



150 Years
Science For A Better Life



SUSTAINABLE DEVELOPMENT REPORT
2012

About this report

Our Sustainable Development Report describes the economic, ecological and social challenges and opportunities that are linked to our operations and shows the strategies and solutions that we are applying to meet them. With this report we provide comprehensive, clear and concise information on all issues that we and our stakeholders consider to be of relevance for sustainability.

Our Strategy & Focus Issues chapter illustrates the requirements that will continue to be made of sustainable development by global challenges in the future and how this will affect our business activity. The chapters that follow contain facts and figures and background information about our sustainability performance. Due to the abundance of information, more detailed parts of the report are only available online. Reference is made to this in the report where appropriate (marked in color).

In our reporting we align ourselves to the G3.1 guidelines of the [Global Reporting Initiative \(GRI\) \[1\]](#) and the 10 principles of the [UN Global Compact \(UNGC\) \[2\]](#). The GRI has checked and confirmed that level A+ has been maintained. You can find a statement to this effect and a summarized GRI index also listing the corresponding UNGC principles inside the back cover. A comprehensive overview of the [GRI indicators \[3\]](#), an outline of our [progress in implementing the 10 UNGC \[4\]](#) principles according to the advanced level and additional aspects relating to the Blueprint for Corporate Sustainability Leadership (LEAD) can be found on the internet.

We also align ourselves to the guidelines of the OECD and of ISO 26000. Our selection of indicators and measurement of key data also took into account the recommendations of the European Federation of Financial Analysts Societies (EFFAS) for the reporting of non-financial indicators, the Greenhouse Gas Protocol for the field of greenhouse gas emissions, the World Business Council for Sustainable Development (WBCSD) and the European Chemical Industry Council (CEFIC). This year we shall also submit a declaration of conformity with the German Sustainability Code [5].

Recording our sustainability indicators

Credible reporting is based on transparency and valid data. We register the data of all relevant organizational units and companies worldwide that fall within the scope of the Bayer Group's consolidated financial statements. For all indicators with the exception of greenhouse gas emissions, the years 2008 to 2012 are shown as continuing operations.

All HSE (health, safety and environmental protection) performance indicators for the Group are recorded in Baysis, our Group-wide, site-based information system. The data undergo plausibility checks and cross-checks to ensure a high level of data integrity. The HSE data cover all companies in which we have a holding of at least 50 percent. The performance indicators of these companies are fully consolidated regardless of Bayer's share in them. Data on occupational injuries, transport accidents and environmental incidents are captured worldwide at all sites of subgroups and service companies. Environmentally relevant indicators are measured at all (production) sites.

We use various other information systems to gather HR performance indicators and social data worldwide, such as ProKon, the global HR system and the associated reporting application, the Sustainability Management Annual Reporting Tool (SMART).

The reported indicators are rounded in accordance with standard commercial practice. In some cases, due to rounding, the sum of the figures given in this report may not exactly equal the stated totals and percentages may not precisely tally with the figures indicated.

External verification

In this Sustainable Development Report, we have endeavored to ensure maximum transparency, clarity of layout and ease of verification. The auditing company PricewaterhouseCoopers AG Wirtschaftsprüfungsgesellschaft has reviewed all content – including the supplementary online report (see page 69f.).

Practical information

The report is available in German and English. The editorial deadline was March 31, 2013. From next year Bayer will combine its sustainability and financial reporting to produce an integrated annual report.

Designations such as manager and employee refer equally to men and women; the masculine form of personal pronouns is used in such cases solely to simplify the text.



1 [www](#)

2 [www](#)

3 [BAYER WEB](#)

4 [BAYER WEB](#)

5 [www](#)

Further information on the internet

Our report contains references to further information on the internet at various points.

All internet references in the report are assigned a corresponding code number.

An overview of all references including codes can be found under "Additional Info Links" at www.sustainability2012.bayer.com.

ONLINE REPORT More in-depth information in our online Sustainable Development Report

BAYER WEB Additional information on the Bayer websites

WWW Links to supplementary information on the websites of third parties

Targets 2015*

Targets for 2015	Status on Dec. 31, 2012
Management & Corporate Governance	
Compliance	
Extend compliance training to 100% of all Bayer managers	By the end of 2011, around 90% of all Bayer managers had already completed a compliance training course. For that reason, the focus in 2012 was on new Bayer managers, with the result that by the end of 2012 more than 90% of all Bayer managers had already been trained.
Supplier management	
Inform all suppliers with purchase-order-relevant volumes about Bayer Supplier Code of Conduct	The Bayer Supplier Code of Conduct is a fundamental element of the supplier selection and evaluation process.
Assess the sustainability performance of suppliers representing $\geq 75\%$ of the total procurement volume and $\geq 75\%$ of the procurement volume from risk areas	In the evaluation of suppliers' sustainability performance, the clear focus was on improving process quality and efficiency. In the year under review, assessments and audits were initiated with a similar coverage to those of the previous year. In addition, joint evaluations were launched in collaboration with other companies as part of the "Together for Sustainability" initiative.
Annually audit the sustainability performance of at least 10% of the suppliers from risk areas or at least 15 suppliers	Independent external auditors performed sustainability audits on 17 suppliers.
Innovation & Product Stewardship	
Research & development	
Maintain or increase R&D spending in relation to sales	€3.0 billion spent on R&D (previous year: €2.9 billion) R&D spending in relation to sales 7.6% (previous year: 8.0%)
Product stewardship	
Roll out Global Product Strategy (GPS) in another 10 countries with different languages	GPS was rolled out in 2012 in the format of a new product safety website (formerly BayCare) in another 10 countries and three new languages.
Employees	
Diversity	
Increase the proportion of female managerial staff to approaching 30%	Proportion in 2012: 23% worldwide (previous year: 22%)
Occupational safety	
Reduce the number of occupational injuries with lost workdays to ≤ 0.21 LTRIR**	Reduction in LTRIR to 0.27 (previous year: 0.31)
Ecology	
Climate protection	
Reduce specific greenhouse gas emissions*** in the Group by 35% (direct and indirect emissions in relation to manufactured sales volume in t) between 2005 and 2020	Slight increase to 0.98 t (previous year: 0.95 t) CO ₂ equivalents per t manufactured sales volume. Target value based on values defined in 2005: 0.79 t CO ₂ equivalents per t manufactured sales volume.
Emissions	
Reduce other relevant emissions: ozone-depleting substances (ODS) - 70%, volatile organic compounds (VOC) - 50%	ODS fell by around 0.2% to 16.28 t (previous year: 16.32 t). (Target value based on 2010: 6.2 t.) Specific VOC emissions fell by 5.7% to 0.232 kg/t manufactured sales volume (previous year: 0.246 kg/t). (Target value based on 2010: 0.1218 kg/t manufactured sales volume.)
Waste	
Reduce specific hazardous waste from production to 2.5% in relation to manufactured sales volume	The specific volume of hazardous waste from production rose to 3.54% (previous year: 3.23%).
Process and plant safety	
Implement the Bayer-wide initiative to increase process and plant safety	A variety of measures (symposia, directives) raised awareness of process and plant safety worldwide.
Systematic process and plant safety training for approx. 26,000**** employees by the end of 2012	26,000 employees were given training in 2012 as planned.
Social Commitment	
Focus our global commitment further on scientific education, fostering talent, cutting-edge research, health care and, in Germany, additionally on recreational, youth and disabled sports	Spending of €49 million (previous year: €54 million). In the selection of projects, the focus was on those countries in which Bayer is represented and on issues that are of relevance to our subgroups and their areas of business.

* Unless indicated otherwise

** LTRIR = Lost Time Recordable Incident Rate

*** Specific Group emissions are calculated from the total volume of direct and indirect emissions divided by the manufactured sales volumes of the three subgroups. Quantities attributable to the supply of energy to third parties (non-Bayer companies) are deducted from the direct and indirect emissions. For the Bayer MaterialScience subgroup, only manufactured sales volumes that also form the basis for calculating Bayer MaterialScience-specific emissions are taken into account.

**** Prior-year values restated; see Sustainable Development Report 2011, page 63f.

Key Data 2012

Category	Key Data	2011	2012
Economic Indicators (€ million)			
	Sales	36,528	39,760
	EBIT ¹	4,149	3,960
	EBIT before special items ²	5,025	5,671
	EBITDA ³	6,918	6,920
	EBITDA before special items ²	7,613	8,284
	EBITDA margin before special items ⁴	20.8%	20.8%
	Income before income taxes	3,363	3,248
	Income taxes	(891)	(752)
	Net income	2,470	2,446
	Earnings per share (€) ⁵	2.99	2.96
	Core earnings per share (€) ⁶	4.83	5.35
	Gross cash flow ⁷	5,172	4,599
	Net cash flow ⁸	5,060	4,532
	Net financial debt	7,013	7,028
	Capital expenditures (as per segment table in the Annual Report 2012)	1,666	2,012
	Research and development expenses	2,932	3,013
	Dividend per Bayer AG share (€)	1.65	1.90
	Personnel expenses (incl. pension plans)	8,726	9,203
	Pension liability ⁹	19,310	22,714
Employee Indicators			
Diversity and opportunities	Percentage of women in the Group Leadership Circle	22	23
	Number of nationalities in the Group Leadership Circle	22	23
	Proportion of full-time employees with contractually agreed working time not exceeding 48 hours per week (%)	100	100
	Proportion of employees with health insurance (%)	94	94
	Proportion of employees eligible for a company pension plan or company-financed retirement benefits (%) [*]	70	70
	Proportion of employees covered by collective agreements on pay and conditions (%)	54	53
Safety	Occupational injuries to Bayer employees with lost workdays (LTRIR)	0.31	0.27
	Recordable occupational injuries to Bayer employees (RIR)	0.56	0.49
Ecological Indicators			
Emissions	Direct greenhouse gas emissions (CO ₂ equivalents in million metric tons) ¹⁰	4.23	4.24
	Indirect greenhouse gas emissions (CO ₂ equivalents in million metric tons) ¹⁰	3.92	4.12
	Volatile organic compounds (VOC) (thousand metric tons per year)	2.69	2.60
	Total phosphorus in wastewater (thousand metric tons per year)	0.08	0.15
	Total nitrogen in wastewater (thousand metric tons per year)	0.53	0.70
	Total organic carbon (TOC) (thousand metric tons per year)	1.50	1.42
Waste	Hazardous waste generated (million metric tons per year)	0.47	0.60
	Hazardous waste landfilled (million metric tons per year)	0.12	0.18
Use of resources	Water use (million m ³ per year)	411	384
	Primary energy consumption (petajoules [10 ¹⁵ joules] per year) ^{**}	50.10	49.05
	Secondary energy consumption (petajoules [10 ¹⁵ joules] per year) ^{**}	34.85	34.14
Environmental incidents and transport accidents	Environmental incidents	3	5
	Transport accidents	7	6

1 EBIT = operating result as shown in the income statement

2 EBIT(DA) before special items is not defined in the International Financial Reporting Standards and should therefore be regarded only as supplementary information. The company considers EBITDA before special items to be a more suitable indicator of operating performance since it is not affected by depreciation, amortization, impairments or special items. By reporting this indicator, the company aims to give readers a clearer picture of the results of operations and ensure greater comparability of data over time.

3 EBITDA = EBIT plus amortization and impairment losses on intangible assets and depreciation and impairment losses on property, plant and equipment, minus impairment loss reversals

4 The EBITDA margin before special items is calculated by dividing EBITDA before special items by sales.

5 Earnings per share as defined in IAS 33 = adjusted net income divided by the average number of shares

6 Core earnings per share are not defined in the International Financial Reporting Standards and should therefore be regarded only as supplementary information. The company considers that this indicator gives readers a clearer picture of the results of operations and ensures greater comparability of data over time.

7 Gross cash flow = income after taxes, plus income taxes, plus non-operating result, minus income taxes paid or accrued, plus depreciation, amortization and impairment losses, minus impairment loss reversals, plus/minus changes in pension provisions, minus gains/plus losses on retirements of noncurrent assets, minus gains from the remeasurement of already held assets in step acquisitions. The change in pension provisions includes the elimination of non-cash components of the operating result (EBIT). It also contains benefit payments during the year.

8 Net cash flow = cash flow from operating activities according to IAS 7

9 Present value of defined-benefit obligations for pensions and other post-employment benefits

10 Portfolio-adjusted in accordance with the Greenhouse Gas Protocol

* The totals of 69 and 66 % for 2011 and 2012 we published in our Annual Report 2012 were too low. This was due to subsequent report updates from the United States resulting from a divergent understanding of what had to be reported under "Company Pension."

** Since 2011 we have reported our energy consumption differentiated according to type of origin.

Bayer: Science For A Better Life

Bayer is a world-class innovation company with core competencies in the fields of health care, agriculture and high-tech materials. We intend our successes in science to improve people’s lives and help address today’s daunting challenges – the growing world population, an increasingly aging society and the efficient use of natural resources.

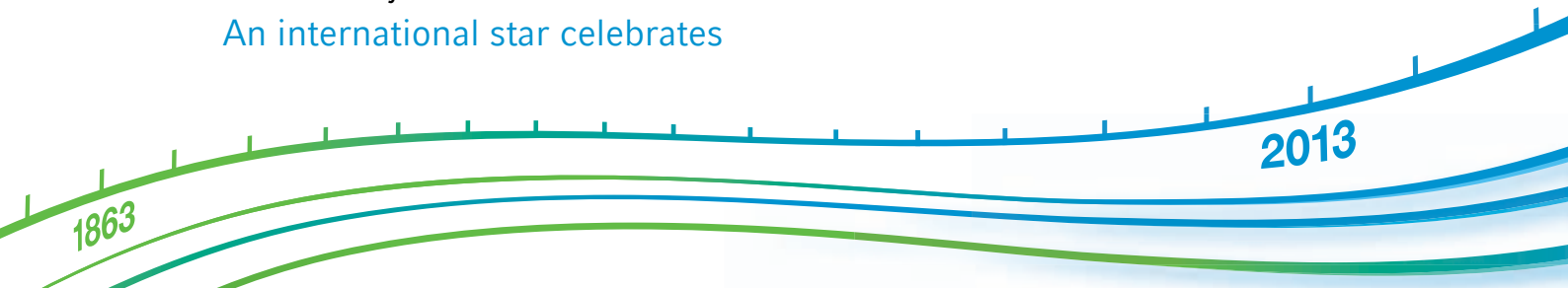
- Throughout the world we are helping to prevent, alleviate or cure diseases and improve diagnostic techniques.
- With our products for agriculture we are also ensuring that farmers can deliver a sufficient supply of high-quality food, feed and plant-based raw materials.
- And with our high-tech materials we are making significant contributions in a variety of areas such as energy and resource efficiency, mobility, construction and home living.

We have spent many decades laying the foundations for achieving these goals and are the only global company to combine expertise in human, animal and plant health and high-quality materials. Our focus on innovation is the key to maintaining or gaining leadership positions in all of our markets. This means generating value for our customers, stockholders and employees. In addition, we consider the interests of other stakeholders in society.

We work sustainably and face up to our social and ethical responsibilities as a corporate citizen. Our Bayer values that we combine under the term LIFE – Leadership, Integrity, Flexibility and Efficiency – serve as a guideline for the implementation of our mission – “Bayer: Science For A Better Life.”

150 Years of Bayer

An international star celebrates



With our inventions we have contributed much to improving people’s lives since 1863. To mark its anniversary, Bayer is planning a series of events and projects worldwide. These will focus on our employees and their families – but we also want to celebrate with neighbors, customers, partners and the scientific community. Find out more on the internet at www.bayer.com



150 Years of Bayer

To mark its anniversary, Bayer is planning a series of events. Read more at www.bayer.com

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Innovation and sustainability are the driving force behind our business success.

Chairman of the Board of Management Dr. Marijn Dekkers



Dear Reader,

Innovation is the driving force in our company and, alongside the sustainable alignment of our business, forms the basis for our success. One significant factor driving successful innovation at Bayer comprises the major challenges facing society and the market changes these are giving rise to – a steady growth in world population, lengthening life expectancy and dwindling resources.

As a global, high-performing company, we pursue our mission “Bayer: Science For A Better Life” and meet these challenges head-on with sustainable solutions. Innovative medication, seeds with enhanced plant properties and high-quality materials that lead to energy savings for our customers are just a few examples of these.

Our innovative products and solutions are our contribution to improving the lives of many people. In research alone, Bayer employs a staff of approximately 13,000, with a budget of around €3 billion. As a result, our new developments set standards, our development candidates provide lots of reasons to be optimistic, and, alongside our excellent products, we are constantly improving our production processes.

The “how” is always just as important as the “what.” When it comes to the safety of people and facilities, our integrity and the honesty of our actions, Bayer does not allow any compromises. This is ensured internally through education and targeted training courses and externally through close collaboration with our business partners. Intensive dialogue with our stakeholders is right at the top of our agenda. As a founding member of the United Nations Global Compact initiative, we are committed

to implementing these values in relation to human rights, labor standards, environmental protection and corruption. As the initiator and partner of many initiatives in the areas of world health, agriculture and resource conservation, we contribute to innovative solutions.

Our purpose in this is not only to do good, it is also to send out a message. Sustainable business practices mean finding a balance between social responsibility and economic necessities. At Bayer, this is the reality we live in, and is an integral part of our thinking and our actions. It is therefore only logical that we will be one of the first DAX companies to stop differentiating between business and sustainability in our future reporting and simply combine the two elements. At the beginning of 2014, we will publish an integrated report on the current fiscal year.

Our company has come a long way in the last 150 years. This success strengthens our resolve to continue with our sustainability-based strategy. This anniversary is a reason to celebrate, but also an opportunity to show respect to those who made this success possible – employees and customers, stockholders and partners, and crucially also neighbors and others who deal with this company every day, whether it be with goodwill or with constructive criticism.

I can assure you all that we see “Bayer: Science For A Better Life” as more than a slogan. It is our mission that we have to live up to every day. This commitment will continue to be our guiding principle.

Marijn Dekkers

Innovation and responsibility drive success

Bayer is a global enterprise with core competencies in the fields of health care, agriculture and high-tech materials. We aim to create value through innovation, growth and high earning power. Responsibility is the basis for that.

Corporate structure

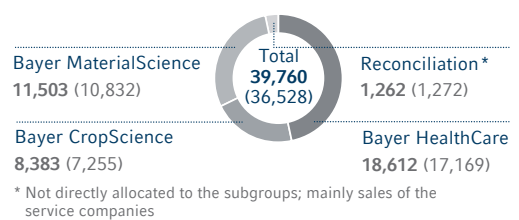
Bayer was founded in Wuppertal, Germany, in 1863 and has been headquartered in Leverkusen, Germany, since 1912. Today, the Bayer Group comprises around 300 fully consolidated companies on five continents. The Group is headed by a management holding company. This sets the strategic framework for the subgroups and service companies, which operate as separate legal entities. The operational business is divided among three subgroups: Bayer HealthCare, Bayer CropScience and Bayer MaterialScience. Our three service companies – Bayer Business Services, Bayer Technology Services and Currenta – provide services for both internal and external customers. The Corporate Center supports the Group Management Board in its task of strategic leadership.

Our commercial success

2012 was a very successful year for Bayer. We achieved our targets for the Group. We also made good progress strategically, continuing to develop our innovation pipeline and bringing new products

to market. On a currency- and portfolio-adjusted (Fx & portfolio adj.) basis, sales rose by 5.3 percent (nominal sales increase 8.8 percent) to €39.8 billion. EBIT (earnings before financial result and taxes) declined by 4.6 percent to €4.0 billion after special items of minus €1.7 billion, mainly in connection with legal disputes. EBITDA before special items rose by 8.8 percent to €8.3 billion, driven by good business development, savings from the restructuring program successfully completed in 2012, and positive currency effects. Net income

Sales by subgroups in 2012 (€ million)
(2011 figures in parentheses)



Bayer AG (holding company)

Group Management Board



Dr. Marijn Dekkers
Chairman



Werner Baumann
Finance



Prof. Wolfgang Plischke
Technology,
Innovation & Sustainability



Dr. Richard Pott
Strategy & Human
Resources
until May 31, 2013



Michael König*
Member of the Board
of Management effective
April 1, 2013

Corporate Center

- Corporate Office ■ Communications ■ Investor Relations ■ Corporate Auditing ■ Corporate Development
- Law, Patents, Compliance & Insurance ■ Regional Coordination ■ Group Accounting & Controlling ■ Finance
- Taxes ■ Mergers & Acquisitions ■ Environment & Sustainability ■ Public & Governmental Affairs
- Corporate Human Resources & Organization

Subgroups

- Bayer HealthCare
- Bayer CropScience
- Bayer MaterialScience

Service companies

- Bayer Business Services
- Bayer Technology Services
- Currenta

* As of June 1, 2013, Michael König will serve as member of the Board of Management with responsibility for human resources and as Labor Director. In connection with the reorganization of the Board of Management, Chairman Dr. Marijn Dekkers will assume responsibility for strategy as of June 1, 2013.

held steady at €2.4 billion despite the special items and substantial investments in both innovation and in business expansion in emerging markets. Core earnings per share rose by 10.8 percent to €5.35. Net financial debt was unchanged at €7.0 billion, including a €1.0 billion contribution to the pension fund.

Our growth markets once again made an above-average contribution to the increase in sales in fiscal 2012. For reporting purposes we have defined these markets as Asia (excluding Japan), Latin America, Eastern Europe, Africa and the Middle East. Sales in these growth markets rose by 7.4 percent (Fx adj.) to €14.8 billion. Sales in growth markets accounted for 37.2 percent of total sales in 2012. A more detailed breakdown of sales by subgroups and regions can be found on pages 80/81 of the Annual Report 2012.

Our investments

We spent €3.0 billion on research and development in 2012. That was equivalent to 7.6 percent of sales. HealthCare accounted for €2.0 billion (65.1 percent) of the total, CropScience for €0.8 billion (26.0 percent) and MaterialScience for €0.2 billion (8.0 percent).

Net cash outflow for investing activities in 2012 totaled €818 million. Spending on additions to property, plant, equipment and intangible assets rose 19.4 percent to €1,929 million, with €721 million of this allocated to HealthCare, €376 million to CropScience and €620 million to MaterialScience.

The €466 million spent on acquisitions included the acquisition of the u.s. crop protection company AgraQuest, Inc., the watermelon and melon seeds business of the u.s. company Abbott & Cobb, Inc., and acquisition of the remaining 50 percent interest in Baulé S.A.S., France.

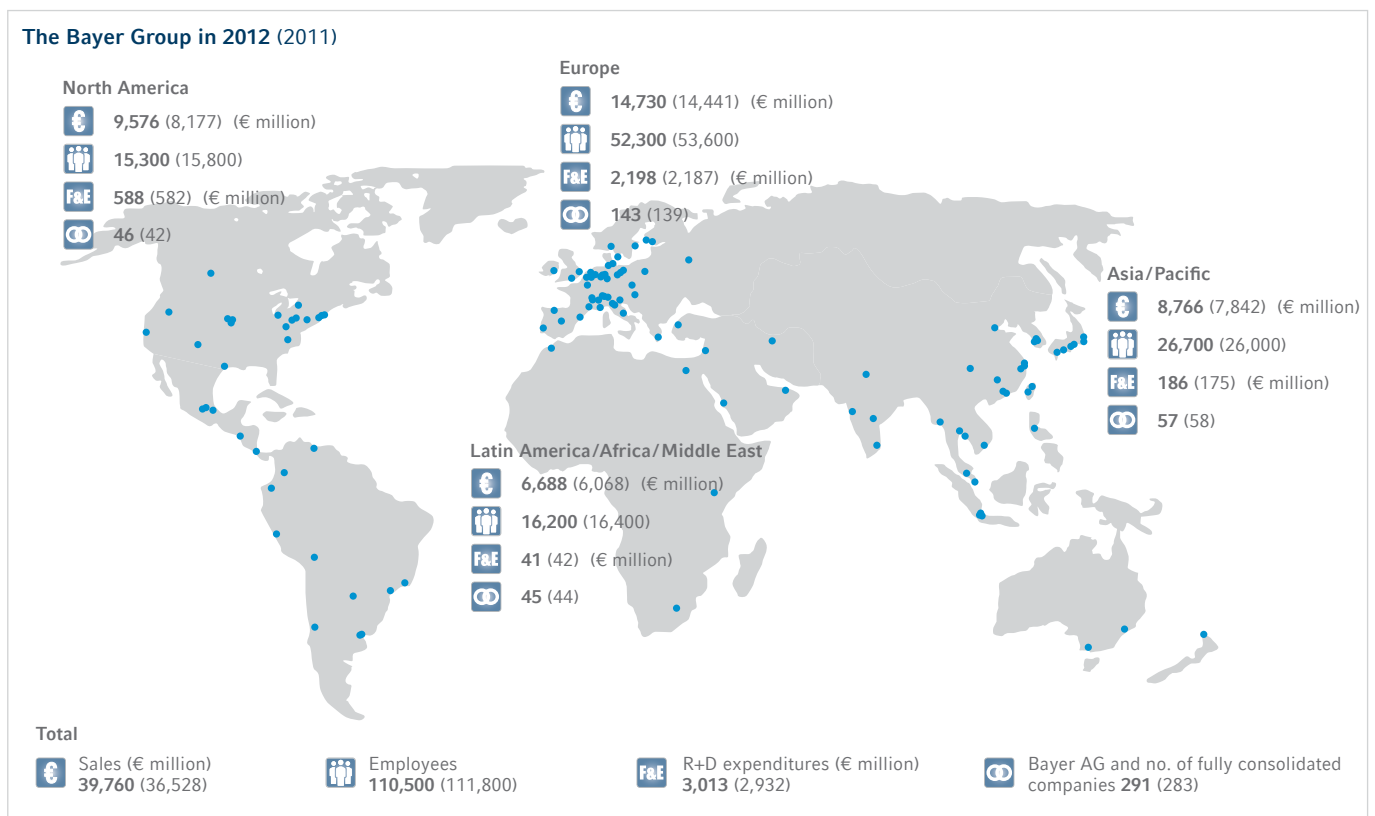
An overview of the main capital expenditures for property, plant and equipment in 2012 can be found on page 88 of the Annual Report 2012.

Our stock

Including the dividend of €1.65 per share paid at the end of April 2012, the stock performance came in at 50 percent, placing it well ahead of the DAX (which increased by 29 percent). Bayer stock ended 2012 at €71.89. A long-term investor who purchased Bayer shares for €10,000 five years ago and reinvested all dividends would have seen the value of the position grow to €13,316 as of December 31, 2012, giving an average annual return of 5.9 percent.

A broad spectrum of international investors hold shares in Bayer AG. An overview of our stockholder structure can be found on page 51 of our Annual Report 2012.

