options such as Jobtickets and bike sharing 	<p>Relevant GRI disclosures:</p> <p>301 - 308</p>	<p>Reference:</p> <p>Climate action Water management Waste and recycling Plant and process safety Chemical product safety Patient safety Transport and warehouse safety Sustainable product design</p>
<p>Principle 9: Businesses should encourage the development and diffusion of environmentally friendly technologies.</p>	<p>Key measures in 2018</p> <ul style="list-style-type: none"> ■ Developed sustainable products such as liquid crystal technologies, raw materials for natural cosmetics and greener alternatives to chemicals ■ Implemented a new sustainable packaging strategy built on the following four goals: Reduce amount of packaging, achieve zero deforestation, improve plastic sustainability, and optimize recycling ■ Expanded a recycling program for our Life Science customers 	<p>Relevant GRI disclosures:</p> <p>302-4, 302-5, 305-5</p>	<p>Reference:</p> <p>Sustainable product design Packaging and recycling Performance Materials</p>

Anti-Corruption

Principle 10:	Key measures in 2018	Relevant GRI disclosures:	Reference:
Businesses should work against corruption in all its forms, including extortion and bribery.	<ul style="list-style-type: none">■ Performed internal corruption audits■ Integrated our compliance program into our business sectors■ 11,404 employees and external workers completed an online anti-corruption course■ Rolled out business sector-specific e-learning programs centered on our Code of Conduct■ Provided Group-wide SpeakUp Line for people to report corruption anonymously■ Published annual EFPIA transparency reports	102-16, 102-17, 205-1, 205-2, 205-3, 415-1	Compliance Interactions with health systems

glossary

3R principle

The international guiding principle for all animal testing. The number of laboratory animals used as well as the stress placed on them before, during and after testing are to be kept to an absolute minimum by using methods to replace animal experiments (replacement), reduce the required number of tests and animals (reduction), and improve the test methods (refinement).

Big Data

Extremely large data sets that may be analyzed computationally to reveal patterns, trends and associations, especially relating to human behavior and interactions.

Biodiversity

The diversity of ecosystems, habitats and landscapes on earth, the diversity of the species, and the genetic diversity within a biological species or population.

Biosimilars

Officially approved subsequent versions of innovator biopharmaceutical products made by a different company after the original product's patent or exclusivity expires. Based on guidance from the European Medicines Agency (EMA), biosimilars must demonstrate comparability, or biosimilarity, to an existing approved product.

Chatbot

A chatbot is a computer program or an artificial intelligence that conducts a conversation via auditory or textual methods.

Chromatography

A technique used to separate mixtures.

CLP

Short for "Classification, Labelling and Packaging of Substances and Mixtures", this is a European regulation based on the Globally Harmonized System (GHS) of Classification and Labelling of Chemicals.

CO₂ equivalents

CO₂ equivalents (CO₂eq) indicate how much a specified quantity of a specific greenhouse gas has contributed to the greenhouse effect, using the global warming potential of carbon dioxide as a reference.

Compliance

Adherence to laws and regulations as well as to voluntary codices that are internal to a company. Compliance is a component of diligent corporate governance.

CRISPR/Cas

A biomolecular method for targeting, cutting and editing the DNA of an organism (gene editing). Experts think this technique has great potential for curing diseases or generating plants and animals with new traits.

Design thinking

An approach to developing new ideas. Design thinking uses the designer's sensibility and methods to match people's needs with what is technologically feasible and what a viable business strategy can convert into customer value and market opportunity.

Dual-use products

Goods that are normally used for civilian purposes, but that may also have military applications.

Due diligence

A risk analysis exercised with particular care.

EHS

Short for "Environment, Health and Safety", this refers to environmental management, health protection and occupational safety throughout a company.

End-user declaration

A binding customer statement regarding the intended use of a product.

Endemic countries

Countries in which a certain disease, in many cases an infectious disease, occurs.

EQ

EQ stands for our Group function "Environment, Health, Safety, Security, Quality".

ESG ratings

ESG ratings are used to assess a company's financial performance through factors that include aspects of environmental management, social issues and good governance.

Essential medicines

Defined by the World Health Organization as "those drugs that satisfy the health care needs of the majority of the population".