In 2012 Bayer again qualified for inclusion in major sustainability indices that assess companies according to economic, ecological and social criteria. More on this topic can be found in the Management & Corporate Governance chapter on page 32.



Sustainability in the subgroups and service companies

Subgroups

Bayer HealthCare

Bayer HealthCare is among the world's foremost innovators in the field of pharmaceutical and medical products. This subgroup's mission is to research, develop, manufacture and market innovative products that improve the health of people and animals throughout the world.



*Prof. Wolfgang Plischke,
member of the Board of
Management of Bayer AG
and interim head
of Bayer HealthCare*

Globally successful through collaborations and partnerships

As a company working in the health care sector, we develop innovative medicines and medical products and at the same time are committed to improving access to medical care around the world.

In the near future, our world will be greatly influenced by the consequences of demographic change in numerous industrialized countries and booming populations in developing countries and emerging markets. The resultant issues require sustainable solutions that can only be achieved if all social groups work together.

With our strategic commitment in numerous collaborations and partnerships, we are facing up to the challenges, so that even needy people worldwide have access to the products and therapies we develop.

Headquarters: Leverkusen, Germany
Headcount: 55,300 (2012), 55,700 (2011)
Sales: €18,612 million (2012), €17,169 million (2011)
Sites: in over 120 countries
Website: www.bayerhealthcare.com

Bayer CropScience

Bayer CropScience offers its customers an outstanding range of products including high quality seeds, innovative crop protection solutions based on chemical and biological modes of action, and extensive service back-up for modern, sustainable agriculture. Another core area is non-agricultural applications.



*Liam Condon,
Chief Executive Officer of
Bayer CropScience AG*

Innovation for a New Revolution in Agriculture

A growing world population, food shortages, rising demand for sustainable raw materials and an increase in extreme weather conditions are influencing agricultural production worldwide. To meet the growing demand for food and satisfy changing nutritional habits in the long term, worldwide agricultural production will have to increase by approximately 70 percent by 2050. The key to meeting this challenge lies in sustainably intensifying a form of agriculture that combines economic, ecological and social aspects in equal measure. Sustainable increases in productivity require what we call a "New Revolution in Agriculture." With the aid of a holistic five-element approach we want to contribute worldwide to sustainable food security. This approach comprises: leading innovation in agricultural R&D, enabling farmers worldwide, sustainably intensifying productivity, enhancing human health through healthy crops, and extending partnerships for modern agriculture.

Headquarters: Monheim, Germany
Headcount: 20,800 (2012), 21,000 (2011)
Sales: €8,383 million (2012), €7,255 million (2011)
Sites: in over 120 countries
Website: www.bayercropscience.com

Bayer MaterialScience

Bayer MaterialScience is a renowned supplier of high-tech polymers and develops innovative solutions for a broad range of applications relevant to everyday life. Products holding leading positions on the world market account for a large proportion of its sales.



*Patrick Thomas,
Chief Executive Officer of
Bayer MaterialScience AG*

Environmentally compatible products and production processes

Conserving resources and limiting the consequences of society's actions on the planet – these are among the greatest challenges of our time. Bayer MaterialScience is addressing these problems, and developing and providing materials and solutions that reduce our environmental impact. In major industries such as the automotive, construction and electronics sectors, these products contribute to saving energy and reducing greenhouse gas emissions.

However, our innovative solutions also provide solutions to issues such as population growth, urbanization, increasing demands on the health care sector and technological change. Our activities are based on a deep understanding of markets that enables us to meet both present and future needs in terms of efficiency, design and functionality.

We are also constantly working on improving our leading position in terms of safety, reducing energy consumption and optimizing our production processes.

Headquarters: Leverkusen, Germany
Headcount: 14,500 (2012), 14,800 (2011)
Sales: €11,503 million (2012), €10,832 million (2011)
Sites: in over 55 countries
Website: www.bayermaterialscience.com

Service Companies

Bayer Business Services

Bayer Business Services is the Bayer Group's global competence center for IT and business services. Our innovative solutions make the business processes of the Bayer companies faster, simpler and more cost-efficient. In this way we make an important contribution to sustainable development at Bayer.



Daniel Hartert,
Chairman of the
Executive Board
of Bayer Business
Services GmbH

IT and business services for sustainable development

Our various initiatives for improving energy efficiency are part of the Bayer Climate Program. Thanks to Ecofleet, we have achieved our goal of reducing the average CO₂ emissions of the Bayer vehicle fleet per kilometer and vehicle by more than 20 percent since 2007. In 2012 Bayer was once again awarded the International Green Fleet Award for this initiative.

In IT, we have even surpassed our goal of increasing energy efficiency in our data centers between 2009 and 2012 by 20 percent and have in fact increased energy efficiency by 35 percent.

With more than 150 video conference rooms at various Bayer sites worldwide, we were able to further reduce the number of business trips and the associated CO₂ emissions in 2012 thanks to the Business Travel initiative.

Headquarters: Leverkusen, Germany
Headcount: 4,900 (2012), 6,400 (2011)
Sites: Brazil, Germany, Philippines, Poland, P.R. China, Singapore, Spain, United States
Website: www.business-services.bayer.com

Bayer Technology Services

Bayer Technology Services is an important research, development and engineering innovation partner for the entire Bayer Group. All Bayer subgroups worldwide work closely with this service company on technology solutions, particularly in the fields of process technology, plant engineering, automation and product development.



**Dr. Dirk
Van Meirvenne,**
Managing Director
of Bayer Technology
Services GmbH

Technological expertise for sustainable operations

Together with the subgroups, Bayer Technology Services is developing new energy- and resource-efficient production processes to safeguard technology and cost leadership sustainably and improve the safety, efficiency and availability of plants. Centralized development work on technologies relevant to more than one subgroup, such as nanotechnology and biotechnology, along with expertise in mathematical simulation and statistical data analysis, is important for HealthCare and CropScience so that they can accelerate the development of new products. These also include completely new production concepts that are being developed in the INVITE research center, for example.

As the technological backbone, we also share responsibility with the subgroups for the worldwide initiative for process and plant safety designed to continuously improve the safety culture and standards in the plants and laboratories. This includes establishing a global network with standardized risk assessments including catalogs of measures.

Headquarters: Leverkusen, Germany
Headcount: 2,400 (2012), 2,700 (2011)
Sites: Belgium, Brazil, Germany, India, Mexico, P.R. China, Russia, Singapore, United Arab Emirates, United States
Website: www.bayertechnology.com

Currenta

Currenta provides Chempark companies with ideal conditions for business with a variety of product networks and a comprehensive portfolio of services. These include utilities, environmental services, safety and security, analytics, infrastructure and vocational training.



Dr. Günter Hilken,
Chairman of the
Executive Board
of Currenta GmbH
& Co. OHG

Chemical park sites safeguard sustainable development for industry

As a chemical park operator, we play an important role in supporting energy-efficient and resource-friendly production among our customers. For example, we provide efficient material and production networks.

We therefore focus on rigorously optimizing technologies and processes, for example in our supply and disposal facilities, with the goal of increasing energy and cost efficiency and at the same time conserving natural resources.

For example, we successfully completed our climate protection program "Energy efficiency rating A++." Approximately 250 individual projects even helped us exceed the intended target slightly (see page 58). We will now continue to develop the program methodically and introduce a systematic energy management system. This cuts costs, enabling approximately 70 Chempark companies to benefit from lower energy prices.

Headquarters: Leverkusen, Germany
Headcount: 5,300 (2012), 5,300 (2011)
Sites: Leverkusen, Dormagen, Krefeld-Uerdingen (all Germany)
Website: www.currenta.com

Sustainability: part of our corporate strategy

For Bayer, sustainability means shaping the future successfully. As part of the corporate strategy, it is an integral part of our day-to-day work routines. That's what our mission "Bayer: Science For A Better Life" is all about. Hardly any other company boasts a comparable level of expertise in the promotion of human, animal and plant health while also playing a leading role when it comes to high-quality materials. By applying our scientific know-how, we deliver innovations that help meet the global challenges of our time.

Our mission focuses on global challenges

The global population is predicted to grow from seven billion at present to more than nine billion by 2050. This rapid increase demands immediate action in the areas of health, nutrition and the environment. Consequently, appropriate strategies are urgently needed to keep the expanding population healthy. At the same time, the available resources for cultivating agricultural products – such as soil and water – are in ever shorter supply. The growth in global population also brings with it a continuous increase in energy requirements – a development that constitutes a major obstacle to efforts to improve the standard of living across the globe.

Bayer is already addressing the resultant strategic issues that affect our business:

- How can we help ensure people have access to health care despite the rising world population?
- How can crops be optimized and protected so as to deliver better and higher-quality yields even under changed climate conditions?
- How can energy consumption be reduced and climate change restricted?

These challenges form the basis of our business and are focal points of our mission "Bayer: Science For A Better Life" [6]. Our goal is to use our innovative ability to combine commercial success with the sustainable orientation of our business, thereby creating social benefits for all stakeholders.

Our sustainability strategy

Our corporate strategy complies with the principles of sustainability in fulfilling our mission. Our objective is to safeguard and boost the company's success, creating entrepreneurial value while also respecting social values. We are developing products now that will be of great social benefit in the future and are safe in both manufacture and application. This is the only way to generate sustainably profitable growth and secure our future business success. Sustainability thus makes economic sense

for the company. It does not play an isolated role at Bayer but forms an integral part of our corporate strategy in the same way as the areas of research or human resources.

The focus of our sustainability strategy is on

- responsible business practices that reduce our business risks and
- our own innovative strength that both opens up new business opportunities for us and enables us to generate economic, ecological and social benefit.

Major social challenges and the resultant market changes are a key driving force behind successful innovation at Bayer. Sustainability is a precondition for our research activities, and for the development of new drugs, seeds with enhanced plant traits, chemical and biological crop protection products, and high-quality materials. Innovative products from our three subgroups Bayer HealthCare, Bayer CropScience and Bayer MaterialScience (see page 38ff.) contribute to sustainable development worldwide. As an innovation company with a 150-year history, we will continue to recognize and build on our core areas of expertise in the future to develop new solutions in these key areas.

The [Sustainability Program](#) [7] launched in 2009 puts our strategy into practice. Its lighthouse projects in the areas of sustainable health care provision, high-quality nutrition, and protection of the climate and natural resources (from page 11ff. and the Ecology chapter on page 55ff.) have become well established.

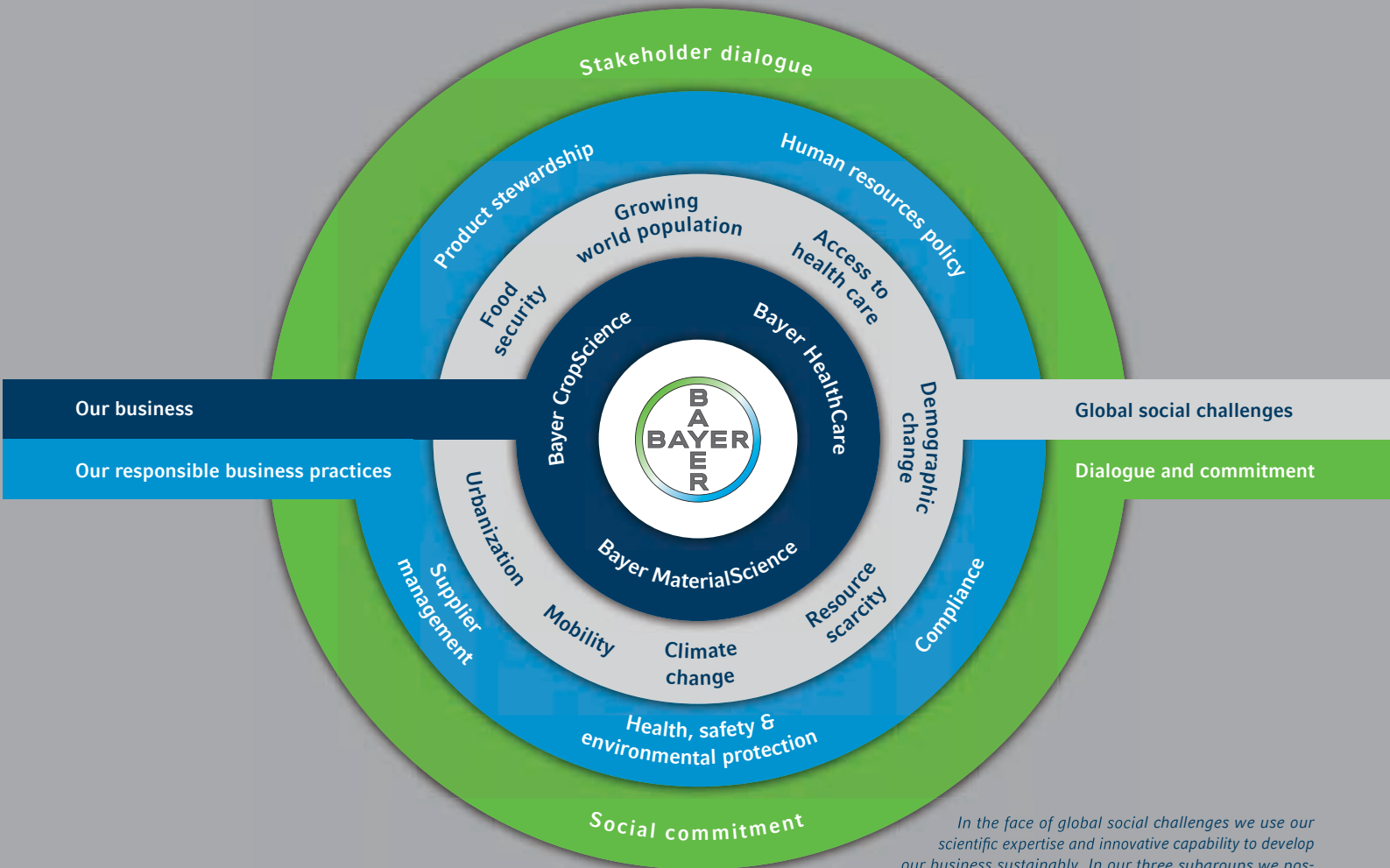
The initiatives supported by Bayer HealthCare range from the distribution free of charge of medicines to a family planning project with economic implications that contributes to regional value added (see page 11f.). Food Chain Partnerships have become a Bayer CropScience business model (see page 16).

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Our sustainability strategy

Our goal: to generate economic, ecological and social benefit through the integration of sustainability



In the face of global social challenges we use our scientific expertise and innovative capability to develop our business sustainably. In our three subgroups we possess a product portfolio that addresses some of the most urgent problems affecting the provision of health care, the safeguarding of food supplies and the protection of resources. The basis of our operational business is formed by responsible business practices and the consideration of the expectations of our stakeholders.

And the STRUCTese™ energy management system developed by Bayer MaterialScience together with Bayer Technology Services has already resulted in significant energy savings and CO₂ reductions.

You will find detailed information on the **targets** we have set ourselves in our **lighthouse projects** [8] in the fields of health care, nutrition and climate and resource protection and on the results and measures implemented in the year under review in our online report.

Tackling social concerns

Responsible business practices and consideration of the expectations of our stakeholders lay the foundation for our business operations. This gives us our license to operate. Bayer attaches particular importance to responsible practices in the areas of compliance (from anti-corruption measures to responsible marketing), HR policy, product stewardship, health, safety, environmental protection and supplier management. Minimizing ethical, economic and legal risks is a key prerequisite for the social acceptance of our company.

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Internal Group regulations ensure the implementation of our principles in business operations, such as our [Human Rights Position \[9\]](#), the [Corporate Compliance Policy \[10\]](#), the [Responsible Marketing & Sales Policy \[11\]](#), the [Supplier Code of Conduct \[12\]](#), the Directive on Process and Plant Safety and positions, for example, on the key issues of [climate \[13\]](#), [water \[14\]](#) and [biodiversity \[15\]](#).

In doing so, we take into account the expectations and requirements of our stakeholders and maintain close dialogue with them. Our stakeholder engagement – that is to say the involvement of interest groups, which include both our employees and our operational environment (industry, academia, the financial sphere, politicians and society) – is intended to ensure that we take into consideration their main concerns when making fundamental strategic decisions. We regularly analyze the suggestions and expectations of external and internal stakeholders to compare the main sustainability-relevant issues of our stakeholder groups with those of our own assessments. In this way, we can determine the areas in which our sustainability strategy requires further development and identify issues that we should focus on more clearly in the future. We document the comparison of external and internal priorities and perspectives in a [materiality matrix \[17\]](#).

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Together with our value concept [LIFE \[18\]](#) (see also page 22), our mission forms the basis for the sustainable actions of our staff. In the [Bayer Sustainable Development Policy \[19\]](#), we have formulated a common understanding of sustainability that applies to the entire Group, including the subgroups and service companies.

The Group's commitment to sustainable development is expressed by our active participation in important international [initiatives and associations \[20\]](#) such as the United Nations Global Compact (UNGC) and its Corporate Sustainable Development Leadership (LEAD) initiative, the Responsible Care™ initiative of the chemical and pharmaceutical industry, and the World Business Council for Sustainable Development (WBCSD).

Managing sustainability

As part of Bayer's corporate strategy, sustainability is firmly established at Board level. Professor Wolfgang Plischke is the member of the Board of Management responsible for Technology, Innovation and Sustainability – and is thus the company's Chief Sustainability Officer. The Environment & Sustainability Department in the Corporate Center headed up by Dr. Wolfgang Grosse Entrup, who also chairs the Sustainable Development (SD) Committee, reports directly to him. The SD Committee, which manages the integration of sustainability into business operations, comprises the top-ranking sustainability officers in the subgroups, together with the heads of Corporate Development, Communications and Human Resources & Organization.

The Committee's tasks also include identifying and evaluating sustainability-related opportunities and risks for the company. In addition, it sets targets, decides whether to take part in external initiatives, prepares Group regulations and checks they are being complied with. The SD Committee maintains close contacts with other Bayer bodies such as the committees for Health, Safety, Environmental Protection, Quality (HSEQ); Innovation; Industrial Operations; Technology; and Public and Governmental Affairs. Key strategic issues for the company are discussed and strategies are developed for the future. Targeted dialogue events on specific issues with well-known external stakeholders provide fresh impetus for further strategic development. The subgroups have also created international organizational structures for discussing and reaching decisions on relevant issues, targets and measures.

An overview of the evolution of [sustainability at Bayer \[16\]](#) is available in the online report.

Making success measurable

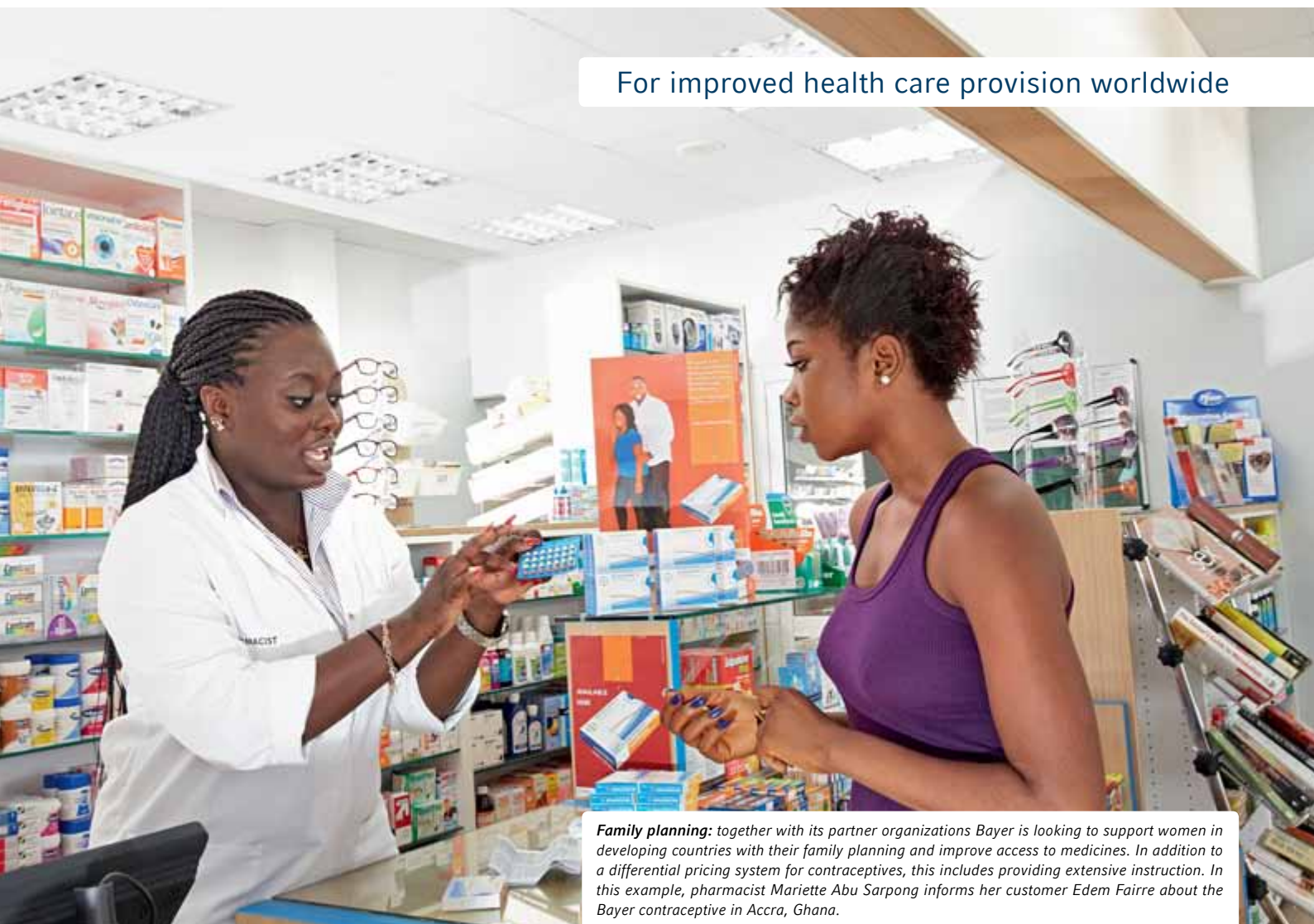
Targets and performance indicators help us to operationalize the sustainability-related elements of the corporate strategy and monitor their success. Our ambitious targets up to 2015 [see inside cover], which we set in 2011, start with the value-added chain.

In 2012 we also initiated a process to improve our evaluation of direct and indirect social value added. Unlike clearly measurable, quantitative management targets, much of our contribution to society can still not be recorded quantitatively. The objective is to develop a tool that can be used to improve our evaluation of our contribution to the "Better Life" component of our mission and make it more visible than before.

In the future, we also want to take into account the integration of sustainability in the corporate strategy in our Group reporting. From 2014 onward, we will therefore be combining our annual financial and sustainability reporting in an integrated report. Bayer's goal here is to give its stakeholders a more comprehensive and informative picture of the company's current and future value-adding potential.

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For improved health care provision worldwide



Family planning: together with its partner organizations Bayer is looking to support women in developing countries with their family planning and improve access to medicines. In addition to a differential pricing system for contraceptives, this includes providing extensive instruction. In this example, pharmacist Mariette Abu Sarpong informs her customer Edem Fairre about the Bayer contraceptive in Accra, Ghana.

Some two billion of the more than seven billion people living on Earth do not have adequate basic health care. The growing world population – above all in developing countries and emerging markets – and demographic change in numerous industrialized nations are making it increasingly difficult to ensure adequate health care provision for the entire planet.

Bayer is facing up to this challenge in keeping with its mission “Bayer: Science For A Better Life.” Thanks to our strategic commitment, the services of our HealthCare business – high-quality drug products and treatments – are being made available to patients across the globe in countless programs. The problem of inadequate health care in many countries will not be solved by individual companies and organizations acting alone, though, so a key focal point of our commitment is long-term cooperation with recognized aid organizations and international bodies.

“Economic strength brings with it a big responsibility toward society,” states Professor Wolfgang Plischke, member of the Board of Management of Bayer AG and interim head of Bayer HealthCare.

“We want people to share in medical progress, regardless of their income or where they live. Ensuring global medical care is not a task that any aid organization, government, company or research institute can tackle alone. Only a network of strong partners can make things happen,” he adds.

Improving access to medicine

As part of its Access to Medicine (ATM) strategy, Bayer is developing commercially viable concepts based on the pillars of Bayer expertise and the specific Bayer product portfolio:

- Supporting family planning programs with partners involved in international development cooperation
- Supporting the World Health Organization (WHO) in tackling tropical diseases and tuberculosis
- Patient access programs in markets in which large sections of the population have no access to expensive, innovative medicines.

Opinion

“Differential pricing for a sustainable market supply”

“The Contraceptive Security Initiative launched by Bayer and USAID is an innovative public-private partnership that addresses the steadily growing demand for affordable contraceptives in developing countries. Thanks to this pilot project between a private German company and a U.S. government agency, middle-income women in developing countries now have better and more sustainable access to oral contraceptives.”



Dr. Scott Radloff, Director of USAID's Population and Reproductive Health Office

Targeted family planning

As the world market leader in hormonal contraceptives, Bayer has many years of expertise in the field of contraception. For nearly 50 years, we have been involved in various family planning programs of national and international organizations in more than 130 countries and have been helping to ensure that even people in poor regions of the world have access to a variety of contraceptives. Through this long-term commitment, Bayer is making a major contribution to the achievement of the United Nations' Millennium Development Goals relating to reproductive health – in particular reducing child mortality and improving the health of mothers. In many countries, women are often the main contributors to the family income. Giving them a greater sense of self-responsibility is therefore the best way to reduce the birth rate and enable them to escape the spiral of poverty.

Bayer gears its commitment toward the needs of its partner organizations involved in international development cooperation. In 2012 we entered into another partnership with a new global initiative for improved access to reversible long-term contraception [23] in the form of a contraceptive implant. The objective is to give women in developing countries easier access to this contraceptive implant by offering it at a reduced price. In December 2012 Bayer signed an agreement with the Bill & Melinda Gates Foundation in which the company undertakes to reduce the price of its WHO-prequalified implant with the active ingredient levonorgestrel by more than half. By offering a guaranteed quantity discount, we are giving more than 27 million women in the world's poorest countries access to a safe, effective and reversible long-term contraceptive method over the next six years.

Many poor countries have a burgeoning middle class in active employment who want to buy medicines at prices they can afford. To meet this need, Bayer applies a strategy of differential pricing. One example is the Contraceptive Security Initiative (CSI) [21] that Bayer and the U.S. development agency USAID have launched in sub-Saharan

Africa. The CSI offers the contraceptive pill at an affordable price – based on local incomes – so that middle-income women can buy the product at the pharmacy. Up till now, they have not had the option of purchasing an original Bayer drug at a reduced price. Those who could not afford the expensive original product had to rely on obtaining free contraceptives from aid organizations. In addition to long waiting times, these women also had to accept being labeled as needy. The initiative's sustainable approach is important to Bayer. Since wholesalers and pharmacy owners make money, too, it creates income for the national economy that offers a way out of purely charitable support.

Besides access to modern contraceptives, adequate knowledge and education are also essential for self-determined family planning. Sex education is therefore a key prerequisite for a lasting improvement in the future prospects of people in developing countries. For example, Bayer is supporting an innovative education program [22] developed together with the DSW (German Foundation for World Population) that has a particularly sustainable effect thanks to its incorporation of the school students' social environment and the development of a methodological manual. You can read more about this on the internet.

Tackling neglected tropical diseases

Many diseases that primarily affect the poorest sections of the population can only be combated with a substantial international effort and concerted forces. In 2012 13 pharmaceutical companies including Bayer, the governments of the United States, the United Kingdom and the United Arab Emirates, the Bill & Melinda Gates Foundation, the World Bank and several global health organizations therefore initiated the largest ever campaign to tackle neglected tropical diseases. The goal of this London Declaration on Neglected Tropical Diseases [24] is to contain or, if possible, eliminate 10 tropical diseases by 2020. The various companies' commitments reflect their respective areas of expertise.

As the only manufacturer of the active ingredient nifurtimox, Bayer has been supporting the WHO in the fight against Chagas disease and African sleeping sickness since 2004. According to WHO statistics, some 10 million people are infected with Chagas disease. In some regions of Latin America, nearly a quarter of the entire population is affected. The WHO estimates that Chagas disease causes a loss in productivity totaling US\$ 1.2 billion each year. Bayer's active ingredient nifurtimox can cure nearly 100 percent of patients with the disease if the infection is treated in the early stages. It is on the WHO List of Essential Medicines [25]. In 2012 we significantly stepped up our commitment and doubled the number of free tablets we provide to one million each year. A new low-dose tablet formulation is currently being developed to enable precise dosing for patients, especially children.

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Bayer is also actively involved in efforts to counter African sleeping sickness, which is transmitted by the tsetse fly. The widespread West African form of sleeping sickness can now be treated with a new combination therapy comprising two active ingredients, one of them nifurtimox from Bayer. On completion of the clinical studies in 2009, this new combination therapy was also included in the WHO List of Essential Medicines. Since then, Bayer has been supplying the WHO with an additional 400,000 free tablets with the active ingredient nifurtimox each year. Thanks to the intensified joint efforts of all partners involved under the direction of the WHO, it appears that the target set in the global initiative of eliminating this disease by 2020 is within touching distance. Further details on our commitment to [tackling neglected tropical diseases \[27\]](#) can be found on the internet.

Bayer is also involved in several anti-malaria projects. We are committed to supplying the population at risk with highly efficient impregnated mosquito nets. Deltamethrin, an active ingredient recommended by the WHO, is incorporated in the [LifeNet™ \[28\]](#) developed by Bayer, which is made of soft yet highly tear-resistant polypropylene. This net is highly effective against insects that transmit malaria and still works after 30 washes. The market launch of LifeNet™ began in 2012 and it has now been registered in nearly two dozen African countries. We are also conducting research into new active ingredients that are intended above all to overcome the resistance of malaria mosquitoes – one of the biggest problems in the fight against malaria at present. In 2012 Bayer and the Innovative Vector Control Consortium (IVCC) extended the joint research partnership they entered into in 2009 to develop new substances to use against mosquitoes that transmit diseases such as malaria and dengue fever. The researchers have identified chemical substances in Bayer CropScience's substance library – one of the largest in the world – that stop mosquitoes inflicting infectious bites by influencing their sensory capabilities.

New treatments for tuberculosis

Nearly 5,000 people die from tuberculosis (TB) every day, which puts it at the top of the global statistics relating to deadly infectious diseases. Drug-resistant strains of bacteria are a major problem in efforts to counter this disease. They are often created when treatment is interrupted or ended prematurely. The standard drugs available are ineffective against TB caused by resistant bacteria. The current therapies have been in use since the 1960s. The long treatment period of at least six months makes a systematic course of therapy more difficult to achieve and the number of resistant strains of bacteria is therefore growing. There is an urgent need for new active ingredients.

In a collaboration with the non-profit organization Global Alliance for TB Drug Development ([TB Alliance](#)) [26] Bayer supplies its broad-spectrum

antibiotic containing the active ingredient moxifloxacin free of charge. It is being used in clinical studies to ascertain whether moxifloxacin can replace one of the standard drugs used in the current combination therapy for TB so as to cut the treatment period from its present six months to just four. Highly effective moxifloxacin also opens up new possibilities for the treatment of multi-drug-resistant TB caused by resistant bacteria. Under the WHO umbrella and together with more than 1,000 other organizations, Bayer HealthCare has been supporting the Stop TB Partnership since 2011. This aid program gives multi-drug-resistant TB patients in particular access to highly effective drugs such as moxifloxacin.

Focus on the patient

It is not only in poor countries that many people do not have adequate medical care. In countries such as the United States, too, there are large numbers of insufficiently insured people who can only obtain many prescription medicines if they are given financial support. However, it is above all emerging industrial nations that are facing the challenge of creating a nationwide health care system while also tackling a big increase in typical lifestyle diseases.

Bayer is working with partners from the local health care systems and NGOs to help close such gaps in health care provision through patient aid programs. In the United States, we have initiated several aid programs that ensure patients with renal cancer, liver cancer and multiple sclerosis can be treated with our products. We offer similar programs in China and a number of countries in southern and south-eastern Asia. They go far beyond simply supplying medicines and, above all in the case of chronic diseases, offer comprehensive support for patients and their families, provide medical personnel and offer access to the necessary diagnostic services.

While the availability of innovative drugs is an important part of medical care, equally important for a functioning health care system is the provision of well-trained personnel in the health care sector. Bayer is therefore committed to the ongoing training of physicians and medical staff worldwide. Read more about our [training programs \[29\]](#) such as the continuing education of physicians in rural areas of China or of midwives in Indonesia on the internet.

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For the future of agriculture



Agriculture: through Food Chain Partnerships Bayer is helping farmers worldwide to produce agricultural products of a best possible quality. At the Grupo Calinda plantation in Costa Rica, Bayer employee Rigoberto Estrada Brenes and plantation managers Ivan Sánchez Araya and Viviana Matarrita Ledezma check the freshly harvested bananas.

A growing world population, food shortages and volatile weather – these dynamic factors are having an increasingly significant effect on agricultural production worldwide. More and more people need to be fed, but the available arable land per capita is decreasing across the globe. This is compounded by problems such as soil erosion, water shortages and extreme weather events, and poses major challenges for farmers in many parts of the world. In this context, our mission “Bayer: Science For A Better Life” reflects the goal that we are looking to achieve in close cooperation with agricultural partners and stakeholders – helping to provide people with enough healthy food.

To meet the rising demand for food and satisfy changing nutritional habits in the long term, the world’s agricultural production would have to increase by approximately 70 percent by 2050. This can only be achieved through sustainable agricultural practices that take into account economic, environmental and social requirements. “We want to play a role in shaping the future of agriculture and make it more productive and sustainable,” says Liam Condon, Chief Executive Officer of Bayer CropScience AG. “For this we urgently need a New Revolution in Agriculture.”

To scale up efforts to secure a sustainable global supply of food, we have developed a holistic five-point plan:

- Leading innovation – helping address agriculture’s top challenges through new solutions
- Enabling farmers big and small – providing them with tools, technology and training to thrive economically in the long-term
- Driving a sustainable intensification of agriculture – helping to raise both productivity and environmental compatibility
- Enhancing human health – improving the nutritional value of certain crops and contributing to a healthy food supply
- Extending partnerships – leveraging the potential of collaboration in modern agriculture.

“We at Bayer CropScience are using our innovative strength to develop integrated crop solutions combining seeds with chemical and biological crop protection that take into consideration the different growing conditions and rising customer expectations worldwide.”

Solutions for future requirements

As a global company, Bayer CropScience plays a key role in boosting agricultural productivity. We

are focusing on new solutions that protect crops against disease, pests, weeds and stress factors and thus farmers from crop failures.

Since mid-2012, our operations have been split into Seeds, (chemical and biological) Crop Protection and Environmental Science (non-agricultural pest control). Our growth strategy is made up of four elements:

- Strengthening crop protection:** we intend to strengthen our crop protection portfolio by increasing our focus on integrated crop solutions. Older products are being phased out. These include WHO Class I crop protection products, which were removed from our portfolio by the end of 2012. We are concentrating instead on new product families in areas such as biological crop protection, in particular with a view to further expanding our fruit and vegetables business in conjunction with chemical crop protection.

- Improving customer orientation:** in the areas of crop protection and seeds, we systematically gear our activities toward the needs of farmers, processors, wholesalers, retailers and consumers. This also includes improved management of sales channels. In addition, we are expanding the successful Food Chain Partnership business model (see page 16).

Despite this high level of specialization, we see our task in holistic terms. Bayer provides integrated solutions for agricultural products – from seed to consumer. Consumer needs are just as important as requirements from the food industry, wholesalers, retailers and our direct customers – the farmers. We want to continue our commercial excellence activities and bring together all partners in the value-added chain through integrated go-to-market approaches.

Environmental Science is focusing on the expansion of marketing activities and the continued development of specific market segments such as forestry or industrial vegetation management.

- Expanding our pioneering role in innovation:** in our research and development activities, we want to develop first and best-in-class solutions. In doing so we want to apply our expertise more strongly in all areas we are involved in, i.e. seeds, breeding and chemical and biological crop protection.

- Growing seed business:** we are looking to build on our market position for established crops through both organic growth and acquisitions. The focus is on vegetables, rice, oilseed rape/canola and cotton. We also intend to achieve significant positions in soybeans and wheat.

Preventing crop failures and boosting yields

One of the most important crops for us is wheat. In human consumption this accounts for some 20 percent of total calorie intake and thus has a direct impact on the world's food situation. The global

population is growing faster than the conventional cultivation potential, though, so Bayer is conducting research into methods to increase yields even under difficult growing conditions, for example through smart breeding. Our goals are to increase yields in line with demand, optimize crops' use of water and fertilizer, and enable them to adapt to the consequences of climate change and become more resistant to disease.

However, the process of developing new varieties of wheat is lengthier and more complex than for other crops. Consequently, we have created a global network of plant breeders and are involved in strategic cooperation projects with leading research institutes in countries such as Canada, the United States and Australia. We are aiming to launch the first new wheat varieties in Europe in 2015. With our partners in Australia (Commonwealth Scientific and Industrial Research Organisation – CSIRO [30]) and Israel (Evogene), we are primarily working on more drought-resistant and nutritionally efficient varieties. This will make it possible to extend cultivation to regions where it has not previously been possible to grow wheat.

As far as rice is concerned, our focus is on establishing hybrid varieties on a widespread basis in Asia and supporting farmers with comprehensive agronomic programs such as Much More Rice in Vietnam or the direct seeding of rice in India and Indonesia.

Our InVigor™ Health canola also demonstrates how we are improving product properties. Cooking oil produced from this variety is rich in healthy oleic acids and produces far fewer harmful trans fats than conventional canola oil during processing.

With many crops, such as fruit and vegetables, great successes can also be achieved using conventional plant breeding methods. Since these products are mostly intended to be marketed and eaten fresh, wholesalers, retailers and consumers have particularly strict requirements in terms of appearance, nutrient content, taste and shelf life. Above all, though, fruit and vegetables form the basis for a balanced, healthy diet thanks to the vitamins, dietary fibers and minerals they contain.

Our fruit and vegetable activities center on tomatoes, cucumbers, melons, onions, carrots and peppers, among other varieties. One successful example of Bayer's vegetable breeding is the Intense™ tomato. Created on the basis of a spontaneous, hereditary mutation and after years of breeding, back breeding and optimizations, this variety now combines a good size and an attractive color with excellent stability and processability, which has made it a success story for growers and wholesalers/retailers alike. It is in particular the moisture-binding property of the tomato that increases food safety, because the environment is less favorable for bacteria. In addition, Intense™ has a longer shelf

life than conventional tomatoes, with the result that much less waste is produced during processing and storage owing to the dense and firm flesh of the fruit.

Chemical and biological crop protection

In 2012 Bayer CropScience's research and development strategy was realigned. The company focuses on four areas – developing integrated crop solutions across product boundaries, expanding expertise in seeds and crop protection products on a chemical and biological basis, encouraging cooperation between the global Bayer R&D centers and strengthening our networks with top external research institutes.

As part of a comprehensive €7 billion investment program in the period from 2011 to 2016, Bayer CropScience has set aside €5 billion exclusively to research and develop new solutions for the Seeds and (chemical and biological) Crop Protection operational units. Chemical crop protection remains essential in many agricultural areas if crop failures due to pests or disease are to be prevented. For example, the cereal fungicide Xpro™ is safe to use, yet it boosts yields by an average of five percent. The Luna™ product family was launched in 2012 to prevent losses for growers after harvesting. It guards against fungal infections, including in vines, pomeaceous fruit and some varieties of vegetables. What is more, it enables targeted, economical use and does not harm important beneficials.

Votivo™ uses bacteria (*Bacillus firmus*), for example to protect fruit and vegetables against nematodes that damage their roots. Such biological crop protection products became a particular

focal point for us in 2012. Thanks to our takeover of the u.s.-based company AgraQuest, which was successfully concluded in August 2012, and our acquisition in January 2013 of Prophyta, a German supplier of biological solutions, we will be well placed in the future to offer integrated, sustainable solutions.

Biologics – i.e. biological crop protection products – will play an important role at Bayer in the future alongside chemical crop protection. Essentially, this involves microorganisms that offer protection against harmful bacteria, fungi or insects. Bayer currently has a promising pipeline with new active ingredients for biological disease and pest control.

The value-added chain in focus

Crop breeding, cultivation and protection alone cannot ensure that a healthy, long-lasting product arrives on the shelves, however. Many products perish along the value-added chain, for example on the way to the consumer. Bayer's **Food Chain Partnerships (FCPs)** [31] support everyone involved in the food chain – from farmers and food processors to importers, exporters, wholesalers and retailers.

Bayer has initiated some 240 FCP projects in more than 30 countries, above all in Asia, Latin America and Africa. Experts from Bayer CropScience advise farmers on sustainable cultivation for good agricultural practices – from selection of seeds and the controlled and environmentally friendly use of crop protection products to transparent monitoring of production.

Our cooperation with partner organizations in joint projects is now an internationally successful business model for everyone involved in the food chain. Small-scale farmers in developing countries and emerging markets draw particular benefit from the improved production and marketing structures. In 2012 we initiated new partnerships in countries including China and India. Our partnership with the Chinese company Star Farm involves the production and marketing of high-quality varieties of vegetables such as tomatoes, cucumbers and peppers in Zhejiang Province. In India, Bayer has entered into a partnership with Mother Dairy to improve local vegetable cultivation. The project started in September 2012 with around 900 farmers who grow gherkins and tomatoes in the state of Karnataka. We are planning to extend the collaboration to crops such as bananas, mangoes and cauliflower.

Opinion

“Food Chain Partnership projects: a win-win situation along the value-added chain”

“UNIVEG and Bayer CropScience work together in the Food Chain Partnership projects in Europe, Latin America and Asia. Their common objective is to promote sustainable agricultural methods and help food retailers meet customer requirements in terms of quality, safety and traceability. One example of successful collaboration is a project launched in 2011 in Nashik, India, involving the purchase of table grapes from selected operators and growers. It is a win-win situation all round, with the farmers benefiting from the link-up to the value-added chain. With its crop protection expertise and training programs, Bayer CropScience helped improve the quality of the grapes, and UNIVEG was able to gain a reliable source of table grapes for the European market.”



Francis Kint, CEO of the Fresh Produce Business Unit at UNIVEG, the world's second-largest producer of fruit and vegetables



For lower energy consumption and enhanced climate protection

Resource and energy efficiency: innovative insulating materials such as the high-tech plastic polyurethane can crucially improve the efficiency of refrigerated appliances and thus their electricity consumption. They are also now used in refrigerated containers. Hans Schröder checks the cooling temperature so that the goods are still fresh when they reach the consumer.

For years, the worlds of business and politics have been concerned about rising energy prices, limited resources and the increasing risk of serious influence on climate change. The challenges are growing, but there is no sign of any effective international cooperation in areas such as climate policy.

This makes it all the more important for the individual players not to let up in their efforts to protect the climate and conserve resources – a strategy that Bayer systematically follows as a responsible member of society, and also in its own interest.

Energy and climate issues are of particular relevance to the Bayer MaterialScience subgroup. Its production of high-quality materials generates the highest emissions anywhere in the Bayer Group. We are therefore continuously working on lowering energy consumption and emissions of greenhouse gases in production operations. However, the subgroup also manufactures a large number of products that help save energy and cut greenhouse gas emissions in our everyday lives.

“Our innovations are responses to global challenges such as resource conservation, growing mobility and increasing urbanization. Based on our excellent

knowledge of the markets, we are working on solutions for the needs of today and tomorrow,” explains Patrick Thomas, Chief Executive Officer of Bayer MaterialScience AG.

Production processes: enhanced efficiency and new technologies

Under the [Bayer Climate Program \[32\]](#), Bayer MaterialScience has set itself the ambitious target of cutting specific CO₂ emissions by 40 percent between 2005 and 2020. This should play a part in helping the Group achieve its planned target of reducing direct and indirect emissions of CO₂ equivalents in relation to manufactured sales volume by 35 percent over the same period. The main ways in which Bayer MaterialScience is aiming to meet this target are reducing energy consumption and introducing new technologies.

A key aspect of this is the energy management system [STRUCTESE™ \(Structured Efficiency System for Energy\) \[33\]](#), a lighthouse project of the Bayer Climate Program certified to ISO 50001 and developed together with Bayer Technology Services. [STRUCTESE™](#), which has successively been introduced in the most energy-intensive production facilities since 2008, consists of three core processes. The

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Opinion

"Networks for the house of the future"

"The energy efficiency of many millions of buildings can and must be optimized. This would make a significant contribution to saving energy and protecting the climate. To illustrate just what can be done I would like to take an old commercial property in the center of my home town Bottrop as an example. The idea is for this building ultimately not only to consume much less energy but even to post an electricity surplus. For the all-round modernization process as part of Innovation City Ruhr initiative I favor the EcoCommercial Building Program. This offers me extensive expertise and product solutions that are precisely tailored to the property – for example energy-efficient windows, state-of-the-art lighting technology and rigid polyurethane foam insulation. I strongly believe that the ecv Building of the Future will be a valuable addition to Bottrop – and a blueprint for many other buildings."



Oliver Helmke, Managing Director of Oliver Helmke GmbH Projektentwicklung & Immobilien, Bottrop, Germany

in which Bayer MaterialScience is collaborating with well-known industrial and academic partners and benefiting from financial support from a number of German ministries (BMWi, BMBF, BML). Many of the previous trials with batteries of this kind were not as successful as hoped, but an industrial-scale breakthrough may now have been achieved thanks to the use of oDC technology. The partners see great potential here because, unlike other electrochemical systems, the batteries work with a high specific energy density. The zinc and potassium hydroxide required are affordable and available in large quantities. In addition, they can be recovered almost completely from old batteries.

Bayer Technology Services also heads up a research alliance with 15 academic and business partners aimed at finding ways of storing excess electricity from wind turbines. The objective of the CO2RECT (CO₂ Reaction using Regenerative Energies and Catalytic Technologies) [35] project is to use a new kind of electrolysis to produce hydrogen with the surplus wind power. This will then be combined with carbon dioxide supplied by the energy industry to obtain chemical intermediates such as carbon monoxide and formic acid that are used to make plastics including polyurethane and polycarbonate. In 2012 Bayer developed a new catalyst to recycle the CO₂ as part of this project. This represents a significant improvement over the previous state of the art. A chemical reactor, also developed by Bayer, that converts the carbon dioxide using hydrogen obtained through electrolysis delivers substantial cost benefits compared to conventional plants. Efforts have already begun at the INVITE research center [37] run jointly by Bayer Technology Services and the Technical University of Dortmund to bring the technology up to pilot plant scale.

The Dream Production [38] project that started in 2010 aims to incorporate CO₂ directly into polyurethane foam. This, too, is an interdisciplinary cooperation project led by Bayer. At a pilot plant in Leverkusen, a key polyurethane component is being manufactured using CO₂ from a power plant – initially for test purposes. This saves some of the petrochemical raw materials normally used. The results of material tests presented by Bayer MaterialScience in 2012 prove that the quality at least matches that of polyurethane manufactured in the conventional way and in some cases exceeds it. The company is planning to market the first CO₂-based products from 2015 onward.

Market solutions: lower emissions thanks to Bayer products

Along with environmentally compatible manufacturing processes, products from Bayer MaterialScience also help conserve resources and protect the climate. For example, energy efficiency measures in buildings – especially in thermal insulation – offer significant potential for reducing emissions that are harmful to the climate. Buildings are responsible for a large proportion of the world's energy

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Bayer Climate Check [34] first helps identify a facility's potential savings. Possible measures are then determined and successively implemented. Energy losses can be made transparent, which enables targeted improvements to be made. By the end of 2012, STRUCTese™ had been introduced at 50 facilities. The application of this management system has achieved energy savings of more than one million megawatt hours since 2008 and reduced annual CO₂ emissions by a good 300,000 metric tons.

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In the view of Bayer MaterialScience, eco-friendly manufacturing technologies are a key means of conserving resources and protecting the climate. One example is chlorine production, which accounts for two-thirds of the company's electricity consumption. To reduce the amount of electricity required, the Krefeld-Uerdingen site in Germany is testing oxygen depolarized cathode (oDC) technology [36], another lighthouse project under the Bayer Sustainability Program. Krefeld-Uerdingen has been successfully operating the world's first industrial-scale demonstration plant to produce chlorine from common salt since mid-2011, with an annual capacity of 20,000 metric tons.

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The new process, which Bayer developed in collaboration with partners, requires 30 percent less energy than the conventional membrane electrolysis technology. It is estimated that simply by introducing the process throughout Germany's chlorine industry, it would be possible to reduce its share of Germany's total power consumption from three to two percent. It is planned to offer this new process to other chlorine manufacturers from 2013 onward.

A current project to store electrical energy from renewable sources using zinc-air batteries demonstrates that oDC technology could also be a bridge technology. A research project was launched in 2012

consumption and just under one third of greenhouse gas emissions.

Polyurethanes, above all in the form of rigid foam, have proved highly beneficial for insulating buildings against the heat and cold. One way in which Bayer is demonstrating their possible applications as an insulating material is its [EcoCommercial Building Program \(ECB\)](#) [40] lighthouse project. This global network brings together property and project developers, architects, material manufacturers and specialists from areas including lighting and renewable energies such as photovoltaics and geothermal energy. The objective is to adopt an integrated approach with numerous different measures to develop customized solutions for reducing buildings' energy consumption and using renewable sources to cover the remaining requirements. In June 2012 the program won the "Best Practice of Global Green Building" accolade at the World Summit on Sustainable Development in Rio de Janeiro.

Bayer has used the ECB concept for a number of its own building projects, most recently in 2012 for an office building in the Chinese city of Qingdao that will generate all the energy it needs using environmentally friendly methods.

The ECB program initially focused on new buildings and the commercial sector. Its scope has since been expanded to include existing buildings and the residential sector. For example, the ECB Program forms part of the major project Innovation City Ruhr, which involves redeveloping several districts in the German city of Bottrop over the coming years to make them more environmentally friendly.

Another product innovation from Bayer MaterialScience protects people and buildings. In the event of an earthquake, a highly tear-resistant fabric will at least delay the collapse or breakaway of parts of the masonry. The EQ-Top™ system, which a partner company has been marketing since 2012, can be applied as simply as normal wallpaper. For this Bayer MaterialScience has developed a highly effective adhesive based on a polyurethane dispersion.

A highly promising development is delivering a substantial further improvement in polyurethane's insulating performance. The innovative material in question, Baytherm Microcell™, has a particularly fine structure. The pores are up to 40 percent smaller than in conventional rigid foam. This can further lower the energy requirements of refrigerators – a significant achievement given that refrigerators and freezers account for around one-fifth of domestic electricity consumption.

Baytherm Microcell™ is suitable for other applications, too, including the [Solar Impulse](#) [39] project. The idea of this is for a manned lightweight aircraft to circumnavigate the globe in 2015 using nothing but solar power. Highly efficient insulation is particularly important for the solar aircraft, because

it will be subject to very large temperature differences. In the second, further enhanced model of the aircraft, the new insulating material is used in parts of the lining of the cockpit designed by Bayer MaterialScience. Baytherm Microcell™ and other materials from Bayer MaterialScience also ensure that the plane is as light as possible.

Lightweight construction is particularly important in the automotive industry. The less a vehicle weighs, the less fuel it consumes and the lower its emissions. In addition to polyurethane, polycarbonate also plays a key role here. Among other applications, this high-performance plastic is suitable as a substitute for glass, thereby reducing the weight of components by up to 50 percent.

This is accompanied by considerable freedom of design and advantages in heat management, which plays a particularly important role in electric vehicles. Here, polycarbonate glazing reduces the energy requirements of air conditioning and heating systems because it lets little heat and infrared light through. In combination with lightweight construction, this considerably increases the range and thus market acceptance of electric mobility. Flame-retardant grades of this material also can be offered for housings for drive batteries, thereby contributing to the safety of the drive concepts of the future.

Polycarbonate is the material of choice for headlight diffusers and lenses. They focus the light from LEDs, which are being used increasingly in automotive lighting, and consume far less energy than conventional lamps.

Polycarbonate also makes street lighting far more efficient. Bayer MaterialScience has developed a special material grade for the corresponding LED lenses. It is used in the Eco StreetLine modular lighting system sold by partner company Hella, which boasts up to 70 percent lower energy consumption than a conventional street light. The system also contributes to reduced light diffusion, which helps tackle the problem of light pollution that so many people complain about.

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In dialogue

Gunnar Friede, Senior Fund Manager at DWS Investments:

“Neglecting sustainability will damage your company’s image on the capital market.”



Bayer attaches great importance to dialogue with its stakeholders. The company’s sustainability strategy, the role played by innovation and the demands made on good corporate governance by the capital market were issues that recently took center stage during a discussion between Professor Wolfgang Plischke, member of the Board of Management of Bayer AG responsible for Innovation, Technology and Sustainability and the Asia/Pacific region, and Gunnar Friede, Senior Fund Manager at DWS Investments. Read on to find out more about what the two men had to say about some of the key issues discussed.