Exposure assessment

The U.S. Environmental Protection Agency defines exposure assessment as the determination or estimation (qualitative or quantitative) of the magnitude, frequency, duration, and route of exposure between an agent and an organism. This analysis forms part of the chemical safety

assessment process.

FDA

The U.S. Food and Drug Administration is the U.S. government agency responsible for protecting and advancing public health, especially as concerns food and drugs.

First-line treatment

A therapy regimen that is generally accepted by the medical establishment for the initial treatment of a given disease. If the first-line treatment is not adequately successful, a second-line treatment may be administered.

Freshwater

Water containing 1,000 mg or less of dissolved solids per liter.

Gene drive technologies

Gene drive technologies refer to methods for accelerating the spread of genes in populations. In general, the technique can employ adding, deleting, disrupting, or modifying genes. These can be used, for example, on mosquitoes that transmit malaria, dengue, and zika pathogens in order to stop their spread.

Global Grade

We use a market-oriented system to rate positions within the company. Until the end of 2016, all positions within the Merck KGaA, Darmstadt, Germany were assigned a Global Grade. In 2017, we replaced this system so that each position is now assigned a role.

Global Product Strategy

An initiative of the International Council of Chemical Associations (ICCA) through which participating companies of the chemical industry make a commitment to comprehensive product responsibility.

Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

An international standard system to classify chemicals that covers labeling as well as safety data sheets.

Good clinical practice (GCP)

An international quality standard that enforces tight guidelines on ethical aspects of clinical studies.

Good distribution practice (GDP)

An EU guideline that regulates the proper distribution of medicinal products for human use.

Good manufacturing practice (GMP)

Good manufacturing practice (GMP) is a system for ensuring that products are consistently manufactured and controlled according to quality standards. These guidelines are used in the production of medicines, pharmaceutical active ingredients and cosmetics, as well as foodstuffs and feed.

Greenhouse gases

Gases in the atmosphere that contribute to global warming. They can be either naturally occurring or caused by humans (such as CO₂ emissions caused by burning fossil fuels).

GxP

The general term for good (anything ...) practice quality guidelines and regulations that are used in many fields, including the medical, pharmaceutical and pharmaceutical chemistry industries.

Hackathon

Portmanteau from the words hacking and marathon. A hackathon is an event attended by people from different professional backgrounds. Teams are given a few hours or days to develop innovative solutions and ideas for pre-defined issues or challenges.

HazCom 2012

A U.S. OSHA (Occupational Safety and Health Administration) standard pertaining to the safe handling of chemicals in the workplace, with an emphasis on occupational safety and environmental protection. This standard requires manufacturers and distributors to provide information on the hazards posed by a product as well as ways to minimize risks.

ICH

The aim of the International Council for Harmonisation of Technical Requirements for Pharmaceuticals for Human Use (ICH) is to promote uniform assessment criteria for product registration in Europe, the United States and Japan. The ICH develops guidelines for the evaluation of the quality, effectiveness and safety of medicinal products.

In vitro

Procedures involving components of an organism that have been isolated from their usual biological surroundings (e.g. test tube experiments).

In vivo

Latin for "within the living", this term describes processes that take place within a living organism.

Investigational drug

A pharmaceutical form of an active ingredient or placebo being tested or used as a reference in a clinical trial, including approved as well as unapproved products when used or assembled (formulated or packaged) in a way different from the approved form, when used for an unapproved indication, or when used to gain further information about an approved use.

ISO 14001

This international environmental management standard sets globally recognized requirements for an environmental management system.

ISO 50001

This international standard defines globally recognized requirements for energy management systems.

ISO 9001

This international standard defines globally recognized requirements for a quality management system.

Lead substances

Manufacturers/importers of a certain substance must submit a joint registration according to REACH. In this context, the company responsible for collecting the substance data and preparing the registration dossier uses the term "lead substance".

Least developed countries (LDC)

Countries that, according to the United Nations, exhibit the lowest indicators of socioeconomic development.

Liquid biopsy

Sampling and analysis of non-solid biological tissue such as blood.

Liquid Crystals (LC)

Liquid crystals are a hybrid of a crystalline and liquid state. In general, molecules are perfectly arranged only when in a solid crystal state, in contrast to the liquid state, when they move around chaotically. However, liquid crystals are a hybrid of the two states: Although they are liquid, they exhibit a certain crystalline arrangement. Their rod-shaped molecules align themselves like a shoal of fish. In addition, they respond to the electromagnetic waves of light like tiny antennae. Therefore, such swarms of molecules can either allow specially prepared "polarized" light to pass through, or they can block it. This takes place in the pixels of liquid crystal displays – as it does similarly in liquid crystal windows, which can provide shade against sunlight.