Focal points of the Bayer sustainability strategy

Plischke: *Bayer has a long tradition of sustainability and it occupies a very important position in our strategy. That is why over the last six years we have established a comprehensive Sustainability Program. This program essentially focuses on combining continued commercial success in the future with social and environmental needs. Take climate protection, for example. First and foremost, we have set ourselves specific targets for reducing CO₂. These being pursued with zeal by the company, we’ve made such good progress that we’ve been able to set even more ambitious targets. Our strategy also includes responsible business practices and sound risk management. These factors are fundamental to our operational business, which involves, for example, process reliability, compliance, product stewardship and sustainability in procurement. These must all be on a solid foundation. It is our goal to develop and market innovations that open up business opportunities for the company, make a contribution to society and create a positive environmental image.*

Friede: *We have long been calling on companies to incorporate sustainability into their strategy at Board level. This is the only way to successfully integrate non-financial aspects in the*

long term. Bayer is one of the few German companies that have already put these ideas into practice. A comprehensive analysis of a company and its prospects must include statements on sound corporate governance and future viability. These will become financial aspects in the long term. That’s why our analysts are obliged to observe environmental, social and governance ratings (ESG) and factor them into their analyses. If we don’t see any positive developments over a specific period, we dig deeper and never rule out the possibility of withdrawing from an investment.

The role played by innovation in the sustainability of companies

Plischke: *A company must be innovative to be sustainable. This is the only way to find convincing answers to the urgent questions of our time. Companies that are not innovative find it hard to strike a successful balance between social, societal, ecological and economic requirements.*

Friede: *I agree. As an investor, I am fascinated by what the future holds and aspects that cannot always be quantified. How can you manage your capacity for innovation? Are there trends and key indicators that show whether your employees will still be innovative in the future?*

Plischke: *Our outstanding capacity for innovation is based on several factors. First and foremost, we have a clear mission: “Bayer: Science For A Better Life.” This means we aspire to improve people’s lives with our*



Gunnar Friede, Senior Fund Manager at DWS Investments (mutual funds business of Deutsche Bank). Worldwide, with funds under management of €283 billion, DWS is one of the 10 largest fund providers in the world.



Prof. Wolfgang Plischke, member of the Bayer AG Board of Management responsible for Innovation, Technology and Sustainability and for the Asia/Pacific region

“A company must be innovative to be sustainable.”

innovations. However, this demands consistently high investments in research and development. In the last five years, we have always maintained a research budget of around €3 billion, regardless of economic developments. It is also important to have a policy of sound innovation management with clear structures, focus and discipline coupled with a corporate culture that offers researchers a suitable working environment and reinforces the importance of innovation – and therefore researchers – for our company. We also measure our sustainable innovative strength through additional KPIs, such as the number of patents registered each year and the quality of these patents.

Friede: *Alongside efficiency, I believe that capacity for innovation is one of the main drivers of sustainable corporate value. Together, these factors lead to profitability and create tangible values for stakeholders and stockholders. In the past few years, the capital market has focused more on risks when analyzing corporate sustainability, but the balance has now shifted in favor of growth opportunities. These two aspects belong together, because companies have to manage risks on the one hand while ensuring capacity for innovation on the other. The weighting depends on the business and the business model. To build up a better picture of a company's capacity for innovation, it is important to focus not only on the reporting of R&D expenditure, qualification and training activities and employee absences but also on the measures taken to improve employee satisfaction.*

The value of companies with a stronger sustainability policy

Friede: *Around three quarters of empirical analyses indicate that sustainability leads to a neutral or better opportunity/risk profile. As a sustainable company, the bonus you receive may be small. However, you pay a high price for neglecting sustainability, because your company will receive a lower rating from the capital market. The sense of what makes a good company has changed in recent years. A good quarter of all globally listed assets are managed by signatories of the UN Principles for Responsible Investment (PRI). And this figure is on the rise. Sustainable*

business practices have become part and parcel of good and forward-looking corporate governance. Our analysts today are committed to taking a very close look at companies in our investment portfolio that fall into the bottom quarter of the ESG rating. Sooner or later, this will have an impact on our investment decision.

Plischke: *Without a doubt, sustainability has a direct impact on improving resource and energy efficiency. And this is the leverage that leads directly to economic benefits. For example, if you can significantly reduce the energy costs of polymer production, this creates a clear competitive advantage.*

Advantages of integrated reporting

Plischke: *From reporting year 2013 onwards, we want to reflect the links between sustainability and long-term value development by combining our annual financial and sustainability reporting in an integrated annual report. We believe this creates a more accurate picture of how the interactions between financial, ecological, social and governance factors impact on long-term corporate success. We are also aware that there is greater demand for transparent, quantifiable and thus comparable information on all data that have a bearing on finances: investment decisions need quantitative information.*

Friede: *I am delighted to hear about these developments. Bayer is one of the first companies in Germany to adopt this pioneering format. It is important to retain as much information as possible from both reports. Capital market players and stakeholders can pick out the information they need. Ideally, it would be good to have defined key sustainability indicators in the quarterly report and investor presentations, confirmed by external verification. This is the only way to ensure that sustainability really is an integral part of the corporate and business strategy.*

Management & Corporate Governance



Web-based training to fight corruption: January 2013 saw the launch of the new compliance training program to counter corruption. Its goal is to raise awareness of critical situations relating to bribery, gifts and favors. Millie Ruffin de Tekampe and Daniel Weber test the new training program.

this. Wide-ranging risk management helps us identify and control possible risks as early as possible, as well as derive opportunities from them. We also contribute to positive economic and social development through our activities in the regions in which we operate. Through numerous Group regulations and binding corporate positions on important or controversial issues, we improve the understanding and perception of our social and ecological responsibility in all operational units of the company. Responsible corporate governance is the basis for sustainable growth and business success. We are convinced that by [integrating sustainability \[41\]](#) at all levels and in all functions of the Bayer Group, we help to positively impact the value of the company.

Corporate governance

Bayer has always placed great importance on responsible corporate governance. We follow the recommendations of the [German Corporate Governance Code \[42\]](#) and are in full compliance with the current version of May 2012. Further information on corporate governance can be found in the Corporate Governance Report on page 118ff. of the Annual Report 2012, which provides extensive information on how the Board of Management and Supervisory Board work and on their control mechanisms.

Group leadership and compensation

Bayer AG is a strategic management holding company directed by a Board of Management that establishes long-term objectives and strategies for Bayer AG, its subgroups and service companies, and defines directives and principles for the resulting corporate policy. The Board of Management decides on the portfolio, develops and deploys managerial staff, allocates resources and holds responsibility for the Group's financial steering and reporting. Business operations are managed by the three Bayer subgroups, each of which has its own Board of Management, as well as by the Bayer service companies and their managing directors/executive board chairmen.

The role of the 20-member Supervisory Board of Bayer AG is to oversee and advise the Board of Management. Under the German Codetermination Act, half the members of the Supervisory Board are elected by the stockholders, and half by the company's employees. 15 percent of its members are women, while 85 percent are men. The company aims to increase the proportion of women to at least 20 percent over the medium term and for the female membership to be distributed as evenly as possible between the stockholder and employee groups. The Supervisory Board is directly involved in decisions on matters of fundamental importance to the company, conferring with the Board of Management on the company's strategic alignment and regularly

Bayer is a globally operating enterprise active in the fields of health care, agriculture and high-tech materials. Through innovation, growth and high earning power, we want to create value and safeguard it over the long term through recognized principles of responsible corporate governance. We have established value systems, corporate directives and management systems as the basis for this endeavor.

Our company culture is heavily rooted in our mission "Bayer: Science For A Better Life" and in our concept of values. These values are summarized under the acronym [LIFE \[43\]](#), which stands for Leadership, Integrity, Flexibility and Efficiency. These principles guide us in our business actions and ensure a common identity across national borders, hierarchies and cultural differences from which we derive entrepreneurial strength.

The responsible management of Bayer is based on one of the four [LIFE](#) elements: the integrity of our employees and managerial staff. We understand this to mean compliance with all laws, directives and regulations and being an honest and reliable partner for all our interest groups. Clear [corporate governance structures \[44\]](#) and transparent principles for worldwide compliance serve as the foundation for

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discussing the implementation status of the business strategy. The Supervisory Board deals with issues such as compliance and the cultural diversity of the management.

The compensation of the Board of Management and the Supervisory Board at Bayer complies with legal requirements, including German legislation on the appropriateness of the compensation of members of management boards (VorstAG). In addition, Bayer also follows the recommendations of the German Corporate Governance Code as regards the compensation of the Board of Management and Supervisory Board. In 2012 the compensation of the Board of Management again basically comprised five components: a fixed annual salary, a short-term variable cash compensation award on a yearly basis in relation to a target amount, a long-term variable cash compensation component involving a grant of virtual Bayer shares subject to a three-year retention period, a long-term stock-based cash award with a term of four years, and pension entitlements for the Management Board members themselves and their surviving dependents. Finally, compensation in kind and other benefits are also granted, such as the use of a company car for private purposes or reimbursement of the cost of health screening examinations. The structure of the compensation system is aimed at ensuring performance-oriented corporate governance and a long-term increase in the company's value. The sustainable alignment of this compensation is underscored by the fact that, at approximately 40 percent, the long-term variable cash compensation is the most significant portion of the target amount (comprising fixed salary, short-term variable cash compensation and long-term variable cash compensation). Fixed salary and the short-term variable cash compensation account for approximately 30 percent each. Safety, compliance and sustainability aspects are also taken into consideration in the calculation of the short-term variable compensation and part of the long-term variable compensation.

Following a resolution by the Annual Stockholders' Meeting of April 27, 2012, the compensation of the Supervisory Board was changed to purely fixed compensation. According to the provisions of the Articles of Incorporation, each member of the Supervisory Board receives fixed annual compensation of €120,000. The Chairman and the Vice Chairman of the Supervisory Board, as well as the chairmen and members of the committees of the Supervisory Board, receive additional compensation. In connection with the adjustment in the Supervisory Board compensation system decided by the 2012 Annual Stockholders' Meeting, the members have given a basic pledge that they will each purchase Bayer shares for 25 percent of their fixed compensation and hold these shares for as long as they remain members of the Supervisory Board. Through this pledge, the Supervisory Board members reinforce their interest in the long-term, sustainable success of the company. For details on the compensation of the

Board of Management and the Supervisory Board, see the Compensation Report on page 124ff. of the Annual Report 2012.

Compliance at Bayer

Bayer expects the conduct of every employee to be characterized by integrity at all times – fully in line with our LIFE values. The company does not tolerate any violation of applicable laws, relevant codes of conduct or internal regulations.

In the [Corporate Compliance Policy \[45\]](#), the Group Management Board outlines the company's clear commitment to corporate compliance and specifically states that it will forego any business that involves violating these principles. This policy contains commitments to fair competition, integrity in business dealings (i.e. zero tolerance for corruption among other aspects), the principle of sustainability and product stewardship, the upholding of foreign trade laws and insider trading laws, proper record-keeping and transparent financial accounting, fair and respectful working conditions, and avoidance of all forms of discrimination. Bayer Corporate Auditing also regularly evaluates the observance of the Corporate Compliance Policy through special audits. 225 audits were performed in 2012 on the basis of a risk-oriented audit planning process that takes into account corruption risks among others. These included 50 compliance audits, which were both of a preventive and incident-based nature. The observance of the Compliance Program is also a major focus of all regular audits.

The Group Compliance Officer holds highest responsibility within the company for this issue and reports directly to the Chairman of the Board of Management. At least once a year, the Group Compliance Officer and the Head of Corporate Auditing report to the Audit Committee of the Supervisory Board on any compliance violations that have been identified. The operational coordination of Group-wide compliance activities is handled by the Group Compliance Office. The subgroups and service companies have their own compliance officers. They are responsible, among other tasks, for establishing and complying with subgroup- and industry-specific standards. Each Group company with business operations has at least one Compliance Officer available to all employees to support and advise them in issues regarding legally and ethically correct conduct in business situations.

A total of 197 (out of more than 200) compliance officers, code compliance officers and compliance functions took part in regional workshops up to the third quarter of 2012. They received standardized training and information on current compliance issues.

With the new compliance organization introduced at the end of 2011, Bayer is responding decisively to the heightened legal and regulatory requirements

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worldwide. The realignment of the compliance organization is oriented around international standards such as the OECD Recommendations of the Council for Further Combating Bribery of Foreign Public Officials in International Business Transactions [46]. The alignment of our compliance organization is focused on the LIFE values and a sound compliance culture as a basis; globally harmonized standards, structures and processes; prevention; and the provision of sufficient resources.

Corruption is regarded as one of the major challenges around the world. Bayer does not tolerate corruption in any form because it interferes with fair competition and economic development and damages the company. We updated the Group's Anti-Corruption Procedure, which includes responsible marketing, with effect from January 1, 2012. This is designed to help our employees avoid possible corruption problems. In the procedure, we explicitly refer to our values and our obligations within the framework of the United Nations Global Compact.

For Bayer the planned introduction of COMPASS (Compliant Partnership And Sincere Services) is another step toward the implementation of globally recognized compliance standards. This program is designed to examine selected Bayer business partners with regard to the observation of compliance requirements. This monitoring, also known as third party due diligence, was tested in a pilot project undertaken in five countries on four continents in July and August 2012. The pilot phase already examined some 200 business partners overall and involved around 100 employees. A second pilot project is being planned.

We want to raise awareness among all employees about the importance of compliance and how they can avoid overstepping boundaries out of ignorance or uncertainty. By strengthening our compliance organization and expanding our communication and training activities, we ensure that all employees have access to any advice they may need on this topic.

The range of compliance training measures is therefore being further expanded to more systematically train our employees, and the brochure on our Corporate Compliance Policy is available in 42 languages. By the end of 2012, just under 26,000 managers worldwide had successfully completed the web-based training module entitled "Corporate Compliance Basics" that was introduced in 2010. By the end of 2012, employees in 68 countries had completed just under 57,500 training sessions particularly in the areas of anti-corruption, introduction to compliance and conflicts of interest. Since 2012 all new managers automatically receive an invitation within the first six weeks of employment to complete the web-based training on the Corporate Compliance Policy. In the United States, a separate obligatory anti-corruption training course according to the Foreign Corrupt Practices Act (FCPA) was carried out for all employees of Bayer HealthCare

in 2012. 8,500 employees have participated in this so far.  *More than 90 percent of the Group's 32,300 managerial employees worldwide have taken part in at least one of the above compliance training sessions since 2010. In the year under review the focus was on training new managerial staff in particular, of which some 900 completed the Corporate Compliance Basics training in 2012.*

A web-based training course on corruption prevention was also developed in 2012. The central aspect is the definition of corruption and the question of how employees can avoid exceeding boundaries due to ignorance or uncertainty. The training course has been translated into nine languages and is obligatory for all employees. It was launched in January 2013.

Despite the expanded range of information, risk analyses and monitoring will remain necessary in the company. Bayer thus aims to ensure the implementation of compliance standards worldwide, as well as rapid response in the event of irregularities. Violations can have serious consequences, both for the company and for individual employees. The company strives to prevent these through the more efficient structures of the Bayer compliance organization.

The issue of compliance was the subject of a broadly based communication campaign in 2012. The campaign aimed to inform all employees more extensively about compliance and consulting services offered by compliance employees, and to heighten awareness among the workforce for compliance-critical situations.

The Bayer intranet and internal print media also reported on the new anti-corruption rules, the realignment of the global compliance organization and the launch of the COMPASS project for examining compliance among business partners. In addition to regular compliance reporting by the Bayer News Channel, there were interviews with the Chairman of the Board of Management of Bayer AG and the General Counsel and Group Compliance Officer of the Bayer Group. The subgroups and service companies also made compliance a topic of their communication and training measures. The Compliance Newsletter is made available to all employees worldwide twice a year through a newly designed intranet website.

Another communication element used by Bayer since 2012 involves video clips depicting typical compliance-relevant scenes. The first film dealt with anti-corruption. The clips can be viewed on the Bayer News Channel and the compliance website.

In the second half of 2012, nearly 10,000 employees were invited to anonymously take part in the first-ever international compliance survey in eight country organizations in the Bayer Group. The results were communicated via the Bayer News Channel and the compliance website.

Corporate compliance is a standard of conduct that is relevant to all Bayer employees. It is valid for employees at all levels, in all parts of the company and in all countries. Every Bayer employee must comply with legal and company-specific rules, and is obligated to immediately report violations of the Corporate Compliance Policy. This general reporting obligation does not apply in France due to the nature of national law there. Hotlines that also allow anonymous reporting have been set up worldwide. In the year under review, our central compliance hotline and mail address registered 52 relevant reports, 20 from Germany and 32 from other countries. Of these, 43 reports were received by e-mail (nine of them anonymously), seven by phone (five of them anonymously) and two anonymously by mail. Alternative reporting channels for suspected cases of compliance violations alongside the central compliance hotline and mail address are the additional local hotlines of the country organizations, the compliance officers and Bayer's Corporate Auditing Department. All suspected cases of compliance infringements are recorded according to uniform criteria and processed according to the rules of the Directive on the Management of Compliance Incidents.

Managerial employees in the Bayer Group play a special role in the implementation of the Corporate Compliance Policy. As role models, they are integral to ensuring that this important code of conduct is actively lived at Bayer. Managers can lose their claim to variable compensation components and must expect further disciplinary measures if systematic violations of the applicable legislation with corresponding damage to Bayer have occurred in their sphere of responsibility and could have been prevented if they had taken appropriate action. Compliant conduct has been included in the performance evaluation of all managerial employees since 2012.

Responsible marketing

We are convinced that responsible marketing must be based on sustainable principles. Bayer does not tolerate any legal violations in the marketing of its products. Responsible marketing also involves upholding ethical and moral principles that are expressed, for example, in transparent, consistent and reliable communication with our target groups, obligate us to regularly evaluate our products, and necessitate the initiation of suitable measures if necessary.

Our Group [Responsible Marketing & Sales Policy \[48\]](#) was adopted in 2012 and implemented in various ways in the subgroups (see pages 41, 42, 45).

Risk management

The management of opportunities and risks at Bayer is an integral part of the Group-wide corporate governance system, not the task of one particular organizational unit. Both are systematically and

continuously identified and analyzed in our company. Risks are defined as events and possible developments within or outside of the company that could jeopardize the sustained growth of the company. Risk-relevant information is compiled at least three times a year and also on an ad hoc basis where necessary, and recorded in a database. The documentation contains a description of the risk, an assessment of the extent of possible damage and the probability of occurrence, and a list of measures to monitor and counteract the risk. The criteria are set out in a special procedure (BayRisk Instruction). At the Group level, the Chief Financial Officer is responsible for risk management. Equally clear responsibilities within the organizational units ensure the efficiency of the risk management system. The Bayer Group's risk management system and its implementation in the subgroups are assessed systematically in connection with the annual financial statement audit. More information on [risk management in the subgroups \[47\]](#) can be found in our online report.

Sustainability-relevant risks

Sustainability aspects are included in our risk management because they play a part in safeguarding the company's value. Along with excellent product quality and corporate compliance, they form the basis for the long-term sustainability of our business operations and business success. Specific sustainability-relevant risks include, for example, issues pertaining to safety and the environment. The manufacturing of chemical products is always subject to risks associated with the production, filling, storage and transportation of raw materials, products and waste. Should they materialize, these risks may result in personal injury, property damage, environmental contamination, production stoppages, business interruptions and liability for compensation payments.

We address risks in the areas of health protection, occupational and plant safety, emergency response, environmental protection and product quality with an integrated health, safety, environmental protection and quality (HSEQ) management system. The Bayer Emergency Response System (BayERS) is compulsory at production sites of the company at which hazardous materials are handled. The basis for this is set forth in the Group Directive on Security and Crisis Management. To minimize risks originating from our distribution channels, we integrate our suppliers into our risk management system (see page 29f.). When acquiring other companies, we examine prior to the transaction whether the applicable environmental and occupational safety regulations are observed at the relevant production sites.

A detailed opportunity and risk report can be found on page 148 of our Annual Report 2012. In addition, we disclose climate-related risks and opportunities, as well as their financial impact, in our annual report to the [Carbon Disclosure Project \(CDP\) \[49\]](#).

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Legal risks

As a global company with a diverse business portfolio, the Bayer Group is exposed to numerous legal risks, such as those in the areas of product liability, competition and antitrust law, patent disputes, tax assessments and environmental protection legislation. The outcome of any current or future proceedings cannot be predicted. It is therefore possible that legal or regulatory judgments or future settlements could give rise to financial expenses that are not covered, or not fully covered, by insurers' compensation payments and could affect our business. Legal proceedings currently considered to involve material risks are described on page 271ff. of the Bayer Annual Report 2012.

Stakeholder dialogue

Many stakeholders evaluate companies according to more than just whether they conduct themselves "legally." Rather, they are also interested in whether these activities are "legitimate" from their viewpoint. Arguments in favor of or in opposition to an issue are sometimes expressed with a high level of engagement. Only open and transparent dialogue

can help to win the acceptance of societal interest groups with regard to entrepreneurial action. As a socially engaged, globally operating company, we know that systematic stakeholder dialogue is an essential foundation for improved mutual understanding. We therefore take the views of our stakeholders very seriously. They are a valuable indicator for the discovery of improvement and development potential, the more rapid identification of risks and trends, and thus also new market opportunities.

Moreover, no one can solve the current global challenges of sustainable development on their own. As the problems are closely interlinked, the solutions must be as well. For this reason, effective cooperation between stakeholders is needed. This is just one more reason why constructive dialogue and concrete cooperation with a large number of engaged stakeholders are so important at Bayer.

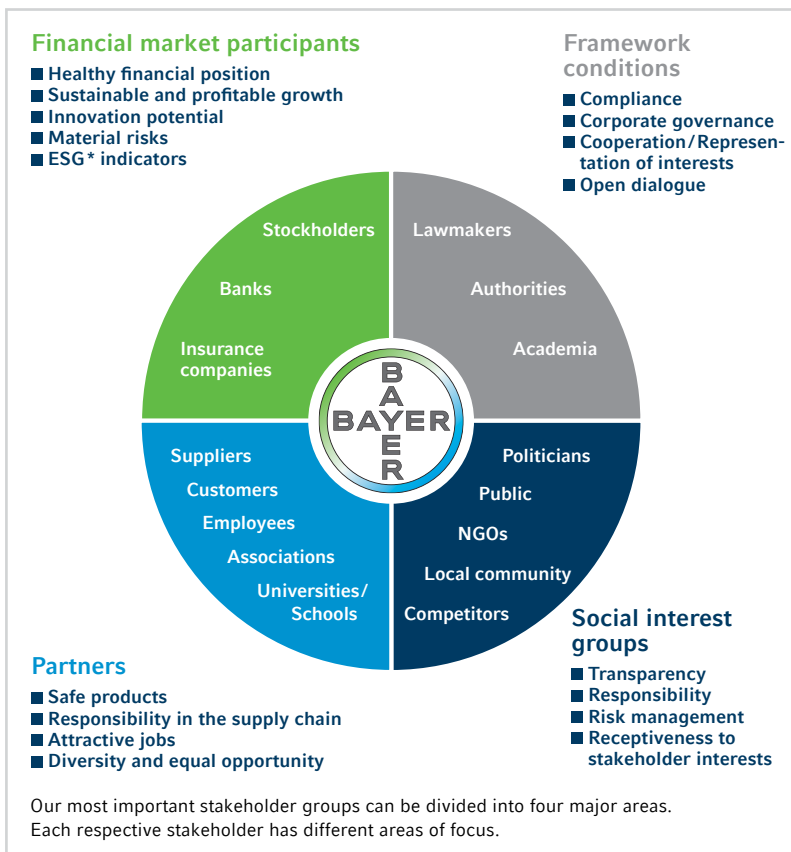
Our direct partners are our employees, customers and suppliers. The group comprising financial market participants safeguards our refinancing capacity. Important stakeholder groups for our company also include representatives of public interest groups, such as residents in the communities near our sites, non-governmental organizations, multilateral organizations, politicians, and the general public. Finally, we operate within a framework of action that is determined by legislation, scientific findings and public bodies. Graphic 1

At the local, national and international levels, we seek targeted discourse with our stakeholders in numerous forms – from surveys through participation in public events to confidential discussions and the use of tools such as the Stakeholder Check developed for strategic capital expenditure projects. This tool is designed to enable us to consider at an early stage the views of potentially critical stakeholders in preparation for major investment decisions. The Stakeholder Check is recommended particularly for strategic capital expenditures with a volume of €20 million or more. Such dialogue processes broaden the perspectives for mutual interests and create social trust. This can also have economically meaningful implications. As an example, read on the internet about the [TDI plant \[50\]](#) project in Dormagen.

In discourse with representatives of our stakeholder groups, we openly explain viewpoints and courses of action to one another. Together, we identify challenges and analyze them from various perspectives. We also ask our stakeholders which sustainability themes they consider to be of importance to Bayer, as well as how they rate our performance in the current subject areas. We also seek their opinion on the content and form of our sustainability reporting.

We want to further strengthen and sharpen the strategic focus of our stakeholder commitment in the future. We therefore initiated a longer-term project

1 Overview of our most important stakeholder groups and their main areas of interest



* ESG = Environmental, Social and Governance

in the second half of 2012, the first step of which is to take stock of our current stakeholder commitment. The project comprises various workshops, including training measures for the top management level, as well as intensive benchmark studies and best-practice analyses. It is intended to develop plans of action in various project teams over the course of the year.

A detailed overview of our [stakeholder groups \[52\]](#) and the type and frequency of discourse, as well as information on stakeholder surveys and numerous practical examples from Bayer AG and its subgroups and service companies from 2012, can be found in the online report.

Lobbying

Our stakeholders at the political level include, in particular, political parties, legislators, authorities, foundations and political interest groups that decisively shape the framework conditions of our business. At the same time, they have an active interest in industry’s expertise and commercial success. Our participation in political decision-making processes therefore is not just legitimate, but also demanded. Bayer has set clear rules for activities in this area through its [Code of Conduct for Responsible Lobbying \[54\]](#), and aims to ensure transparency in cooperation with political institutions.

Within the Bayer Group, the Public and Governmental Affairs Committee is responsible for the strategic planning of Bayer’s political work. This includes especially dealing with specific political matters, as well as specifying the company’s political positions. In 2012 Bayer’s [political lobbying \[55\]](#) again focused on the acceptance of products and technologies in society, fostering and recognizing innovation, sustainable health care systems, chemicals management, and energy policy and climate protection.

Our liaison offices in Berlin, Brussels, Washington, Moscow and Beijing serve as key interfaces to policy makers. Bayer was one of the first companies in the life science sector to be entered in the [European Commission’s lobby register \[56\]](#). We disclose the relevant costs of our lobby work at the E.U. level (approximately €2.8 million in 2012). In accordance with our guidelines on political activities, we enter the company into all transparency registers established by the government regardless of whether such entries are voluntary or legally prescribed, as was the case at the beginning of 2013 in [Austria \[57\]](#). Bayer will therefore participate in such a register in Germany should a similar initiative be introduced there. In 2012 we spent €1.18 million on our liaison office in Berlin. That figure comprises personnel, operating and project costs. In the United States, Bayer discloses its lobbying costs in several [public databases \[51\]](#).

In keeping with our directives, we have committed not to make any direct donations to political parties, politicians or candidates for political office.

However, some associations to which we belong make donations on their own initiative, in compliance with statutory regulations. In the United States, it is legally prohibited to directly support political candidates through donations. Some of our employees in the United States utilize the opportunity to support individual candidates for political office by making private donations out of their own resources via the Bayer Corporation Political Action Committee (BayPac). Political action committees in the United States are government-regulated, legally independent employee associations. Consequently, such donations are not donations made by the company. The BayPac contributions are regularly reported to the [u.s. Federal Election Commission \[53\]](#) and can be viewed on the Commission’s website.

Regional commitment

Through their international presence, Bayer’s companies support economic development in various ways in many parts of the world. Our regional commitment is oriented around proximity to our customers and customer markets. We maintain production sites worldwide, invest in local research and development, create jobs regionally and forge supplier relationships. We also systematically implement social needs activities at our sites around the world. Our regional presence strengthens our ties to our customers, and also lowers transport costs and reduces the burden on the environment compared with exports. As an employer we create jobs in industrialized nations, emerging markets and developing countries, improve purchasing power through wages and salaries, and support public infrastructure through regional taxes.

We drive forward personnel development and talent management particularly in the growth regions, train local employees for leadership tasks and promote cultural diversity in the workforce through increased internationalism and supporting women in management. We also offer our employees worldwide a high level of social protection, including by contributing to health insurance and pension plans (see Employees chapter on page 50f.).

The growth markets of Asia have become a particular focus of our business in recent years. Bayer has been present there for many years – particularly in China, India and Japan – through its country organizations, and the continent was once again an important growth region in 2012. Bayer plans to invest some €1.8 billion in property, plant and equipment in Asia through 2015 to further expand its production, distribution network and research capabilities there, and thus improve the local availability of our products. In our capital expenditures, we always take into account sustainability aspects and often go beyond statutory requirements. For example, we perform a voluntary ecological assessment for all capital expenditure projects exceeding €10 million.

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News

Interim goal achieved for CO pipeline

Bayer MaterialScience has made progress with the planned carbon monoxide pipeline [58] in North Rhine-Westphalia. In its role as approving authority, the Düsseldorf district authority laid out specific requirements on a number of improvements to be made regarding earthquake safety. The Düsseldorf Administrative Court prescribed these in 2011, while at the same time confirming the high safety level of the pipeline. Bayer MaterialScience has already begun work on meeting these requirements. The company has also applied to the district authority to make changes to the plans, as the course of the pipeline had to be changed slightly in places. This took into account small obstacles that only became apparent in the course of construction work. The 67-km-long pipeline, which is almost complete, will supply the Krefeld-Uerdingen site with carbon monoxide from the Chempark Dormagen site. The state parliament of North Rhine-Westphalia has determined on a number of occasions that the project serves the public good because it strengthens the economic structure of the state.

formed a research partnership in Australia with the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and the Grains Research and Development Corporation (GRDC) to increase wheat yields, and opened a European wheat breeding center in Gatersleben, Germany.

In January 2012 Bayer MaterialScience opened the Center for Process Research in Dormagen, Germany, which will focus particularly on research into precursors for polyurethanes. In May plans were announced to construct a global wind energy competence center at the site in Otterup, Denmark. In 2012 we initiated a collaboration in robotics with Cyberdyne in Japan. Here, Bayer materials were tested on this manufacturer's successful exoskeleton, which facilitates mobility for people with limited motion. Bayer MaterialScience provides funding for the Bayer-Tongji Eco-Construction & Material Academy at Tongji University in Shanghai, China, for the development of innovative, sustainable solutions in building construction.

Growth in emerging markets and particularly in developing countries also means finding solutions for the specific challenges that exist there, as exemplified by the following examples. In Russia, for example, the Bayer HealthCare subgroup is accompanying the current reorganization of the country's health care system in connection with the "Pharma 2020" reform program, with which the government aims to increase by 10 years life expectancy among the population by 2020. With this objective in mind, the program will endeavor to improve health care, establish a public health insurance system and modernize the pharmaceutical industry. Bayer will help to carry out education and prevention programs. Also planned is an initiative to improve the diagnosis options available to cardiovascular patients in provincial towns and support advanced training courses for physicians and pharmacists.

Bayer CropScience aims to help increase agricultural productivity in Africa and intends to expand its presence on that continent. The subgroup's range of products and services is tailored to the needs of African farmers and includes integrated crop solutions based on improved seed varieties and modern crop protection technologies, as well as product safety programs and training in good agricultural practice. The key to rural development and affluence in Africa, however, is public-private partnerships – in other words, cooperation between local governments, farmers' associations and cooperatives, non-governmental organizations, agricultural supplier industries, and banks and insurance companies. More information on [Bayer CropScience's commitment \[59\]](#) to these projects is available on the internet.

Bayer CropScience also wants to help raise living standards in rural areas of India by increasing value-added and ensuring this is reinvested in the community. In 2010 it therefore launched

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Major strategically relevant capital expenditures undertaken last year by the subgroups for property, plant and equipment are described on page 88 of our Annual Report 2012.

Through collaborations worldwide in the field of research and development, Bayer aims to assemble a global research community and thus safeguard highly qualified jobs on various continents. Around the world, we enter into collaborations and alliances with universities, public research institutes and partner companies. These alliances are supplemented with regional research models such as crowdsourcing and incubators in the United States and innovation centers known as science hubs in the growth regions such as Asia. You can read more on this on page 101ff. of our Annual Report.

Bayer HealthCare is expanding its strategic partnership with Tsinghua University in Beijing, China, in the area of innovative pharmaceutical research. Furthermore, the subgroup is expanding its existing collaboration with Amgen Research for the development of a further antibody to treat various tumor types. In the area of Animal Health, the company is supporting a project in Italy in which the therapeutic importance of animals (particularly dogs) is being more closely studied in the treatment of Alzheimer's disease. The company's partners here are the Italian Alzheimer's association AIMA and the Molina Foundation. In September 2012 Bayer HealthCare inaugurated a new center for bioscience start-up companies in the Mission Bay district of San Francisco, California, United States. The aim of the CoLaborator concept is to support young academic researchers in setting up the laboratories at their start-ups.

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Bayer CropScience is active in numerous international research collaborations for the development of agricultural crops and crop protection products, especially to account for the growing demands resulting from changing climate conditions. One focus here in 2012 was on wheat, as we entered into a cooperation agreement with Texas A&M University in the United States for the optimization of wheat breeding. We

the Model Village Project. The Bayer Prayas Rural Development Association was established in 2011 for local coordination of all activities in the two current model villages. The organization ensures that as the project advances, other partners – including those not directly involved in agriculture, such as non-governmental organizations or local companies – will be able to join the association. In 2012 four “lead farmers” introduced the previously tested droplet irrigation technology in their fields and had the opportunity to convey the advantages to further farmers during field days. We also commissioned a drinking water purification plant, conduct health camps and promote school attendance through targeted measures such as scholarship programs. We are currently evaluating a comprehensive project approach for these model villages. The focus of activities in 2013 will be on increased productivity and the systematic introduction of cotton seed production to boost farmers’ incomes. The progress of the project is being evaluated by independent professors from Pforzheim University in Germany. Bayer CropScience will subsequently appraise the feasibility, scope and scalability of the project. Another objective is to ensure that the workers in fields contracted by Bayer CropScience are paid fairly.

In the following chapter you can read about how our purchasing volume represents a substantial economic development factor in many regions. In addition to business relations with customers and suppliers, Bayer also implements targeted social needs activities at its sites around the world. Further information is given in the Social Commitment chapter on page 67.

Supplier management

We exert considerable influence on society and the environment in many regions through our purchasing volume. In the reporting period, we purchased goods and services from about 101,000 suppliers in 125 countries for approximately €18.1 billion in total, and reported these purchases in the central ordering system. Among OECD countries, Germany, the United States and Japan accounted for just under 67 percent of these expenditures. This corresponds to about 56 percent of total procurement spending by the Bayer Group. The three BRIC countries China, Brazil and India accounted for 13 percent of total expenditures, or 73 percent of total spending among the non-OECD countries. Tables 2 and 3

Sustainability in procurement

Sustainability-based supplier management is a strategically important lever for Bayer – both for safeguarding global competitiveness and supply security and for ensuring efficient processes and lowering reputation risks. Responsible conduct throughout our entire supply chain enables us to maintain stable and long-term relationships with our business partners. The Group-wide policy guidelines issued by our Procurement Community – and directed toward all

employees with purchasing responsibility – set out the principles of our procurement policy. Cooperation with our suppliers is based on our [Supplier Code of Conduct \[60\]](#), which describes our sustainability principles and requirements in transactions with suppliers. *As a fixed element of our supplier selection and evaluation process, it is legally binding and integrated into all electronic ordering systems and contracts throughout the Group.* Furthermore, all employees based in procurement are provided with additional standardized clauses for the integration of sustainability requirements into framework agreements. To participate in bidding processes, suppliers must bindingly confirm before submitting an offer in our supplier management system that they acknowledge Bayer’s Supplier Code of Conduct.

Evaluation and inspection of our suppliers

Supplier assessments and audits are used to check whether the demands made by the Bayer Supplier Code of Conduct are actually being implemented and complied with along the supply chain. To date, the selection of the suppliers to be evaluated has taken place using a country-based risk approach, and was expanded to include strategic and key suppliers, including from non-risk countries.

In 2012 this segmenting approach was further developed to include the examination of our suppliers’ sustainability performance. The relevant suppliers for an assessment thus are now selected on the basis of a combination of country and material risk. We established a collaboration with EcoVadis to further develop the quality of and more efficiently design our approach for evaluating suppliers. EcoVadis is a leading supplier of collaboration platforms with which companies can assess the sustainability performance of their suppliers. Thus we are shifting from the previously established self-assessment of our suppliers to a web-based, modular questionnaire, coupled with accompanying verification documents and 360 degree screening, and as a result receive objective and reliable supplier evaluations. In a first pilot procedure, 179 supplier evaluations were initiated according to this new method in 2012, of which 25 were completed already within the reporting period. All results will now be analyzed,

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Target 2015

2 Number of suppliers and procurement expenses by economic region in 2012

	Suppliers (percent)	Spending (percent)
OECD countries	73	82
Non-OECD countries	27	18

3 Procurement volume in OECD and non-OECD countries in 2012 (percent)

Spending OECD	Germany	United States	Japan	Other
	27.1	21.6	6.8	26.9
Spending non-OECD	China	Brazil	India	Other
	7.6	2.8	2.2	5.0

Dialogue

New quality for supplier relationships

At its first Group-wide Global Supplier Day, Bayer discussed ways of improving efficiency and sustainability with 150 representatives of its most important international suppliers. Together, they worked on ways of strengthening Bayer's competitiveness through improved access to innovations, security of supply, and prices that are in line with the market.

With the company's LIFE values in mind, Chairman of the Bayer Board of Management Dr. Dekkers said: "We expect our suppliers to share Bayer's values." He added that the goal was to achieve value-enhancing, strategic supplier management characterized by sustainability, reliability and trust. To attain this, the supplier network is to be consolidated. Richard Spoor, Chairman of the Group Procurement Committee, emphasized that this was important for acquiring concrete advantages for both sides. "Sustainability is an integral part of the Group's strategy and a decisive criterion in its choice of suppliers," he said.

Supplier Day: John Watson, President, Strategic Partnering and Chief Commercial Officer of Covance Inc., Richard Spoor, Head of Procurement and Chairman of the Group Procurement Committee of Bayer HealthCare, and Bayer CEO Dr. Marijn Dekkers (from left) in discussion



and we will implement the development measures derived from the analysis together with the relevant suppliers. With this new approach, we have put in place important quality and capacity requirements so as to significantly expand the coverage of supplier sustainability evaluations.

61 [www](#)
62 [www](#)

Another measure comprises audits with which we examine the sustainability performance of our suppliers on site. In 2012 we worked together with our industry initiatives to further develop the Bayer Audit Program. Here we focus consciously on further standardization and a collaborative approach, and thus used the audit standards of the respective initiatives for audits undertaken in the reporting period. *On this basis, we carried out audits of 17 suppliers in China and India together with an independent external audit partner.* For the resulting improvement potentials, binding plans of action with fixed implementation timeframes were established for each supplier that we will now follow up together with our external audit partner.

Target 2015

With these evaluation and examination measures, we thus accounted for about one quarter of the total procurement volume in the Bayer Group with regard to the sustainability performance, as well as more than half of the procurement volume from high-risk countries.

Target 2015

In addition, 152 country-specific assessments were carried out by the Indian country company.

Furthermore, Bayer auditors performed 301 audits of suppliers focused on HSE (health, safety, environmental protection) aspects. Improvement potential identified by these audits was also addressed through plans of action and its implementation monitored by our auditors. None of the improvement requirements identified through these audits led to the termination of a supplier relationship in 2012.

Industrial initiatives for sustainability in procurement

To effectively address the wide-ranging challenges of a sustainable supply chain and identify synergies, we continued to pursue joint approaches in 2012 in the [Pharmaceutical Supply Chain Initiative \(PSCI\)](#) [61] and the "Together for Sustainability" (TfS) [62] chemical industry initiative, which Bayer co-founded in 2012. Through PSCI, 15 joint supplier assessments and pilot audits were carried out by qualified external auditors according to the jointly developed PSCI audit standard. The exchange of supplier questionnaires and audit reports was also continued. In 2013 further new PSCI supplier audits will take place, in addition to the analysis of the pilot audits.

In the TfS initiative, the company worked with EcoVadis to establish a joint IT platform for supplier assessments and the exchange of audit reports. In the pilot phase launched in the reporting period, more than 1,850 supplier evaluations and some 150 supplier audits were initiated according to harmonized standards by the member companies of the TfS initiative.

Training for purchasers and suppliers

Our purchasers receive continuous training through our updated, Group-wide courses on sustainability in procurement and on our Code of Conduct. We also supplemented the range of training measures with a workshop on the new sustainability assessment process involving EcoVadis. The workshop teaches knowledge about the process change and fundamentals of communications with suppliers based on the new content-related and technical aspects. A total of 261 purchasers took part in these training workshops already in 2012. We also offered training courses for our suppliers. These measures involved two e-learning units that were developed within the framework of the "Together for Sustainability"

initiative and that focus on the joint audit program and the implementation of audit processes.

At our first global supplier day held in June 2012 in Leverkusen, Germany, our Management Board Chairman Dr. Marijn Dekkers emphasized to the attendees – the suppliers of the greatest strategic importance to Bayer – the binding nature of our Code of Conduct for mutual business relations. Sustainability aspects were also a topic of focus at the local suppliers days in the United States (for the NAFTA region) and in China, both of which took place in November 2012. In addition, the annual BayBuy Awards ceremony once again took place in India to honor the most sustainable suppliers.

Tackling child labor

For Bayer, responsible corporate governance includes recognizing and respecting human rights both within the company and also in our sphere of influence outside the company such as along the supply chain. Our Human Rights Position is unambiguous and includes a strict ban on child labor. Bayer’s Supplier Code of Conduct is based on sustainability principles, the UN global Compact and our Human Rights Position. In particular when working with suppliers in developing countries and emerging markets, we pay great attention to ensuring the avoidance of child labor. Unfortunately, child labor is still widespread in these regions of the world. In a number of countries in which we are present and maintain business operations, children are still traditionally used for activities such as field work to contribute to the subsistence of their families. We thus oblige suppliers along our supply chain to refrain from using child labor. In the developed markets of the West, child labor is not only considered unethical, it also potentially threatens the reputation of companies involved, which can have economic consequences for them.

For many years, Bayer CropScience has taken resolute and systematic action against child labor in our hybrid seed supply chain in India with its **Child Care Program** [63]. We see children’s education

as being the key to securing a lasting improvement in the living conditions of the families affected. As part of the Child Care Program, our “Learning for Life” initiative, which comprises projects established in conjunction with local non-governmental organizations and educational institutions, remains a major focus. More than 3,900 children and young people benefited from this initiative between 2005 and 2012. The focus of the program is currently on vocational training particularly in the agricultural sector, to heighten awareness in rural communities of the importance of education and enable a higher quality of living for young people there. In addition, the fields used in cotton seed production are checked at least six times each season. We have also performed systematic field monitoring in the vegetable seed production sector since 2009 and in hybrid rice seed production since 2010. The table shows the development in cotton seed production since the main 2008/2009 season on the basis of the field monitoring results. Table 4

Bayer pays a bonus to suppliers who strictly enforce the ban on child labor, and runs training sessions to enhance agricultural efficiency. Graduated sanctions are applied for non-compliance. These range from written warnings to termination of the contract in the case of repeated non-compliance. Once a year, the auditing company Ernst&Young (India) conducts inspections of farms selected on a random basis. The two indicators highlighted in Table 4 are used to measure the success of this extensive range of activities. Bayer is proud that it receives praise for its program from people and organizations with very diverse backgrounds. Among those are NGOs usually critical of the Bayer business model.

Bayer stock a sustainable investment

More and more investors worldwide are paying attention to how companies integrate ecological and social aspects and responsible corporate governance into their strategy and report transparently about their activities. In 2012 we maintained our continuing dialogue with current and potential SRI (Socially Responsible Investment) investors regarding Bayer’s commitment to sustainability.

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4 Field monitoring results: production of cotton seed (India)

Season	2008/2009 Kharif*	2008/2009 Rabi*	2009/2010 Kharif	2009/2010 Rabi	2010/2011 Kharif	2010/2011 Rabi	2011/2012 Kharif	2011/2012 Rabi	2012/2013 Kharif****
Standing acres**	1,863	38	1,683	172	2,152	335	2,771	542	3,898
Monitored acres***	10,770	222	10,575	1,052	13,856	2,276	17,427	3,564	20,312
Labor details									
Total laborers	43,241	1,409	35,826	3,902	43,150	7,198	52,979	12,128	66,960
Proven child labor cases	105	0	22	2	14	0	18	0	21
Adult laborers	43,136	1,409	35,804	3,900	43,136	7,198	52,961	12,128	66,939
Child labor incidence per monitored acre	0.01	0	0.002	0.002	0.001	0	0.001	0	0.001
Child laborers as a percentage of total laborers	0.24%	0.00%	0.06%	0.05%	0.03%	0.00%	0.03%	0.00%	0.03%

* Kharif = cultivation in the rainy season (summer) and harvest in the fall/Rabi = cultivation in the fall and harvest in winter
 ** Area under cultivation (in acres); 1 acre = 4,046.86 m²
 *** Cumulated depiction of the area under cultivation monitored on the basis of control inspections performed (at least 6 per season)
 **** As of Dec. 31, 2012

Sustainability ratings serve as an orientation and additional risk indicator for investment decisions, particularly for institutional investors such as pension funds with a long-term investment horizon. The success of our sustainability- and value-based corporate governance is reflected partly in the assessment of Bayer stock in such ratings and our inclusion in sustainability funds and indices [64].







In 2012 Bayer was once again included in both the Dow Jones Sustainability World Index (DJSI World) and the Dow Jones Sustainability Europe Index (DJSI Europe). In the evaluation, particular mention was made of Bayer’s innovation management, for example. As a result of our strong commitment to sustainability, Bayer has been continuously listed in the DJSI World since the establishment of that index in 1999. Bayer stock has also been listed in the U.K.-based FTSE4Good index since this was established in 2001.

In addition, Bayer was again included in the two prominent carbon leadership indices of the Carbon Disclosure Project (CDP). Having achieved optimal ratings for performance and transparency, the Group reaffirmed its chosen climate strategy. Bayer has been included in the Carbon Performance

Leadership Index (CPLI) three consecutive times since that index was established in 2010, receiving an “A” ranking. A total of 33 companies are represented in this index. In the Carbon Disclosure Leadership Index – which comprises the 51 companies with the greatest transparency in climate reporting – the company scored the maximum 100 points, its best overall result so far. Bayer thus is not just the best company in its industry, as in the previous year, but is also, together with one other company, the best company worldwide in this index across all industries.

In the Access To Medicine Index – a non-stock-market-traded index comprising various financial market participants in cooperation with non-governmental organizations – Bayer improved its rank to 9th place in 2012, compared with 14th place in the last rating in 2010. Special mention was made here of the quality of sustainability management and the lighthouse projects in the area of family planning. The ATM index ranks to what extent pharmaceutical companies facilitate access to sustainable health care, especially to affordable and effective medication, and develop products to treat diseases that particularly affect the poorer populations of the world. Table 5

5 Bayer stock in sustainability indices and funds

Index/Fund	Bayer's listing		
	2010	2011	2012
 DJSI World	✓	✓	✓
DJSI Europe	✓	✓	✓
 FTSE4Good Global Index	✓	✓	✓
FTSE4Good Europe Index	✓	✓	✓
 ASPI Eurozone	✓	✓	✓
 Carbon Disclosure Leadership Index*	✓	✓	✓
Carbon Performance Leadership Index* (published in 2010)	✓	✓	✓
 NYSE Euronext Low Carbon 100 Europe Index	✓	✓	✓
 Access To Medicine Index*	✓	✓**	✓

* The Carbon Disclosure Leadership Index, the Carbon Performance Leadership Index and the Access To Medicine Index are not trading indices.
 ** Not re-assessed in 2011

Innovation & Product Stewardship

Sustainability is based on innovation. Many economic, ecological and social challenges require innovation – and companies must therefore supply constant research and development breakthroughs. In this process, Bayer never loses sight of its responsibility for people and the environment.

With numerous new products, the Bayer Group aims to help improve people's lives. The global challenges and megatrends, such as population growth and demographic change, create opportunities in new fields of growth for our company. We can make valuable contributions to sustainable development through innovative product solutions in the areas of health care, agriculture and high-tech materials. The safety and environmental compatibility of our products is always a priority in this connection.

Research & development

● *In 2012 Bayer spent €3.0 billion on research and development. This was equivalent to 7.6 percent (2011: 8.0 percent) of sales. Of the Group's entire research and development expenditures in 2012, Bayer HealthCare accounted for 65 percent, Bayer CropScience for 26 percent and Bayer MaterialScience for 8 percent. The number of employees working in research and development worldwide was 12,900.* Table 6

Bayer's research focuses on the life sciences – in other words the health of people, animals and plants – which is represented at our company by the HealthCare and CropScience subgroups. The pipeline of current pharmaceutical developments for human use has been well stocked for a number of years. We currently have a total of 33 projects in clinical development. Pending further registrations, our five most important advanced product candidates have a peak sales potential of €5.5 billion annually.

Also of considerable importance is the topic of plant health, for which we have a balanced portfolio of products to control diseases and pests that is increasingly being supplemented with biological mechanisms of action. Between 2011 and 2016 the company plans to launch onto the market more than 30 projects overall, including eight new chemical crop protection projects and a series of biologically based projects with estimated sales potential of more than €4 billion. Also awaiting market introduction are numerous new vegetable seed varieties and 15 new projects for broad-acre crops such as cotton, canola/oilseed rape, rice, wheat and soybeans.

Bayer MaterialScience helps to increase energy and resource efficiency through innovative products and solutions. In this connection, the subgroup helps above all to further develop key areas such as



High-tech production: Hung Ly monitors filters used in the production of Kogenate™. The drug product is manufactured using biotechnology and used in the therapy of hemophilia patients.

sustainable building and environmentally friendly mobility. The innovation power of MaterialScience is reflected partly in the 188 patent submissions in 2012.

● Target 2015

Bayer's innovation culture

Bayer's business strategy is centered around innovative research. With our products we want to achieve a positive effect for our customers – in line with our mission "Bayer: Science For A Better Life." Innovation is a key driver of Bayer's future growth. Mindful of its corporate growth objectives, Bayer works to continuously rejuvenate and expand its product portfolio and optimize its production processes. The company's research and development activities are closely aligned to market requirements and therefore subject to a continuous process of adjustment. This includes good innovation management with clear structures and a distinct focus. Bayer's activities are supplemented through its involvement in an international network also including leading universities, public-sector research institutes and partner companies.

By networking our research and development with external partners, we can more quickly achieve market maturity for our innovations. We are therefore now working together with more than 800 partners worldwide, with cooperation projects accounting

Dialogue

Bayer's Perspective on Innovation 2012

With numerous new products, the Bayer Group aims to help improve people's lives while at the same time harnessing billions in potential sales. "Innovation is the only way to address the global challenges that exist at the beginning of the third millennium," Dr. Marijn Dekkers, Chairman of the Board of Management, said in November, addressing some 140 journalists at Bayer's Perspective on Innovation 2012 press forum in Leverkusen.

Dekkers explained that trends such as population growth, demographic change, ecology and sustainability are giving rise to significant opportunities. Bayer is seeing positive results among the new product candidates from the late clinical development of the pharmaceuticals pipeline. Plant health is also a key issue, and in the future so too will be the use of biologics in crop protection. Achieving improvements in the environmental efficiency of production processes that can save energy and reduce emissions is another important area.

Around 140 journalists from more than 30 countries attended the Perspective on Innovation in Leverkusen in November 2012.



for nearly one quarter of our research budget. These collaborations and alliances with leading universities, public research institutions and partner companies are supplemented by crowdsourcing, incubators in the United States, and science hubs in growth regions such as Asia to tap into external innovative potential using the open innovation approach. One example of an incubator project is the CoLaborator™ center opened by Bayer in San Francisco, United States, in September 2012. This incubator concept is geared toward supporting young start-up companies founded by bioscience researchers. The scientists benefit from both the laboratory infrastructure and the expertise of the Bayer researchers and the potential this offers for the professional, goal-oriented design of development programs. At the same time, we aim to be the initial contact point for young companies in their search for possible cooperation partners. An overview of Bayer's global research activities can be found on page 101ff. of our Annual Report 2012.

Some of our collaborations receive public funding, which reduces the entrepreneurial risk associated with many groundbreaking innovations. In Europe, Bayer participated in more than 100 publicly sponsored projects in 2012, receiving a total of around €12 million in grants. This corresponds to about 0.4 percent of our R&D spending.

These activities are also supported by systematic employee development in the company's R&D units. Such measures are designed to clearly illustrate how important innovation – and our researchers and innovators in particular – are for our company. We believe it is very important to create a vibrant culture of innovation that in turn creates the right work environment for our researchers. We therefore also present research awards that are well known not just in our company, but in academic circles as well. In addition, the Expert Club – which is headed up by the member of the Board of Management responsible for research – promotes the exchange of best practices among scientific experts from all the subgroups. Regular meetings involving as many as 100 participants are held to discuss current research issues and best-practice examples from the specialist units. The Expert Career initiative offers leading employees from research and development targeted career development opportunities. Last November 46 members of Bayer's Global Leadership Circle expanded their innovation expertise in a first workshop on the topic "Leading Innovation." In all we will offer 10 of these seminars at various sites.