Liver-stage malaria

Certain forms of the malaria parasite (*P. vivax* and *P. ovale*) can remain dormant after they have infected the liver cells. In this stage, they persist for many weeks and even years until they relapse into a new disease cycle. Currently, it is not possible to treat this dormant form.

LTIR

The lost time injury rate measures the number of accidents resulting in missed days of work (one or more days) per one million man-hours.

Monoclonal antibodies

Monoclonal antibodies are made by identical immune cells that are all clones of a unique parent cell.

Mutagen

A substance that changes the DNA of an organism.

Neglected tropical disease (NTD)

Diseases that occur primarily in developing countries. NTDs

include schistosomiasis, intestinal worms, trachoma, lymphatic filariasis, and onchocerciasis. This group of diseases is called neglected because, despite the large number of people affected, they have historically received less attention and research funding than other diseases.

Nucleases

Nucleases are a group of enzymes whose primary function is to partially or fully degrade nucleic acids.

OHSAS

The Occupational Health and Safety Assessment Series (OHSAS) is an international occupational health and safety management system.

OLED

Organic light-emitting diodes are a new technology for displays and lighting.

Onchocerciasis

A chronic parasitic infection caused by nematodes that occurs in the tropical regions of Africa and South America. In approximately 10% of those infected, the disease leads to blindness, which is why onchocerciasis is also referred to as river blindness.

Organoid

An organoid is a miniaturized and simplified version of an organ produced in vitro in three dimensions by means of a cell culture. It shows realistic micro-anatomy similar to an organ. Organoids are derived from one or a few tissue cells, embryonic stem cells or induced pluripotent stem cells, which can self-organize in a three-dimensional culture, owing to their self-renewal and differentiation capacities. Organoids are, among others, used as model systems in the investigation of diseases and the development of drugs.

Orodispersible tablet

A tablet that dissolves in the mouth within 30 seconds and does not have to be taken with water. The active ingredient is absorbed through the mucous membrane in the mouth and also partly through the lining of the stomach.

Other water

Water containing more than 1,000 mg of dissolved solids per liter.

Patent pool

A consortium of at least two competing companies that allows partners to share the use of patents relating to a particular technology.

Patient access programs

Self-sustaining commercial programs with revenue-driven purpose which provide medication for underserved populations, either through free products or a reduced treatment fee.

Patient support programs

Any organized system providing services and direct patient or patient-caregiver interactions that are intended and designed to educate patients about certain diseases, and help patients with access to and/or the management of prescribed medication and/or disease outcomes and/or offer doctors support for their patients.

Pharmacovigilance

The continual, systematic monitoring of a drug's safety.

Phase I study

Phase I clinical trials test a new biomedical intervention in a small group of people (e.g. 20-80) for the first time to evaluate safety (for instance to determine a safe dosage range and to identify side effects).

Source: <http://www.who.int/ictrp/glossary/en/>

Phase II study

Phase II clinical trials study the biomedical or behavioral intervention in a larger group of people (several hundred) to determine efficacy and to further evaluate its safety.

Source: <http://www.who.int/ictrp/glossary/en/>

Phase III study

Phase III studies investigate the efficacy of the biomedical or behavioral intervention in large groups of human subjects (from several hundred to several thousand) by comparing the intervention to other standard or experimental interventions as well as to monitor adverse effects, and to collect information that will allow the intervention to be used safely.

Source: <http://www.who.int/ictrp/glossary/en/>

Prediabetes

A condition regarded as indicative that a person is at risk of progressing to Type 2 diabetes.

Process-related emissions

Greenhouse gases released into the atmosphere during manufacturing operations.

Product safety summary

Intended to provide a general overview of the chemical substance and its use. It cannot take the place of a safety data sheet.

PS-VA

Abbreviation for polymer-stabilized vertical alignment: A polymer layer pre-aligns the molecules inside the display in a certain direction. In the black state, the liquid crystals are not exactly vertical, but slightly tilted, which allows the liquid crystals to switch more quickly. The light transmittance of the display is significantly higher, thus reducing the backlighting, one of the most costly components to produce.

Public-private partnership (PPP)

A collaboration between public sector (government) organizations, private companies and/or not-for-profit organizations.

Pyrogen

A foreign substance that causes a fever (temperature elevation) in the body.

REACH

A European Union chemical regulation (EC No. 1907/2006) that took effect on June 1, 2007. REACH stands for Registration, Evaluation, Authorization, and Restriction of Chemicals.

Reproductive health

The term covers various areas such as pregnancy, sexually transmitted diseases, contraception, and infertility.

Risk-sharing agreement

An agreement between the producer or manufacturer and the payer or provider that allows access to a health technology through coverage or reimbursement under certain conditions.

Role

We use a market-oriented system to rate positions within the company. To facilitate consistency across the organization, each position is assigned a specific role, with an overarching job architecture classifying each role as one of 11 levels, 15 functions and an array of career types (Core Operations, Services & Support Groups; Experts; Managers; Project Managers).

Schistosomiasis

A parasitic disease spread in warm lakes and ponds by snails that serve as intermediate hosts.

Scope 3

Scope 3 includes indirect greenhouse gas emissions, such as the extraction and production of purchased materials, transport-related activities, waste disposal, and employee travel.

Score card

A scorecard is an evaluation tool for measuring, documenting and controlling activities using metrics.

Scrum

Scrum is a framework for agile project management. It is a method that is simple, flexible and quick to deliver results.

Security

This term stands for all necessary measures and governance activities to detect, analyze, handle, and mitigate security- and crime-based threats to the company. This helps to protect employees as well as the tangible and intangible assets of the company.

Signal management

A set of activities performed to determine whether, based on an examination of individual case safety reports, aggregated data from active surveillance systems or studies, scientific literature information or other data sources, there are new risks associated with an active substance or a medicinal product or whether known risks have changed, as well as any related recommendations, decisions, communications and tracking.

Spontaneous reports on adverse effects

If a side effect has occurred while using a medicine and this is being reported, this is called a "spontaneous report", because the adverse reaction is reported spontaneously (for example by doctors or patients) and not in a study or an observational study.

Stakeholder

People or organizations that have a legitimate interest in a company, entitling them to make justified demands. Stakeholders include people such as employees, business partners, neighbors in the vicinity of our sites, and shareholders.

STEM

Science, technology, engineering, and mathematics.

Stem cell lines

Stem cell lines are groups of stem cells derived from animal or human tissue. They can be cultivated in vitro and multiply indefinitely.

Stem cells

Undifferentiated cells with the potential to develop into many different cell types that carry out different functions.

Sugar cane bagasse

A fibrous waste product of sugar refining that is left when sugarcane stalks are crushed to extract their juice.

Sunshine Act

The Sunshine Provisions of the U.S. Patient Protection and Affordable Care Act aim to create more transparent relationships between manufacturers of drugs, medical devices and medical aids on the one hand, and doctors and teaching hospitals on the other.

Traces

Substances dissolved in water that are present only in minute amounts. Also referred to as micropollutants, these are synthetic substances present in concentrations ranging from one nanogram to one microgram per liter of water.

Transfers of value

Direct and indirect transfers of value, whether in cash, in kind or otherwise (e.g. promotional purposes).

TRIPS

The Agreement on Trade-Related Aspects of Intellectual Property Rights is an international legal agreement between all the member nations of the World Trade Organization. TRIPS seeks to ensure that the measures and procedures for enforcing intellectual property rights do not become a barrier to lawful trade.

Working out loud

This technique is about deliberately sharing and providing knowledge as well as forming relevant working relationships. The goal is to discover new topics and ideas.

publication contributors

Published on April 15, 2019 by

Merck KGaA, Group Corporate Responsibility

Frankfurter Strasse 250, 64293 Darmstadt, Germany

Tel.: +49 (0) 6151-72 0

Fax: +49 (0) 6151-72 5577

Website: www.emdgroup.com

Contact for questions regarding this report:

Maria Schaad, Group Corporate Responsibility

Concept and implementation of HTML, PDF & Print:

[nexxar GmbH, Vienna – Online annual reports and online sustainability reports](#)

Text and consulting:

Stakeholder Reporting GmbH

www.stakeholder-reporting.com

Photos and graphics:

Merck KGaA, Darmstadt, Germany, Rüdiger Nehmzow