In addition, our global "Triple-i" [65] (inspiration, ideas, innovation) initiative motivates employees to actively share their own business ideas and

6 Research and development expenses (€ million)

	2008	2009	2010	2011	2012
Total	2,653	2,746	3,053	2,932	3,013
of which Bayer HealthCare	1,742	1,847	2,066	1,948	1,962
of which Bayer CropScience	649	653	722	723	782
of which Bayer MaterialScience*	221	207	231	237	242
of which reconciliation**	41	39	34	24	27

* Not included: R&D in collaboration with customers

** Not directly allocated to the subgroups; mainly expenditures of the service companies

contribute to innovation at Bayer. Through the [Bayer Ideas Pool \[66\]](#), employees can submit in particular suggestions for improving processes.

Innovation through the use of biotechnology

Future-viable product developments in the area of pharmaceuticals and plant technology require the use of biotechnological methods. Biotechnology has already gained significant importance in pharmaceutical product development. For example, a series of Bayer HealthCare products are manufactured in biotechnological processes – including a multiple sclerosis medication based on the active ingredient interferon beta, a Factor VIII drug to treat hemophilia, and an eye medicine to treat wet age-related macular degeneration. We also recognize significant potential in a biotechnologically manufactured development candidate that was granted orphan drug status in July 2012. See the News inset on page 39 for more information.

With a capital expenditure of approximately €35 million, we are strengthening research into biotechnological active ingredients at Bayer HealthCare's new cell biology pilot plant in Wuppertal, Germany. The pilot plant was inaugurated in November 2012, and will launch operations in the spring of 2013. The emphasis here is on the production of antibodies and therapeutic proteins.

Harvest yields and stress tolerance in crops can be enhanced through the use of both genetic engineering and modern non-genetic engineering methods in plant biotechnology. This in turn enables the efficiency and yield security of agricultural production to be improved without increasing the input of resources.

Modern technologies principally require transparent action and strict risk management. Safety is Bayer's top priority in the use of biotechnology. Beyond the observance of all relevant legal provisions, we have formulated our own [Position on the Responsible Use of Gene Technology \[68\]](#) and specific regulations for the subgroups and service companies. We address the concerns of consumers who are worried about health risks for people and negative effects on indigenous plants and animals as a result of genetically modified organisms. We explicitly respect consumers' desire for more information and the freedom to make their own purchasing decisions. Before any product reaches market maturity, we subject it to a stringent approval process to determine whether it is safe for people, animals and the environment. We provide our stakeholders with comprehensive, transparent and reliable information about our products and services in accordance with the Bayer Group's Responsible Marketing & Sales Policy.

Bayer HealthCare has established strict safety measures for production and research & development in its Directive on Biological Safety and its

"Requirements for the safe handling of biological agents" procedure. In 2012 Bayer CropScience continued its activities in the context of industry's "Excellence Through Stewardship" program and is thus contributing to product stewardship and quality management processes in connection with plant biotechnology.

Patents: protecting intellectual property rights

Reliable, global protection of intellectual property rights is essential for an innovation company like Bayer. Protected products or processes currently account for an estimated 40 percent of Bayer's sales. At the end of 2012 we held approximately 76,000 valid patent registrations and patents, and a further roughly 10,000 protected inventions. Bayer undertakes approximately 6,500 patent registrations worldwide each year. A patent generally remains valid for 20 years. As it takes 12 years on average to develop a new pharmaceutical, only eight years of patent protection generally remain following the product's approval. Without such protection, it would not be possible to cover the significant costs incurred in the research and development of innovative pharmaceuticals and to plan new therapeutic options. We therefore advocate the protection of both the international patent system and our own intellectual property worldwide. You can read more about this topic in connection with our political principles [67].

To support the development of intellectual property rights (IPR) in China, Bayer sponsors an IPR chair at Tongji University in Shanghai. In addition to training more than 100 students in law, the chair works with Bayer – supported by the Chinese patent office – to organize an annual IPR forum dealing with issues related to the protection of intellectual property. Perennially involving over 100 influential participants from German, European and above all Chinese patent authorities, trademark registration offices, courts, universities and professional associations, this discussion forum has become a trademark of our support for intellectual property rights in China and at the same time is an integral part of non-commercial continuing education about current aspects of this issue.

Product stewardship at Bayer

Bayer assesses the possible health and environmental risks of a product along the entire value chain. This ranges from research and development through production, marketing and use by the customer to disposal. At issue here are not just the safe handling and use of our products, but also the transparent communication of product safety information. Product stewardship comprises both compliance with statutory requirements and voluntary commitment. Here, we also take into account the [precautionary principle \[69\]](#) as defined by the United Nations and the European Commission.

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For years, international political initiatives and regulatory approaches have been aimed at limiting the negative effects of chemicals on human health and the environment. The chemical industry has voluntarily undertaken to support these processes in its own interest. Since 1994 Bayer has been committed to the voluntary [Responsible Care™](#) [70] initiative of the chemical industry, which was globalized in 2006 through the [Responsible Care Global Charter](#) [71]. We cover all main elements of the charter with our HSEQ management systems and activities.

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We also support the [Global Product Strategy \(GPS\)](#) [72], which aims to ensure the safe handling of chemical products. In addition, we participate in the further development of scientific risk assessment through associations and political initiatives. More information on our international [product safety activities](#) [73] is available in the online report.

Implementation of regulations and voluntary programs pertaining to chemicals

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Since 2007 we have operated in accordance with the new [European chemicals regulation REACH](#) [74] (Registration, Evaluation, Authorization and Restriction of Chemicals). REACH applies irrespective of the marketing activities for all substances that we produce or import in quantities of more than one metric ton. It affects all our activities as a manufacturer, importer and user. To adequately address the scope and complexity of the REACH requirements, we have formulated Group-wide and subgroup-specific directives. We observe the required registration phases for substances that have been used for a longer period of time. The next registrations will take place by the June 1, 2013 deadline. The authorities are currently evaluating substances from the first registration phase (submission deadline at the end of 2010). In the future this could result, for example, in additional testing requirements, new risk management measures or inclusion in the authorization procedure. A number of our substances are already affected by the REACH authorization procedure, which can lead to the replacement or prohibition of hazardous substances.

REACH inspections are regularly carried out by the authorities to monitor the implementation of REACH. So far none of the inspections have resulted in complaints. As Bayer also uses products from other manufacturers, we maintain close contacts with our suppliers and ensure that they confirm compliance with REACH for these products.

In addition to meeting statutory requirements, we revised the Bayer Group's Procedure on Substance Information and Availability in June 2012. In this way we are ensuring that substance assessments similar to those established under REACH will also be applied at Bayer sites that are not subject to this European directive.

At the same time, we are implementing the Globally Harmonized System (GHS) for the classification

and labeling of chemicals, which came into effect in the European Union (E.U.) in 2009. The goal of this policy is to implement a globally standardized system for classifying chemicals and labeling them appropriately on packaging and in safety data sheets. All substances marketed in the E.U. and requiring classification according to the GHS must be registered with the European Chemicals Agency (ECHA) no later than one month after their initial launch. Parallel to this process, we monitor the revision of requirements in our trading partners' countries and make the corresponding safety data sheets and labels available there as well.

Finally, the Global Product Strategy (GPS) is a voluntary commitment by the chemical industry initiated by the International Council of Chemical Associations (ICCA). Its goal is to improve knowledge about chemical products, especially in emerging markets and developing countries, and thus increase safety in the handling of these products. The ICCA has established an information portal through which summarized details on products (GPS Safety Summaries) are made available. In 2012 Bayer made available product safety summaries for all substances it sells in an annual volume of at least 1,000 metric tons. The GPS is of particular relevance for Bayer Material Science. Read more about this topic on page 45.

The implementation of REACH, GHS, GPS and the Responsible Care Global Charter is a closely interlinked process that is coordinated at Bayer by Group-wide working groups. All subgroups compile product information enabling them to meet the respective [product safety and information obligations](#) [75] for raw materials, intermediates and end products. More information is available in the online report.

Focusing on animal welfare

Animal studies are legally required and scientifically necessary to assess the impact of our products on people, nature and the environment in a legally compliant manner. In the research of new active pharmaceutical ingredients, they are only replaceable to a certain extent. In our handling of animals, we respect all legal requirements pertaining to animal welfare. Should animal studies be required to evaluate our substances, Bayer observes the so-called 3R principles:

Replace: prior to each project, we check whether a recognized method is available that does not rely on animal studies.

Reduce: in the event that no alternative method exists, only as many animals are used as are needed to achieve scientifically meaningful results based on statutory requirements.

Refine: we make sure animal studies are performed in a way that is as gentle on the animals as possible. To demonstrate to other researchers how to minimize the burden of animal studies, we presented

examples of our refinement activities in October 2012 in a refinement workshop at the Center for Alternatives to Animal Testing (CAAT).

Our principles also apply to both the research institutes contracted to us and our suppliers, whose compliance with our animal welfare requirements we regularly monitor. The most recent figures and further information can be found on the internet on [our animal welfare and animal studies web page \[76\]](#).

Bayer's Global Animal Welfare Committee established in 2010 monitors the observance of our "Bayer principles on animal welfare and animal studies" within the Bayer Group and in external studies. In 2011 the committee – comprised of the animal welfare officers at our research sites and further Bayer experts – began defining performance indicators. Within this context, we each year analyze aspects such as the number of animals used, the number of animals at CROs (contract research organizations), the breakdown according to species and the ratio of regulatorily required studies to exploratory studies. Other indicators such as the number and quality of audits performed at our suppliers and CROs have been initiated and are being internally evaluated. We have also initiated the establishment of an internal Bayer database that combines all information about our own animal studies and the evaluation of our cooperation partners. Bayer HealthCare also participates in several European consortia that aim to reduce the number of animal studies or improve their validity: we are active, for example, in the European Partnership for Alternative Approaches to Animal Testing (EPAA) and are involved in the leadership of the eTOX project and the MARCAR project of the Innovative Medicines Initiative (IMI). Furthermore, we support the Foundation for the Promotion of Alternate and Complementary Methods to Reduce Animal Testing (SET) [82].

Protection against product counterfeiting

Counterfeit products in the areas of health care and nutrition put patients and consumers at risk, and they undermine the competitiveness of the producers and – in the case of agricultural products – the users as well. Industry, associations, governmental agencies and non-governmental organizations must join together to resolutely combat this problem.

Illegal trade with counterfeit medicines and crop protection products is on the rise worldwide. For example, counterfeit pharmaceuticals rank near the top of the E.U.'s customs statistics: about one quarter of the 115 million pirated products that the European customs agencies confiscated overall in 2011 were counterfeit medicines. The problem is particularly pressing in developing countries: according to WHO estimates, counterfeit products account for a 10 percent market share in such regions on average, and up to 30 percent in some countries. Counterfeit products harbor significant risks for people and the

environment due to uncontrolled manufacturing and the unknown composition of such products. In close cooperation with the authorities, Bayer actively works to protect the health of patients, customers and users. The focus is on education and information to ensure the reliable identification of our original products, as well as on legal steps aimed at minimizing illegal trade. Prosecution of the perpetrators is becoming increasingly important, in addition to preventive activities for protection against counterfeiting. It serves as a deterrent and as such is designed to prevent further counterfeiting of Bayer products.

Together with 28 other original manufacturers, Bayer HealthCare has also decided to join the [Pharmaceutical Industry Initiative to Combat Crime \(PIICC\) \[77\]](#) of Interpol to counteract pharmaceutical counterfeiting through global prosecution and the elimination of related criminal networks.

Through the internet platform "Beware of Counterfeits" [78], Bayer HealthCare informs patients about the risks of counterfeit pharmaceuticals and provides patients with important tips on how they can protect themselves. We also provide extensive resources to support the establishment of a pan-European system for the verification of pharmaceutical packaging that satisfies the requirements of the [E.U. Falsified Medicine Directive \[79\]](#). We are actively participating in the design of that system based on the proposal of the [EFPIA \[80\]](#) (European Federation of Pharmaceutical Industries and Associations). For this reason, we are also actively involved with several products in the [SecurPharm \[81\]](#) project in Germany. Investments in the mid-double-digit million euro range have already been undertaken to establish the systems concerned not just in Germany, but also worldwide in accordance with regulatory requirements.

The incidence of product counterfeiting has also increased sharply in the area of crop protection. In 2007 the OECD estimated the share of such products at about 5 to 7 percent; by 2010 that estimate had already increased to more than 10 percent according to [CropLife International \(CLI\) \[83\]](#). Inferior products result in significant financial damage both for producers such as Bayer and for consumers, such as farmers. Potential risks also exist for wild animals and the environment. Bayer thus works not only to strengthen existing laws, but also in particular to expand laws and provisions dealing with the identification and confiscation of illegal products, including crop protection products. Bayer CropScience provides information and anti-counterfeiting training materials (manuals, workshops, etc.) to dealers, farmers and authorities. In 2012 training courses at which Bayer warned of the dangers of product counterfeiting were implemented in Egypt, Latvia, Lithuania, the United Arab Emirates and several countries in the Mediterranean region of Europe, among other countries. Furthermore, we support initiatives by global and regional association

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committees such as the Anti Counterfeiting Expert Group of the European Crop Protection Association (ECPA) [84] and the Anti Counterfeiting Steering Committee of the CLI organization.

Our Product Defense team works together intensively with national and international authorities, thus frequently enabling the confiscation of counterfeit products. In connection with CLI's "Know Your Customer" campaign, Bayer CropScience maintains an initiative aimed at preventing the transport of counterfeit products by more closely inspecting freight and customers in collaboration with shipping companies and European ports of entry, among other measures. Most counterfeit products originate in Asia and reach the trade market through central European cargo ports. Port inspections thus are often particularly effective. Bayer CropScience also carries out its own inspections of suspicious goods shipments. Of 77 inspected shipments in 2012, 69 percent were illegal. All cases in which legal action was taken ended positively for Bayer. The subgroup succeeded in replacing generic industrial packaging with Bayer-specific, counterfeit-proof packaging on a broad basis.

Possible product risks present special challenges

As a global company with a diverse business portfolio, the Bayer Group is exposed to numerous legal risks, especially in the area of product liability. The outcome of any current or future proceedings cannot be predicted. It is therefore possible that legal or regulatory judgments or future settlements could give rise to expenses that are not covered, or not fully covered, by insurers' compensation payments and could significantly affect our revenues and earnings. More information on special challenges such as those relating to our Yasmin™ and Yaz™ line of oral contraceptives, the contrast agent Magnevist™, Trasylo1™ to control loss of blood during coronary bypass surgery, and genetically modified rice plants (LLRice) can be found on page 272ff. of our Annual Report 2012 and in the respective current issue of our Stockholders' Newsletter.

Innovation for health – Bayer HealthCare

Bayer HealthCare is a health care company with global research activities that develops products in the areas of Pharmaceuticals, Consumer Care, Medical Care and Animal Health. This business accounts for about two thirds of Bayer's total research and development expenditures. We pursue a long-term strategy centered around the development of therapeutic options for currently unmet medical need. To create value for physicians and patients, we aim in the future to more frequently think beyond individual products and develop integrated solutions combining products and services. In the area of cardiovascular disease, for example, Bayer offers combination therapies comprising prevention,

diagnosis, treatment and secondary prevention. The attending physician and the patient receive all offerings from a single source.

We conducted clinical studies with several drug candidates from our research and development pipeline during 2012 to drive the development of new substances to treat diseases with a high unmet medical need. Drug discovery is concentrated in the areas of cardiology and oncology, along with gynecological treatments and hematology. For extensive information on our promising development candidates, see page 102ff. of our Annual Report 2012.

Some of our product pipeline candidates are being further developed for the treatment of serious and at the same time very rare diseases – also known as orphan diseases. Although we do not specifically conduct research into such orphan diseases, we examine each active ingredient to determine whether it is suitable for these indications. In 2012 a development candidate received orphan drug status in the United States for the treatment of rare tumor types (see News inset on page 39).

Technical advances in the field of biomedical research open up new therapeutic options, but often raise new questions about aspects such as ethical accountability. This applies, for example, to pharmacogenetics, stem cell research and regenerative medicine. Stem cells provide a beacon of hope in medicine, as they can be transformed into various cell and tissue types. Bayer HealthCare does not conduct research projects with **embryonic or adult stem cells** [85] and has not done so in the past. On the other hand, we regard research into cancer stem cells as promising and are active in this area. These are not stem cells per se, but rather cells that are held responsible for the genesis, metastases and recurrence of cancer. We are cooperating in this area with California-based OncoMed Pharmaceuticals.

We work in numerous global networks with external research partners from the scientific community and industry to supplement our research infrastructure and safeguard our product pipeline. Current examples of such international collaborations can be found on page 101f. of our Annual Report 2012.

Medical benefit-risk management for medicinal products and devices

Bayer HealthCare continuously assesses the medical benefit-risk balance of all its pharmaceutical and medical products over their entire life cycle. For this process, experts from various disciplines form cross-functional Core Safety Management Teams (Core SMTs). The Core SMTs jointly evaluate available benefit-risk data and other relevant information on the product in order to identify possible safety risks at an early stage and assess benefit-risk balance. This may involve accessing external databases to ensure the broadest reach for available data, thereby providing a more extensive

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understanding of identified and potential risks and their attributes. Should significant risks be identified, Bayer HealthCare immediately takes measures to minimize them, such as updating the product information for patients and health care providers. Further tools in risk minimization programs can include targeted information, e.g. patient educational brochures, and training measures for health care providers and patients, among others. Core SMTs compile all benefit-risk data and information and produce detailed safety risk management plans. These plans are intended as "living" documents that are immediately updated as soon as important new benefit-risk data become available. Implementation of risk minimization activities are coordinated by local SMTs on the country level.

The Global Pharmacovigilance unit of Bayer HealthCare pools all safety-relevant information on our products through the company pharmacovigilance database on an ongoing basis. This information is continuously updated and evaluated by experts. Bayer works closely with responsible regulatory and competent authorities at an international, national and regional level. These include the u.s. Food and Drug Administration (FDA), the European Medicines Agency (EMA) and Germany's Federal Institute for Drugs and Medical Devices (BfArM).

Bayer HealthCare's quality and risk management functions make further contributions to increased safety. We systematically examine external and internal quality assurance requirements for our products through systematic internal inspections not just in research and development, but also in production. These inspections also cover institutes sub-contracted by us and our suppliers. Through our safety risk management system, drug product risks are systematically identified and assessed, and the necessary steps initiated. Countries and regions receive continuous support in observing regulatory requirements for pharmaceuticals. All Bayer HealthCare medical products are subjected to life cycle management processes in line with recognized standards and legal requirements (e.g. ISO 13485 and 21CFR Part 820).

Scientific publications by our researchers satisfy recognized international standards that we have undertaken to observe in our Good Publication Policy. We base the implementation of all clinical studies on the Good Clinical Practices of the World Health Organization (WHO) and on the guidelines of the International Conference on Harmonization (ICH). We disclose the methods and results of clinical trials. An [overview of current clinical studies \[86\]](#) is available on the internet.

Analysis of pharmaceuticals in the environment

To assess the potential environmental impact of traces of our pharmaceutical products, Bayer HealthCare carries out suitable investigations on various product groups.

News

"Orphan drug" status for cancer medication

In July 2012 the u.s. Food and Drug Administration (FDA) gave "orphan drug" status to a Bayer HealthCare development preparation for the treatment of patients with mesothelioma, a rare form of cancer. In the United States, pharmaceuticals can be classed as medication for the treatment of rare illnesses (orphan drugs) under the Orphan Drugs Act (ODA). This is designed to promote the development of drugs for treating rare diseases that affect less than 200,000 people in the United States.

The Bayer preparation is an antibody-drug conjugate (ADC) whose conjugate targets the protein molecule mesothelin, which is found in types of cancer such as mesothelioma. In the form of the antibody conjugate, the highly specific binding characteristics of the antibody are combined with the cell-destroying potential of the bound active ingredient.

After patients take pharmaceuticals, trace amounts or degradation products in many cases are excreted and can thus enter wastewater. Wastewater treatment facilities reduce or degrade these substances. However, some substances are not completely removed and can thus enter natural bodies of water. A special working group within the company conducts tests on ecotoxicity and on the dispersal and degradation behavior of our pharmaceuticals so as to assess the risks to natural bodies of water, soil and groundwater. These assessments have been documented in the dossiers for the European regulatory authorities since 2006. Furthermore, we are not currently aware of any trace amounts of human pharmaceuticals in drinking water that present a risk to people. This is again confirmed by the 2012 [WHO Report on Pharmaceuticals in Drinking Water \[87\]](#). In addition to the aforementioned studies, we are currently developing a more comprehensive approach to this issue. Supplementary stakeholder dialogues; the closing of data gaps for products for which the drafting of environmental risk assessments was previously not a legal obligation; or the drafting of internal company wastewater standards for pharmaceutical production are among the elements being discussed for a future strategy.

For a number of years now, Bayer HealthCare has participated as an industrial stakeholder in important research projects dealing with pharmaceuticals in the environment. One activity undertaken with various cooperation partners, including from the water resources industry, was the [European PILLS \(Pharmaceutical Input and Elimination from Local Sources\) project \[89\]](#), which was completed in 2012. This project focused on the development of local wastewater treatment facilities for hospitals and nursing homes. Bayer was represented on the scientific advisory committee of PILLS. The results show that, over and above biological treatment, other effective technologies for the reduction of trace elements from point sources such as hospitals are basically available. However, such additional wastewater treatment measures result in relatively high specific costs. The results of PILLS represent an important contribution

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to the scientific characterization of these wastewaters. At the same time, it became clear that the treatment of point sources cannot be the sole solution to the issue of pharmaceuticals in the environment. We have again pledged to participate in the follow-up project entitled "NOPIILLS." As an industry stakeholder, furthermore, Bayer HealthCare is involved in further research projects pertaining to this issue within the context of the joint "Risk Management of Emerging Compounds and Pathogens in the Water Cycle" (RISKWA) [92] project.

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With regard to animal health products as well, we must demonstrate to the regulatory authorities during the regulatory review that no significant risk exists for the environment when the products are used correctly. We submit the studies and environmental analyses required for this to the responsible authorities.

Commitment to animal health

Bayer has been a well-known supplier of animal health products for more than a century. These products are used to fight diseases and parasites in farm and companion animals. Ultimately they not only benefit the animals, but also minimize the risk that possible pathogens can be transmitted to humans.

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Stringent safety and quality standards – comparable with those in human medicine – apply at Animal Health for our conventional pharmaceutical products, such as antibiotics or injection solutions. In line with the statutory requirements, strict quality standards also apply to all other product classes. The environmental compatibility of our products also plays a major role here. Within the scope of the regulatory review, for example, we carry out studies in order to minimize environmental risks through the use of our products. We actively contribute our experiences to the Environment and Safety expert groups of the German Association for Animal Health (BfT) and the International Federation for Animal Health (IFAH).

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We train veterinarians, farmers and private users in the responsible use of our products and provide them with relevant information materials. In this context, we also support the [European Platform for the Responsible Use of Medicines in Animals \(EPRUMA\)](#) [88], which brings together various partner organizations from politics, industry and society. We provide assistance here for minimizing the risk of infectious disease among animals while at the same time reducing side effects – in some cases through fewer antibiotics.

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Responsibility in the marketing of medicines

We also observe stringent guidelines in the marketing of our pharmaceutical products and observe the relevant industry codes of conduct. Bayer HealthCare is a member of the [International Federation of Pharmaceutical Manufacturers & Associations](#)

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(IFPMA) [90] and of regional associations such as the [European Federation of Pharmaceutical Industries and Associations \(EFPIA\)](#) [91], and is committed to observing their codes. These codes contain provisions governing, among other issues, advertising material standards, the distribution of samples, cooperation with members of medical and pharmaceutical specialist groups in connection with speaker and consultancy contracts, and scientific studies.

Both of the aforementioned codes apply to prescription medicines. The IFPMA code also applies to the use of non-prescription medicines that are directly advertised to representatives of the medical profession. The relevant local laws and codes additionally apply to non-prescription medicines. As the minimum binding global standard for Bayer HealthCare, the IFPMA code since 2012 has also contained elementary principles for cooperation with patient groups. The EFPIA has adopted a separate code for cooperation with patient organizations that is also binding for us. It prescribes transparency in all forms of cooperation and specifies that the independence of patient organizations must not be jeopardized through donations to such organizations.

The WHO's [Ethical Criteria for Medicinal Drug Promotion](#) [93] is the minimum standard for the advertising of our pharmaceutical products; national ethical standards also apply and are generally specified in local industry codes such as that of the association "[Voluntary Self-Monitoring by the Pharmaceutical Industry \(FSA\)](#) [94]" in Germany. These local codes refine the provisions of global or regional codes based on the respective applicable laws. Should there be discrepancies between the provisions we have undertaken to observe, Bayer HealthCare principally observes the more stringent requirement.

Also applicable are the provisions of our company-wide Corporate Compliance Policy, the new [Responsible Marketing & Sales Policy](#) [95], as well as the [Directive on Integrity & Responsibility in Communications and Marketing](#) [96].

Bayer HealthCare has compiled key requirements for compliant and ethical conduct in an internationally applicable [Bayer HealthCare Compliance Manual](#) [97] that went into effect for prescription and non-prescription pharmaceuticals in October 2012. It regulates in particular relations with important stakeholders such as representatives of the medical profession and patient organizations. A global training campaign was launched for all employees of the subgroup in 2012. Managerial employees of the subgroup have already received training in the new manual; further employee levels will undergo this training in 2013. A similar document for the Animal Health Division that replaces an existing requirement from 2009 went into effect on February 15, 2013, as did a specific requirement for medical products. Employees worldwide are being trained in these areas as well.

Dialogue

Improvements in rice production through new partnerships

As part of the Asian-German Better Rice Initiative (AGBRI), Bayer CropScience aims to contribute to improving food safety by improving rice production. The initiative was launched in Berlin in January 2013, and is part of the German Food Partnership (GFP) founded in July 2012. Along with other partners from industry, the partnership also includes the German Society for International Cooperation (GIZ), the International Rice Research Institute (IRRI), the Global Alliance for Improved Nutrition (GAIN) and the German Institute for Development Policy (DIE). AGBRI's goal is to improve the rice production value-added chain and enhance nutrition in Indonesia, the Philippines, Thailand and Vietnam – the most important rice producers and consumers in Southeast Asia.

Under the AGBRI umbrella, small-scale farmers gain access to educational and advice opportunities, management skills, agricultural expertise and cutting-edge technologies such as high-quality seeds, fertilizers, innovative crop protection solutions and better water management. This enables the farmers to significantly increase their productivity and their income.

Chinese rice-grower Yang Shao Gui in his field



Innovation in many fields – Bayer CropScience

Bayer CropScience concentrates worldwide on the development of innovative solutions in the areas of seed, crop protection and non-agricultural pest control. One example is innovative fungicides used in potatoes and other broad-acre crops, as well as in fruit and vegetables. These products protect crops from fungal infestation that can lead to diseases and harvest losses. The products also improve the storage suitability and extend the storage life of harvested produce. Our innovation potential in crop protection remains high: we aim to introduce eight new products to the market between 2011 and 2016.

Bayer CropScience is currently refocusing its research and development activities so that it can better respond to the future requirements of global markets. The subgroup plans to focus its activities in the future on the Seeds business (seed with improved plant traits) and on new growth areas such as plant health and stress tolerance. The acquisitions of u.s.-based AgraQuest, Inc. – a leading global supplier of innovative solutions based on natural microorganisms – and German company Prophyta GmbH enable us to expand our research and development in biological crop protection.

The Natria™ product line from our Environmental Science Operational Unit was developed on the basis of natural active ingredients. By taking integrated biological pest control solutions from AgraQuest into consideration, we are able to offer customers on the American market an environmentally friendly product to combat diseases in fruit and vegetables. On the European market we offer a mild weed control product based on fatty acids derived from palm oil. As the production of palm oil is often associated with social and ecological problems, Bayer joined an organization endorsed by the RSPO (Round Table

for Sustainable Palm Oil) in 2012 and is playing a proactive role there. With this decision, Bayer is underscoring its commitment to responsible materials procurement and purchases so-called GreenPalm certificates that support the production of sustainable palm oil.

After several years of preparation, Bayer CropScience wound up the sale of all remaining WHO Class I crop protection products for leaf and soil applications and seed treatments to expire at the end of 2012. In recent years we have replaced all affected insecticides with modern, targeted and more environmentally friendly formulations.

Information on the E.U.-wide requirements for crop protection products [98] can be found in the online report.

In addition to our own research activities, we rely on research collaborations. In our Seeds Operational Unit, we currently maintain some 90 research agreements with public and private partners to combine diverse expertise. This broad research approach also served as the foundation for last year's new innovations.

As we aim to provide innovative products that help to meet the demand for high-quality food, it is important that customers are able to access these agricultural products. With the help of proven concepts such as so-called Food Chain Partnerships, we aim to strengthen and improve distribution and marketing activities along the entire value chain – from seed to consumers (see also Strategy & Focus Issues chapter on page 16).

Focusing on product safety

Safety is the top priority with all products of Bayer CropScience. This applies to all solutions in the areas of seeds, crop protection and non-agricultural pest control. We analyze already prior to the

development of a product whether the envisaged solution is compatible with our sustainability approach. During the development phase, we examine the products in stringent tests that are monitored by the authorities. At issue here are a substance's toxicological properties on the one hand and on the other hand the question of how significant the remaining trace amount of a crop protection product is following proper application to the plants. Before a product is introduced to the market, experts conduct numerous further safety tests with regard to its use and environmental behavior, depending on the product area.

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Bayer CropScience observes the [International Code of Conduct on the Distribution and Use of Pesticides of the United Nations Food and Agriculture Organization \(FAO\) \[102\]](#). The principles of this code cover the entire life cycle of a product, from its development to its application and beyond. We implement all major aspects of responsible product handling in our Product Stewardship Program. This program adheres to the basic principles of our revised [Product Stewardship Policy \[103\]](#), which we have spelled out in a brochure that was expanded in 2012 to include a chapter on "Marketing, Advertising, Sales and Distribution" and other sections.

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With our commitment to the FAO Code and our expanded Product Stewardship Policy, we also meet the requirements of our Group Responsible Marketing & Sales Policy. In 2012 we developed and distributed within the global organization training materials on this Group policy, and made them available on the intranet. In Germany this issue was a focus of all training measures at the end of 2012, and further countries will follow in 2013. Parallel to the compliance workshops, the marketing and sales excellence training courses at Bayer CropScience have been focusing on responsible activities in this area since the fall of 2012. In special training workshops, this issue is now being explained to all Marketing and Sales employees and other affected employees from the marketing and sales excellence viewpoint.

Even beyond its core business, Bayer CropScience participates in projects targeted at added product stewardship. We are a member of the [Better Sugarcane Initiative \(BSI\) \[99\]](#) and the [International Sustainability & Carbon Certification organization \(ISCC\) \[100\]](#), which work to promote sustainable sugarcane cultivation in Brazil. We also take part in the [Round Table for Responsible Soy \(RTRS\) \[101\]](#), which works to promote sustainable soybean production.

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Responsibility for customers and partners

As the application of crop protection products requires the greatest possible care, supporting our customers and partners in the proper and safe handling of the products is a focus of product stewardship at Bayer CropScience. We address farmers and dealers particularly with numerous programs

worldwide. Targeted workshops are aimed at effectively applying our products and ensuring the safety of users, the environment and consumers. Furthermore, we provide our customers with handbooks explaining the safe use, storage and disposal of all of our products.

In 2012 our training measures focused on the Asia and Latin America regions. One example here is our activities in India with general training and information events on the safe handling of crop protection products for around one million farmers. Bayer CropScience also makes available protective clothing within the context of these training measures. In South Korea alone, we distributed 196,000 pairs of gloves to farmers.

In Latin America, we combined all our activities dealing with product safety measures within our AgroVida program. This comprises various initiatives with which we have been continuously increasing the farmers' safety awareness and specialist expertise since the 1990s. Contributing to this endeavor, for example, are safety workshops involving 16,000 farmers in Colombia and 12,000 farmers in the Central America and Caribbean (excluding Mexico) region. We also carried out safety training measures in numerous African countries in 2012. In Sudan alone, 800 participants attended a two-day event.

With regard to waste disposal, Bayer supports industry's efforts in various countries to establish a waste disposal concept for used packaging and containers that brings together many different companies. In anticipation of such a solution, Bayer is also establishing its own disposal systems. An example here can be found on the Philippine island of Mindanao, where we have not only set up collection centers for the customers, but also organized workshops on the effective cleaning of empty containers for customers' employees. A collecting system developed by Bayer CropScience in France for contaminated wastewater generated in the cleaning of product containers is currently also being tested in other European and Latin American countries.

Furthermore, we also work to improve technical solutions and thus minimize risks associated with the use of our products: in Europe, we drove forward the optimization of sowing machines to provide better protection for users and the environment, among other initiatives. The aim here was primarily to restrict the spread of dust.

The company's range of continuing education programs for product stewardship is rounded out by internal employee training measures. Our aforementioned Product Stewardship Policy also provides information on all principles for the responsible handling of our products, combined with specific instructions for use for our employees and those who use our products.

Bee health and crop protection

The use of crop protection products to safeguard food supplies is essential to continuously provide safe and high-quality food to the growing population. This also includes specific solutions to make sure that the effective use and application of these products go hand in hand with bee safety assuming realistic agricultural practice.

The safety and health of bees is similarly important to Bayer as the endeavor to provide sufficient, affordable food to a growing world population. Many important crops require not just pollination by bees to produce a good yield, but also the application of modern crop protection products, especially when they are young and susceptible to attack by pests and disease.

Last year Bayer launched a worldwide [bee care program \[104\]](#) to promote a better understanding of the many factors that can impact bee health. This program included the establishment of the first Bayer Bee Care Center at the Bayer Animal Health and Bayer CropScience site in Monheim am Rhein, Germany. The center opened its doors in June 2012 and combines Bayer's extensive knowledge and expertise in bee health under one roof. Following the success of this facility – which also serves as a platform for dialogue with stakeholders who share our interest in promoting bee health worldwide – a second Bee Care Center will open in 2013 that will deal specifically with bee health issues in North America. The North America Bayer Bee Care Center will be located at the u.s. headquarters of Bayer CropScience at Research Triangle Park near Raleigh, North Carolina, and will bring together important technological, scientific and academic resources.

Both Bee Care Centers will support activities such as the Ambassador Program, which is already under way in a number of countries to promote a better understanding of the importance of bee health. To date, more than 200 employees from the United States and Canada have taken part in the training initiative to learn more about Bayer's commitment to bee health. They can now pass on this knowledge to a broader target group within the company and in their work environment. The goal is to involve a large group of employees and build up a better informed network. The next stage involves the organization of further workshops in Europe in 2013. Last year already, we trained managers for sustainable agriculture in France with the support of external bee experts.

There is broad consensus among scientists who work in the area of bee health that the spread of the difficult-to-combat Varroa mite presents the main risk to bee health, as this pest transmits diseases via numerous viruses to bees. The Animal Health Division of Bayer HealthCare is working together with researchers at the Institute for Apiculture in Oberursel, Germany, to develop an innovative "Varroa

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Neonicotinoids and bee health

Neonicotinoid insecticides have been used safely for a long time. Practical experience in the field, as well as sound scientific data, show they do not have any negative effect on the development of bee colonies if the products are used responsibly and properly, according to label instructions. The failure by E.U. Member States to reach a conclusive decision on the European Commission's proposed partial ban on neonicotinoids (status: March 25, 2013) confirms the scientific assessment that there are no convincing arguments against the use of these products..

At Bayer, we take bee health very seriously, as our customers, the farmers, need the pollination of bees for their harvest. Therefore, we actively support not only the sustainable use of crop protection products, but also research into solutions to combat the Varroa mite, which is widely regarded as one of the main threats to bee health.

gate" [105] for beehives. With this innovation, the scientists want to protect already treated entire bee colonies from the return of dangerous Varroa mites. Bees brush against the anti-mite chemical on the entrance hole when they return to the hive, taking it inside with them. Fresh supplies of the chemical are immediately released from the core of the plastic strip to its surface, ensuring long-term protection.

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However, further important factors include increasingly changeable weather conditions, generally intensive agricultural practice, and a lack of suitable feeding sites for bees in certain regions, as well as breeding sites in the case of wild bees.

In addition to the focus on bee health, we assign importance to the product stewardship measures we are developing to accompany the use of our crop protection products. About 75 percent of crops worldwide require pollination to provide an optimal yield. And although many different animal species can function as pollinators for different crop varieties, the honey bee is regarded as the most important performer of this pollination task due to its social behavior and its ability to communicate with neighboring bee colonies and thus exchange information on good feeding sites.

Focusing on efficiency – Bayer MaterialScience

In close contact with customers and partners from industry and the scientific community, Bayer MaterialScience develops new products and applications for polymer materials, as well as energy-efficient technologies and processes for their manufacture. Through our research and applications development, we convert scientific findings into customer-oriented businesses and facilitate the increasingly efficient and safe production and processing of our products. The subgroup's Innovation Community Council holds responsibility for the global steering of innovation activities.

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In 2012 Bayer MaterialScience spent €242 million for the research and development of both new products and more efficient processes. In addition, the subgroup spent €115 million on joint development projects with customers. Key areas of innovation include sustainable construction and environmentally friendly mobility. In the automotive sector, Bayer MaterialScience supports lightweight construction and other solutions that help to lower fuel consumption. In 2012 the company introduced a new polyurethane system, for example, for lightweight automotive construction with which component weight can be reduced by up to 30 percent compared with standard solutions. In our “Solar Impulse” lighthouse project, furthermore, we are testing energy-saving lightweight construction with outstanding insulation properties.

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In buildings, for example, insulating materials based on products from Bayer MaterialScience enable highly effective insulation against heat and cold, which reduces energy requirements. In this connection, the EcoCommercial Building Program – a global network of experts under the auspices of this Bayer subgroup – is being further expanded. A new insulating material being developed by the company is a particularly fine-pored rigid polyurethane foam whose thermal conductivity is up to 10 percent lower than the current state of the art. This enables a considerable increase in the energy efficiency of refrigerated appliances.

We also contribute to sustainability by steadily improving our production processes. One example here is the improvement of the currently extremely energy-intensive production of chlorine through the use of energy-efficient sodium-chloride-based oxygen depolarized cathode technology (see also the Strategy & Focus Issues chapter on page 18).

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High-performance materials from Bayer MaterialScience make it possible, for example, to more efficiently produce energy through regenerative energy sources. Examples here range from polyurethane systems for wind turbines to polycarbonate sheet for photovoltaic modules. In lighting technology, our polycarbonates in combination with LED lights enable stronger illumination power at lower energy input – both in car headlamps and in street lighting. For more information, see the Strategy & Focus Issues chapter on page 17ff.

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Moreover, Bayer MaterialScience is a technological leader in the field of electroactive polymers. In 2011 we launched a new application under the brand name ViviTouch™ that provides high-resolution tactile feedback for electronic games. ViviTouch™ actuators react extremely quickly, can be felt within five milliseconds and consume less electricity than conventional vibration solutions. In 2012 an audio application was developed enabling headphones to simulate the vibration of a live event without requiring a high level of volume. This improves sound quality while reducing the burden on the eardrums.

Several current research innovations from Bayer MaterialScience are focused on the use of the greenhouse gas carbon dioxide (CO₂) as a raw material for the production of polyols, a starting material for polyurethanes. The technologies currently being tested cannot significantly slow climate change, but can reduce the dependency on the fossil raw material petroleum. Our online report contains more information on this process – which is also known as “Dream Production” [106] due to its innovative approach – and on another project headed up by Bayer MaterialScience that will aim to use CO₂ as a regenerative energy source.

Collaborations with external research partners also play a major role at Bayer MaterialScience. In addition to the project with Aachen Technical University, the partnership with the renowned Tongji University in Shanghai, China, focusing on education and research projects at Bayer-Tongji Eco-Construction & Material Academy is becoming increasingly important. Furthermore, we receive important innovation impulses from collaborations with customers and other industry sectors in Germany through platforms such as the [company network future_bizz](#) [108]. Together with our partner Jiangsu in China, we have developed a window with outstanding thermal insulation properties. It is produced by the pultrusion process, in which glass fibers are impregnated with duroplastic resin. The resulting composite material is both lightweight and stable.

Responsibility along the product life cycle

All products of Bayer MaterialScience satisfy the strictest safety requirements. This does not just apply to substances subjected to standard testing under the European REACH Directive. Within the context of the voluntary Global Product Strategy (GPS) of the chemical industry, we assess – and if necessary reduce – all health and environmental risks that can result from our chemicals. These [product safety assessments](#) [110] apply to the entire life cycle of a product – from research and procurement through production and logistics to application, disposal and recycling. Our product stewardship does not just end with our company, it also includes suppliers, customers and partners.  GPS was rolled out in 2012 in another 10 countries and three new languages through the “Product Safety First” [111] (formerly BayCare) page. Through this website, we inform customers and other interest groups about our activities and provide detailed and transparent descriptions of the product safety assessment steps.

A product safety assessment at Bayer MaterialScience takes place in several steps: first, we identify the chemicals that are subject to statutory regulations. They are then rated according to their risk potential so as to provide a basis for the effective minimization of risks. Such steps can include proposals for technical measures such as protective clothing, or marketing restrictions.

Finally, we produce the statutorily required material safety data sheets, technical information sheets and labeling.

In this connection, we also take into account all requirements of our Responsible Marketing & Sales Policy. At Bayer MaterialScience, continuing emphasis is placed in training courses, communication measures and discussions with management on antitrust law. This included a focus on fighting corruption and avoiding conflicts of interest in training measures implemented worldwide in 2012 for all managerial employees. This second aspect is supplemented by the Group-wide COMPASS project (see page 24) and the web-based training course for all employees that deals with international aspects of anti-corruption measures. With the new training emphasis in the area of product liability, the focus in 2013 shifted to the third central aspect for Bayer MaterialScience in connection with the Responsible Marketing & Sales Policy.

For important products such as MDI, TDI, PC and PET, Bayer MaterialScience works with [associations \[107\]](#) to draw up environmental product declarations and eco-balances certified according to ISO 14040 and 14044 and based on industry averages.

We also consider a well-founded scientific risk analysis of the manufactured materials that focuses on protecting people and the environment to be particularly important in the use of nanotechnology. We have summarized the principles for the use of nanomaterials in our [Bayer Code of Good Practice Nano \[109\]](#).

We work intensively on the international harmonization of terminology and test procedures at ISO level and on the drafting of toxicological test guidelines at OECD level. Furthermore, for years we have fostered intensive and transparent stakeholder dialogue on the topic of nanomaterials with committees, associations, industry partners, customers, authorities, universities and the public.

Bayer MaterialScience has launched a comprehensive Product Stewardship Program for the safe handling of carbon nanotubes. This program supports the safe handling of these materials – from production through processing and use to disposal – in all areas in which this technology is used. We also support the carbon nanotube safety research projects promoted by the [German Federal Ministry of Education and Research \(BMBF\) \[112\]](#).

Due to their special mechanical, electrical and thermal properties, nanomaterials such as carbon nanotubes marketed under the name Baytubes™ can facilitate new solutions in socially relevant areas of application such as the conversion, storage and use of energy. At the Chempark Leverkusen site, we operate a pilot plant and laboratory facility with a nominal capacity of 200 metric tons per year for the product and process development of carbon

nanotubes. In a production facility in Laufenberg, southern Germany, that was approved by the Freiburg Regional Council, H.C. Starck manufactures Baytubes™ on our behalf, which are already suitable for commercial use.

Substances in direct contact with food

Bayer MaterialScience is very attentively following the scientific discussion about the chemical bisphenol A (BPA), a feedstock for various plastics. Critics are concerned that health risks could result for users if BPA is released from polymers. As documented by numerous scientifically validated studies that attest to the safety of BPA, we remain convinced that the safety of BPA is ensured in its existing areas of application. This assessment is consistent with evaluations by the responsible regulatory authorities in Europe, the United States, Australia, Japan and elsewhere.

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Employees



Employee survey: more than 70 percent of all Bayer employees seized the opportunity to put across their viewpoint about the company and their working conditions.

Bayer is committed to promoting a performance-oriented corporate culture. To realize our growth strategy, we rely on our employees and their continuous development. We actively encourage regular feedback between supervisors and their employees, greater cultural and employee diversity within the Bayer Group, and innovation in all areas. Based on our corporate values and our clear commitment to human rights, we also offer our employees worldwide performance-related compensation and a high level of social protection.

Our human resources policy is based on our LIFE [113] values (Leadership, Integrity, Flexibility and Efficiency), which are valid worldwide. From these values we derive our commitment to a sustainable human resources policy with a strong focus on performance and development on the one hand and social responsibility on the other. To emphasize their importance as a framework for our employees' behavior at work, in 2012 we integrated the LIFE values into our global performance management system. In the future, all employees at management level will be assessed on the extent to which they have applied these four principles in the attainment of their personal business objectives.

On December 31, 2012, Bayer had 110,500 employees worldwide (2011: 111,800), 105,600 of whom had permanent employment contracts, while 4,900 had temporary contracts. The headcount therefore declined slightly in 2012 (-1.2 percent). By contrast, the number of female employees increased to 39,600. Women thus account for around 36 percent of our headcount (2011: 35 percent). Table 7

In 2012 the Group-wide fluctuation rate, which includes employer- and employee-driven terminations, retirements and deaths, increased to around 14 percent. That was mainly due to the inclusion for the first time of employees on temporary contracts and measures in connection with the announced headcount reductions, most of which took effect in 2012. The fluctuation rate varies by region. Table 8

The proportion of employees leaving the company at their own request, which is an important indicator of employee satisfaction, is just 2.3 percent across the Group. At our companies in Europe, it is only 0.4 percent.

To enable us to respond flexibly to short-term personnel requirements caused, for example, by unforeseeable fluctuations in the order situation, temporary projects or long-term illness, in Germany we also use personnel from staffing agencies. We work exclusively with agencies whose employees are covered by a collective bargaining agreement entered into by organizations that belong to the German trade union confederation (DGB). That includes the "BZ Chemie" agreement concluded by the Federal Association of Staffing Agencies (BAP), the Association of German Temporary Employment Agencies (igz) and the German Mine, Chemical and Power Workers' Union (IG BCE). This agreement covers the payment of sector supplements in the chemical industry. We support the use of this agreement by the staffing agencies used by Bayer, and are currently modifying our contracts with such agencies accordingly. The use of agency staff is declining steadily. At the end of 2012, a total of 170 employees from staffing agencies were deployed at major Group companies in Germany, compared with more than 250 a year earlier. Personnel from staffing agencies do not play a significant role at Group companies outside Germany either. We do not currently have accurate centralized figures.

Respecting employee and human rights

As a socially responsible company, Bayer has long been committed to upholding and supporting human rights at various levels. The Bayer Human Rights Position [114] is rooted in a binding Group-wide directive. We respect the United Nations'

Declaration of Human Rights [115] and are a founding member of the UN Global Compact [116]. Our mission, LIFE values and Corporate Compliance Policy [117] commit all employees around the world to fair and lawful conduct toward staff, colleagues, business partners and customers.

Our commitment to respect and promote human rights within our sphere of influence is a central element of our corporate philosophy. As a global company, we see this as not simply representing a social and ethical commitment, but also a business-related requirement. Our goal is to protect our reputation as an attractive, sustainability-oriented employer and business partner. We are convinced that our clear approach raises the satisfaction and identification of employees with our company, meets customers' expectations and minimizes reputational risks that could damage our business.

To raise the awareness of our employees around the world of the importance of human rights in our day-to-day activities, we have developed a variety of information and training activities within the Group. Our information program, which was introduced in 2008, has now been integrated into mandatory human rights training sessions at many of our sites. In addition, central elements of the Human Rights Position are included in the compliance training. Between August 2011 and September 2012 we ran a training drive in China, including a special online training program. A further 17,000 or so employees around the world received training on the content of our Human Rights Position and its practical application in 2012. The compliance organizations at Group and country level monitor compliance with the relevant directive. If there are signs of violation,

employees can contact their Compliance Officer and the central compliance hotline at any time, anonymously if required.

Bayer supports union representation of its employees. The working conditions for nearly 53 percent of our employees are governed by collective or company agreements. In China, the establishment of unionized employee councils, which started in 1997, continued in 2012. 11 companies there now have elected councils representing over 10,000 employees. This means that more than 90 percent of our employees in China are now represented by the local union. A staff council was also set up at our holding company in Japan in 2012.

Table 9

Employee feedback

Our second Group-wide employee survey was conducted in 2012. Once again, more than 70 percent of employees worldwide took part in this survey, which gives us important information and feedback on their current perception of Bayer's strategy, culture and working conditions. The survey gives us an up-to-date staff assessment of various issues at regular intervals and compares us with other companies. On the basis of the findings, we take steps to improve the situation and track their progress.

The survey results confirm that the overwhelming majority of employees identify with Bayer and its values and feel a strong commitment to the success of the Bayer Group. For instance, 92 percent of those who took part agree with our corporate values, an increase of 2 percentage points compared

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7 Employees* by employment status, region and gender in 2012

Region	Permanent employees			Temporary employees			Total
	Men	Women	Total	Men	Women	Total	
Asia/Pacific	17,100	8,700	25,800	900	400	1,300	27,100
Europe	32,000	17,800	49,800	1,300	1,000	2,300	52,100
Latin America/Africa/Middle East	9,500	5,600	15,100	600	400	1,000	16,100
North America	9,300	5,600	14,900	200	100	300	15,200
Total	67,900	37,700	105,600	3,000	1,900	4,900	110,500

* The number of employees has been converted to full-time equivalents, which means part-time employees are included in proportion to their contractual working hours.

8 Total employee fluctuation* and new hires in 2012 by region and gender

Region	Employee fluctuation 2012 (percent)			New hires 2012		
	Men	Women	Total	Men	Women	Total
Asia/Pacific	15.3	18.3	16.3	4,749	2,597	7,346
Europe	10.5	12.8	11.3	2,603	2,207	4,810
Latin America/Africa/Middle East	16.1	18.0	16.8	2,000	1,302	3,302
North America	17.4	17.3	17.4	1,015	603	1,618
Total	13.4	15.4	14.1	10,367	6,709	17,076

* Headcount

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Strategic partnership with RWTH Aachen

Bayer has taken another important step toward strengthening the collaboration between business and academia. In May 2012 it signed a cooperation agreement for a strategic partnership with the RWTH International Academy, the continuing education branch of RWTH Aachen University. This complements the existing long-standing scientific collaboration. The goal of the strategic partnership is to set up a knowledge hub that will pool the activities of Bayer and RWTH and establish a long-term, targeted recruiting program. Other key areas include initiating new contacts and projects, and developing, planning, supporting and following up on student and graduate programs.

The first Bayer Day was held in Aachen on May 25. More than 200 students and professors took up the invitation to the event on the university's premises. RWTH Aachen is one of the top engineering schools in Germany and also leads the way in scientific research.

with our first survey in 2010. 89 percent of employees say that they go "beyond the call of duty" for their organization's success and 91 percent feel that they are able to fully utilize their skills and knowledge.

However, the survey also highlighted shortcomings, which we aim to overcome by taking suitable steps. The focus is on driving forward the initiatives introduced following the first Group-wide employee survey, including programs to enhance customer orientation and reduce complexity, Group-wide efficiency initiatives and measures to improve our leadership and feedback culture. Great importance will also be attached to making sure the strategies of the Group, the subgroups and the service companies are explained better and more understandably.

Talent management

One key element in our human resources policy is Group-wide talent management, in other words measures and tools to support the professional and personal development of our employees. The basic principle is that every employee has his or her own individual strengths and talents that deserve recognition and development in the workplace. To help employees make better use of professional

opportunities and actively shape their personal development in the company, last year we introduced the Bayer Global Internal Job Board. This is a globally accessible platform for advertising vacancies in the Bayer Group, up to senior management level. It gives all employees a transparent overview of the internal employment market and enables those who are suitably qualified to apply directly for positions that interest them beyond organizational boundaries.

To strengthen the Leadership component of LIFE and promote performance orientation in the company, we have developed an innovative training program. This is designed to support our managers in regularly giving their employees candid and constructive feedback on their work and conduct. The goal is to establish a true feedback culture throughout the enterprise that promotes individual strengths, addresses existing deficits and thus enhances employees' personal and professional development over the long term. Initially all members of the Group Leadership Circle – the company's top management level – took part in the training program. In 2012 it was extended to some 11,000 other managers at all levels.

A further feedback tool has been added to strengthen these initiatives. Alongside our established 360° feedback, which almost 2,400 managers worldwide again used last year to obtain a soundly based insight into how they are perceived by the people they work with, since 2012 our employees have been able to give constructive feedback to their supervisors. In the introductory phase, this new "upward feedback" tool is available to direct reports of Group executives, who made use of it more than 70 times in 2012. It is planned to extend it to other management levels in the near future.

Our Development Dialogue is an ideal link between feedback, which is based on the present situation, and long-term career planning. Employees discuss their strengths and development needs, career expectations and aspirations with their direct supervisor with the objective of agreeing on a personal development plan to enable them to realize their potential within the company.

9 Percentage of collective agreements by region in 2011/2012

Region/Area	Europe	North America	Latin America/ Africa/ Middle East	Asia/ Pacific	Bayer Group (Total)
Percentage of employees covered by collective agreements, especially on compensation and working conditions*	88/87	3/5	46/46	16/15	54/53
Percentage of full-time employees with contractually agreed working weeks of max. 48 hours	100/100	100/100	99/100	100/100	100/100

* Collective or company agreement

Since last year, managers throughout the Bayer Group have been required to integrate the Development Dialogue into the mandatory feedback discussion that forms part of the performance management process. In the future, supervisors and employees will be assisted by an IT-supported information platform (self-service application) in our global employee portal HR//online. This allows documentation of the Development Dialogue and of individual development and succession plans. Employees can also view and update their personal resume so their skills profile is available for the regular Personnel Development Conferences. Following a successful pilot in October 2012, rollout of this self-service application to the entire Bayer Group started in early 2013. Last year, more than 6,600 Development Dialogues were relaunched Group-wide.

Alongside these global initiatives to improve internal personnel development, the Bayer Group has many other programs aligned to the specific needs of different corporate functions and countries. Last year, Bayer Pharmaceuticals in India introduced "My Growth, My Life," a development program to prepare especially talented sales staff to take on positions of greater responsibility in the short to mid term. In Russia, new managers and employees who are expected to take on a leadership role in the near future have received personal mentoring since last year. Bayer MaterialScience's "Helping Yourself Succeed" program in the United States introduced the previous year is an extensive range of professional development offerings. It was developed after an employee survey and since its introduction it has been used by around 800 employees, a third of this subgroup's headcount in the United States.

Advancing knowledge and leadership skills

Providing continuing education for our employees is central both to talent management and to addressing the consequences of demographic change. Our ongoing training offers [118] are targeted at all managers and employees in accordance with individual and organizational needs. In 2012 we maintained our offering of ongoing training courses for employees at a high level worldwide, and added a range of new programs. Our established online occupational safety training program "Pegasus" was used more than 36,000 times. In addition, over 28,000 employees, mainly at management level, have now completed our online training on compliance and lawful conduct.

A new workshop format, "Leading Innovation," was added to our management training on aspects of strategic corporate development in 2012 to foster individual innovative capability. Innovation ranks alongside feedback and diversity as one of the central elements of Bayer's demanding performance culture. In this series of workshops, members of the Group Leadership Circle and other selected managers are trained in the strategies and methods

of effective innovation management. To ensure a uniform understanding of leadership throughout the Bayer Group and systematically improve our training offering, in 2012 we also developed a concept for a Group-wide Bayer Academy. The first elements were rolled out to employees worldwide in January 2013.

The Bayer Academy will comprise two principal areas, a Leadership & General Management Academy for managers and various functional academies focusing on a wide range of topics and corporate functions that are geared to continuous professional development of our employees. The quality of our training is highlighted by Bayer CropScience's Xcedo sales academy in India. This state-of-the-art training academy for local sales staff gained second place in the Best Corporate University Award presented by the Tata Institute of Social Sciences. Also in India, Bayer CropScience was honored by the Learning & Organisation Development Roundtable, which singled it out as one of the "Best Learning Organisations of Asia 2012" for its extensive ongoing training.

In parallel with the introduction of the integrated Bayer Academy, in 2012 we started to make technical and qualitative improvements to our Group-wide training reporting system and adapt it to the new global training structures. In the year under review, every employee spent an average of around 32 hours participating in continuing education measures. In the Group as a whole, male employees completed around 34 hours of training on average, and women more than 29 hours. We are working toward systematic documentation and reporting of all continuing training Group-wide in the future, including the duration of training and employee categories of the participants according to gender.

Employee compensation and benefits

An important principle of our human resources policy is linking employees' compensation to their performance and enabling them to share in the company's success. Regular benchmarking against competitors and a globally standardized system help us to set base salaries in line with the demands and responsibilities of each position. These salaries are supplemented by performance-related compensation components and extensive fringe benefits.

For example, more than €700 million was paid out to employees under the Group-wide short-term incentive (STI) program alone in 2012. In addition, various employee stock participation programs [119] enable our employees to purchase shares in the company at a discount. In many countries, these are part of our extensive fringe benefits and offer employees a further opportunity to participate in the company's business performance. We also offer senior and middle

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managers throughout the Group uniform stock-based compensation programs known as "Aspire" (see Note [26.6] to the consolidated financial statements in the Annual Report 2012). These are based on ambitious earnings targets and – in the case of Group Leadership Circle members – require an appropriate personal investment in Bayer stock.

In the emerging markets and developing countries, too, our compensation levels are aligned to local market conditions. In keeping with our Human Rights Position, our aim is to pay our employees adequate salaries that ensure they and their families have an appropriate standard of living. In all emerging markets where Bayer has a significant presence, the lowest salary paid by Bayer is at least in line with the applicable minimum wage and in most cases considerably higher.

Social protection and responsibility

Sustainability and social responsibility are also reflected in our approach to necessary changes and restructuring measures. We undertook the workforce reduction initiated in November 2010 with the maximum degree of social responsibility. It was completed as planned by the end of 2012. The background to this restructuring is Bayer's goal of concentrating its resources effectively on growth and innovation, in other words raising investment in research and development, commercializing new products and expanding activities in the emerging markets. In Germany, which remains the company's largest operational base with 34,600 employees, business-related dismissals are excluded through the end of 2015 for a large proportion of employees under an agreement with the employee representatives that was again extended. As the results of our employee survey demonstrate, the majority of our employees regard our social commitment as a key element of our corporate strategy.

Full and timely information for employees is provided on significant operational changes in compliance

with the relevant national and international obligations. Far-reaching changes are communicated to employees through a wide range of media that are closely coordinated. Special information meetings also attended by the management are a key focus. In Germany we combine providing timely information to the employee representatives in the Economics Committee of the company concerned with coordinating and jointly deciding on the proposed communication measures.

Our human resources policy also includes ensuring a high level of social protection. For example, nearly all employees either have statutory health insurance or can obtain health insurance through the company. The health insurance programs offered to employees and their families in Belgium, Serbia, Poland, India, Taiwan and countries of Central America were upgraded further in 2012. Since last year, our employees in China have been able to extend their health insurance coverage to include family members.

Two-thirds of our employees have access to a company pension plan. We continued to expand our offering for employees in this important area of human resources policy in 2012. In Serbia, Poland and the Czech Republic we improved the quality of the existing pension plans, and a company pension plan was introduced in Romania at the start of 2013. Since last year, new hires in the United States have been included automatically in the local pension plan from their first day of employment. At the same time, we have increased the employer contributions to these plans. Table 10

In 2012 our personnel expenses, including social expenses and expenses for our pension plans, amounted to €9,203 million. The defined benefit obligation for pensions and other post-employment benefits totaled €22,714 million on December 31, 2012. Table 11

Diversity and internationality

Bayer is convinced that a diverse employee structure is of central importance for the competitiveness of the company. This is particularly true for our management. Diversity improves our understanding of changing markets and consumer groups, gives us access to a broader pool of talented employees, and enables us to benefit from the enhanced innovative and problem-solving abilities that are demonstrably associated with a high cultural diversity within the company. We are also pursuing this goal in particular in the growing Asian and Latin American economies, where we aim to increase the proportion of local managers significantly in the mid term. Of the members of our Group Leadership Circle, in which 23 nationalities are currently represented, around 67 percent come from the country in which they are employed. Overall, the Bayer Group employs people

10 Health insurance and pension plans for Bayer employees in 2011/2012 (percent)

Region	Health insurance*	Pension plans**
Asia/Pacific	90/90	38/35
Europe	96/97	84/86
Latin America/Africa/Middle East	94/94	52/52
North America	89/92	93/96***
Total	94/94	70/70***

* State or employer/employee-funded

** Including programs to supplement statutory pension plans

*** 2011 figures restated: the figures for North America and totals we published in our Annual Report 2011 and 2012 and our Sustainable Development Report 2011 were too low. This was due to subsequent report updates from the United States resulting from a divergent understanding of what had to be reported under "Company Pension."

of 136 nationalities. You can find further information on [employee networks to promote diversity \[120\]](#) in the online report.

Improving the balance of men and women in managerial positions at Bayer

One major goal of our diversity strategy is to improve the balance of men and women especially in managerial positions as we consider fewer than 30 percent of either gender at this level to be unbalanced. To this end, in 2010 we decided to increase the ratio of female to male managers in the top five contract levels from 21:79 percent Group-wide toward 30:70 percent. We plan to realize this ambitious target at Group level by the end of 2015. [Women accounted for 23 percent of employees in this management segment worldwide at year-end 2012, while men accounted for 77 percent.](#) In the workforce as a whole, the ratio of female to male employees is 36:64 percent. Table 12

We aim to raise managers' awareness of the benefits of greater diversity of employees through workshops so that people have equal career opportunities at Bayer and are able to participate in our programs to encourage the development of managers regardless of their gender, nationality and affiliation. In 2012 the first 24 management teams attended a diversity workshop.

These "strategic debates" with senior management members are accompanied by a range of additional initiatives at the subgroups. Bayer Consumer Care, a division of Bayer HealthCare, has launched a broadly based information and training drive under the motto "Inclusion is diversity in action." Inclusion of all employees in the company's activities on the basis of equality is designed to break down barriers between different employee groups and foster creative diversity in how they think. Elements of this cross-border initiative include a monthly newsletter for all employees, a permanent intranet site with a wide range of useful information and three training programs that outline the economic benefits of greater diversity of the workforce, show how different employee groups can work together productively and provide practical tips for managers for their area of responsibility. Worldwide, around 900 employees have completed the training programs since they were launched in March 2012.

Our [commitment to equality of opportunity \[121\]](#) is also reflected in our compensation system, which does not make any distinction between male and female employees. At Bayer, individual salaries are based on each employee's personal and professional abilities and the level of responsibility assigned to them. At managerial level, this is based on uniform evaluation of all positions throughout the Group using the internationally recognized Hay method. In areas of the Group and jobs that fall within the scope of binding collective bargaining agreements, there are no differences in pay based on gender. This also applies for the compensation of trainees.

News

Bayer is the top employer for up-and-coming researchers

Good marks for Bayer as an employer: a ranking by the German "Wirtschaftswoche" magazine and consulting company Universum Communications has revealed that Bayer is the most popular employer in the business sector for young scientists. Only the Max Planck Institute and the Fraunhofer Gesellschaft did better in the popularity ratings among scientists. The Group also did well in other areas. For example, Bayer was able to improve its popularity among engineers from 36th place the previous year to 29th. In the field of economics, the company even managed to climb 15 places to 31st.

Other results of the survey are also interesting. For example, the most common reason given for changing employer was a lack of talent management. Respondents gave job security as the strongest reason for loyalty to an employer. Bayer is able to score on both points thanks to its job security agreement and improved talent management. Just under 5,000 young employees, with between one and eight years' work experience, took part in the survey.

Integration and support for disabled employees

Integrating and supporting disabled employees is another significant issue for Bayer worldwide. We employ people with disabilities in 25 countries. Most of them work for our companies in Germany, where they made up 4.4 percent of the workforce in 2012. More than 45 percent of disabled employees in Germany were female. The relatively high proportion of employees with disabilities in Germany is due to their particularly widespread integration in this country.

We strengthened this commitment during the year under review. In September 2012, for the first time, our site in Bergkamen, Germany, offered a preparatory training program for one disabled youngster.

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11 Personnel expenses and pension obligations (worldwide, € million)

	2008	2009	2010	2011	2012
Personnel expenses	7,491	7,776	8,099	8,726	9,203
– of which pension and social security contributions	1,513	1,490	1,623	1,672	1,829
Pension obligations*	14,910	15,931	17,699	19,310	22,714

* Present value of defined-benefit obligations for pensions and other post-employment benefits

12 Bayer Group workforce structure* in 2012

	Women	Men	Total
Senior management incl. Group Leadership Circle	2,000	6,600	8,600
Junior management	8,800	14,900	23,700
Skilled employees	28,800	49,400	78,200
Total	39,600	70,900	110,500
Trainees	800	1,700	2,500

* Number of employees in full-time equivalents

Assuming the program is completed successfully, the next step will be a regular vocational training program with the company. With this measure Bayer is supporting the local project “NeuEinstellung,” which provides employment opportunities for people with disabilities.

Traditionally, advocacy of people with disabilities has also been particularly strong in the United States. Since 1999, our U.S. headquarters in Pittsburgh has run a program to foster the training and employment of people with disabilities. As part of this, we hosted the 13th Annual Disability Mentoring Day there in November 2012. Around 50 students were given the opportunity to find out at first hand about the various entry-level employment and integration programs for university graduates with disabilities.

Combining work and family life

Flexible worktime arrangements help employees balance work with personal or family life. Such arrangements specifically benefit working parents. In all countries, Bayer offers its employees a variety of such opportunities. These range from flexible worktime models and part-time employment through teleworking to additional leave and the provision of childcare for employees with children. In 2012 the Bayer Group had some 7,500 part-time employees, around 6.7 percent of the total headcount. Table 13

The contractually agreed working hours of our employees do not exceed 48 hours a week in any country. We are constantly extending opportunities for employees worldwide to shape their working hours flexibly. Last year we introduced flextime working in the Czech Republic and employees in the Netherlands and Poland are now able to work from home. In Russia, we have initiated a pilot project on teleworking.

By the end of 2012 more than 80 percent of employees in Germany who took part in the statutory parental leave program [122] over the past five years had returned to work. The number returning to work is equivalent among men and women. For technical reasons, no comparable data on the number of employees returning from parental leave are available for other countries.

Tackling demographic change in the company

Demographic change is a challenge, especially for many industrial nations. It involves both opportunities and risks. We have prepared forecasts of the age structure of the workforce in the entire Bayer Group up to 2020 in order to assess the importance of this issue for our human resources policy. We are still not facing an acute shortage of skilled staff. We are continuing to train at a high level and are also regarded as an attractive employer by external specialists. This was again confirmed by many accolades in 2012. Further details [124] can be found in our online report.

At the same time, we aim to utilize and develop the potential of older employees even more effectively. Passing on knowledge within the company from the older to the younger generation is the aim of the Bayer Senior Experts Network, known as **Baysen** [125] for short. These measures are supplemented by the ongoing expansion of occupational health management.

A General Works Agreement on lifetime working and demographic change [126], which came into effect in Germany at the end of 2010, illustrates another facet of the management of demographic change at Bayer. Table 14

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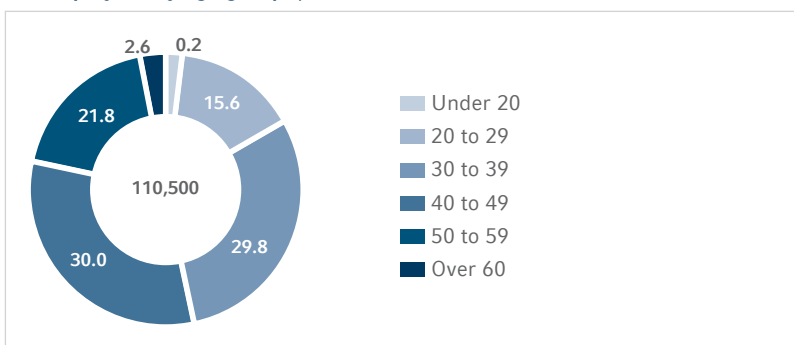
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13 Percentage of part-time employees in 2012 by region and gender

Region	Men %	Women %	Total %
Asia/Pacific	0.9	4.5	2.1
Europe	7.3	21.4	12.6
Latin America/Africa/Middle East	0.0	0.2	0.1
North America	0.1	2.2	0.9
Total	3.7	11.9	6.7

14 Employees by age group (percent)



Recruiting for the future

Bayer aims to appeal to the best and most talented people worldwide and to retain employees for long periods by providing good development opportunities, a modern working environment and competitive compensation. In 2012 we again succeeded in attracting a total of more than 4,600 new academically qualified specialists and managers worldwide. We recruited around 700 university graduates in Brazil alone, more than 600 in India, and roughly 400 in China, Germany and the Russian Federation. In 2012 nearly 17,000 new people were hired across all occupations.

Our success in recruiting is due to our reputation as an attractive employer and our intensive marketing activities, which specifically target groups of interest to us, especially young university graduates. Our information and recruiting activities in China provide a good illustration of the broad spectrum of our work in this area. Last year, representatives of the Bayer Group held presentations and discussions at more than 30 universities in this country to inform students about Bayer. In addition, we actively drew attention to [entry-level opportunities \[123\]](#) at Bayer at nearly 60 universities in China through intensive advertising. These activities are supported by cooperation with international business schools, open house days, summer camps for selected students and the provision of information via social media and conventional marketing tools. In 2012 internships were awarded to nearly 1,000 students in China alone. Worldwide, we once again provided around 3,800 challenging internships for talented young students to give them pre-graduation insight into the variety of career opportunities at Bayer. Such young people often return to us as employees at a later date.

Apart from the hiring of university graduates, the company's own training programs for young people are among the most important measures the company undertakes to guard against a possible shortage of specialists due to demographic change. Once again in 2012, more than 900 young people began training courses in a total of over 30 occupations at our German sites. In China, the cooperation with Shanghai Petrochemical Academy in the area of vocational training, which was established in 2002, was extended last year for a further 10 years. About 40 young people embarked on a multi-step vocational training program there in 2012 to qualify as skilled workers for our production sites in China.

Occupational health and safety

Providing a safe working environment and fostering the health of our employees are crucial elements of our responsibility for our employees. Extensive risk management to identify and assess the potential risks and shape a healthy working environment is therefore a key element of our activities in the area of occupational health and safety. Through our foresighted Health, Safety, Environmental Protection and Quality (HSEQ) programs, we also reduce costs by avoiding damage and production stoppages. HSEQ management therefore forms an integral part of all our business strategies and processes. In line with this, we have issued Group-wide directives on occupational health and safety. In addition, the subgroups and service companies have their own systems, committees and working groups to manage HSEQ. To sharpen awareness of occupational health and safety and ensure that it does not slacken, in 2011 we introduced an annual

Safety Day at all Bayer companies worldwide. Our commitment in this area is underscored by our acceptance of the global chemical industry's Responsible Care Global Charter.

Further decline in occupational injuries

The number of occupational injuries to Bayer employees with lost workdays has been declining steadily for years and this trend continued in 2012. The subgroups and service companies play an important role in this through intensive training and methods to raise safety awareness. Read more about [our occupational safety measures \[128\]](#) in our online report.

The total number of recordable injuries requiring medical treatment likewise declined further in 2012. [🕒 At the start of 2012 we raised our target and are now close to achieving our goal of an LTRIR \(Lost Time Recordable Incident Rate\) of \$\leq 0.21\$ by year-end 2015. In 2012 the LTRIR was 0.27 \(2011: 0.31\).](#)

As in the past, in 2012 we hardly registered any typical injuries involving contact with chemicals, and injuries caused by tripping or slipping also declined, but there was an increase in traffic accidents for the first time in years. Numerous programs, training sessions and measures are designed to help reduce accidents. In 2013 traffic safety will be a key area of focus. We also track injuries to Bayer employees requiring medical treatment that goes beyond simple first aid. This is measured by the Recordable Incident Rate (RIR), which covers both injuries resulting in lost workdays and those that do not. In 2012 the RIR dropped to 0.49 per 200,000 hours worked (2011: 0.56). Regrettably, there were two work-related fatalities in 2012. These were caused by two traffic accidents, in Bangladesh and Costa Rica. [Tables 15 and 16](#)

Contemporary health management

Our mission as a responsible employer includes safeguarding and promoting our employees' health. That goes beyond occupational health. In all the countries in which we operate, we offer our employees a variety of [benefits to promote their health \[127\]](#). These range from medical checkups and on-site medical services to sports opportunities inside and outside the company and the provision of advice and reintegration assistance after recovery from an illness. In this way we also contribute significantly to maintaining long-term working ability, which is of growing importance since demographic change means that employees in many countries are expected to work until they are older.

One focal area of the continuous improvement in our health management offerings for our employees is prevention and early identification of diseases and health risks. For the past two years all employees in Germany have been able to benefit from an extensive preventive health screening program. This has been well received and those that have taken up the offer are convinced by the thoroughness of the method.

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🕒 Target 2015

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We conducted a survey in Ireland to establish the company health benefits required by our employees there. Managers in Belgium are now being offered an extensive preventive check-up every two years, while in Morocco a preventive check-up is available to all employees over the age of 50. In Mexico we conducted a campaign in 2012 to prevent breast cancer, cancer of the prostate, and dengue fever, which is widespread in Latin America. Our health insurance coverage in the United States now includes a free preventive dental check-up. Since last year, our employees in China have benefited from a health advice program, the focus of which changes every two months.

Workplace-related illnesses have also been reported since 2012, even if they are not included in the list

of occupational illnesses. They are included in the LTRIR (see Table 15). In the reporting period, nine new cases of illness directly attributable to work-related factors were diagnosed. We report such cases as soon as they have been diagnosed by a medical officer and officially recognized.

Information on possible health risks is provided via the intranet for employees on business trips and foreign assignments. A uniform global service-provider has been engaged to provide emergency assistance for such employees. This ranges from advice on physicians and hospitals to medically required evacuation and repatriation. The Group has a dedicated directive that defines the action to be taken in the event of pandemics since these tend to bring new and unforeseen health risks.

15 Occupational injuries affecting Bayer employees

	2008	2009	2010	2011	2012	Target 2015
Occupational injuries to Bayer employees with lost workdays (LTRIR*)	0.44	0.40	0.34	0.31	0.27	≤ 0.21
Recordable occupational injuries to Bayer employees (RIR*)	0.72	0.62	0.62	0.56	0.49	
Fatal injuries (total)	2	4	4	3	2	
– of which Bayer employees	2	4	4	2	2	
– of which contractor employees**	0	0	0	1	0	

* The LTRIR and RIR values for 2008 to 2010 were calculated from the former MAQ values and do not include work-related illnesses.

** Employees working for third parties, whose accidents occurred on Bayer company premises

16 Recordable occupational injuries to Bayer employees (RIR) according to region 2012

Asia/Pacific	0.21
Europe	0.56
Latin America/Africa/Middle East	0.54
North America	0.53
Total	0.49

Ecology

Bayer is working continually on solutions that reduce environmental impact and conserve resources. We see the ecological challenges posed by the growing global population and advancing climate change as part of our corporate responsibility and at the same time as an opportunity to produce more cost-effectively and to develop new market opportunities.

Our commitment to environmental protection, health and safety goes well beyond the mere fulfillment of legal requirements. We also make this clear through our commitment to the chemical industry's Responsible Care™ [129] initiative. The Bayer Sustainable Development Policy [130] defines the framework of our ecological actions. We manage specific measures and projects using our HSEQ management systems.

Use of materials and energy

Material and energy efficiency are decisive parameters when it comes to success on today's markets. Bayer Technology Services has developed and introduced the [Resource Efficiency Check](#) [131] to optimize efficiency in the handling of resources used throughout the Group. The knowledge gleaned from selected pilot projects in all three subgroups over the past three years has flowed into research and development projects to improve processes. In 2012 potential savings were identified in particular in the use of raw materials, solvent consumption and wastewater. Bayer Technology Services will work with the subgroups to exploit this potential, with annual cost reductions of more than €10 million anticipated.

Since business activities and therefore also the material requirements differ fundamentally from one subgroup to another, production-specific procurement activities are organized decentrally in each subgroup. Detailed information on the procurement and use of raw materials, consumables and supplies for each subgroup is published on page 96ff. of the Annual Report 2012. Renewable raw materials have so far played only a minor role in Bayer's overall use of raw materials. We are increasing their use when it makes technical, economic and ecological sense to do so. For example, the Bayer MaterialScience subgroup is experimenting with replacing oil-based raw materials in innovation and cooperation projects. Among other things, a bioengineering process is being tested that is based on biomass conversion using microorganisms and can deliver material for the production of plastics. The use of carbon dioxide as a raw material for polyurethanes has already been successful on a pilot plant scale – the early results of an independent ecological evaluation are also giving a positive signal. At Bayer HealthCare, a number of hormones are synthesized from plant



Energy efficiency: oxygen depolarized cathode technology can save up to 30 percent of the energy needed for chlorine production. Wang Yan and Guorong Shen working at the new plant in Shanghai.

sources. Suppliers deliver certain kinds of sterols and phytosterols that are by-products of the production of vegetable oils from soybeans, canola or sunflowers. Palm oil or palm kernel oil is not used at Bayer HealthCare, due to its low concentration of sterols. We also purchase various steroids that are manufactured from diosgenin. Today, this substance is usually obtained from yam grown in countries such as China. In the fermentation process, we also use raw materials such as water, glucose, yeast, soybean starch, castor oil and corn steep water. Extracts of plant leaves (*Centella asiatica*) are used in some Consumer Care products. This plant is very common in Asia. None of the plants used is endangered. You can read more about the use of plant raw materials at Bayer CropScience and responsible materials procurement on page 41.

Material and energy consumption and emission levels are highly dependent on the manufactured sales volume. That is why we use this as a reference figure to evaluate energy and resource efficiency. In 2012 Bayer again increased the manufactured sales volume by 2.4 percent to 11.2 million metric tons. Despite this increase, we were able to further improve many performance indicators. The Group's total energy consumption fell by about 2.1 percent on the previous year to 83.2 petajoules. We differentiate

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between primary energy consumption at our sites, mainly in the form of fossil fuels for the generation of electricity and steam, and secondary energy consumption that reflects the purchase of electricity, steam and refrigeration energy and the use of process heat. Primary energy consumption fell by 2.1 percent, primarily due to the phased closure of production at the Bayer CropScience site in Institute in the United States. Secondary energy consumption fell by 2.0 percent (see explanation in Table 17).

At various sites, Bayer and its service company Currenta operate facilities for the cogeneration of electricity and heat. Our cogeneration facilities worldwide generate approximately 3.5 terawatt hours (TWh) of electricity and around 7.5 TWh of steam for use in our production facilities and third-party facilities (especially of Lanxess AG as the other shareholder in Currenta). In addition to the energy produced in our own power plants, we obtain electricity directly from outside producers. This energy is also used in both our own production facilities and those of third parties. Furthermore, we purchase electricity on the external market, via electricity exchanges, for example. In the reporting period, the proportion of renewable energies Group-wide was 0.7 percent. In 2012 a major solar power system was installed at the Bayer HealthCare site in Berkeley, United States, for example. It is made up of 1,000 solar panels, and produces 295 kilowatt hours (KWh) of electricity.

Air emissions

At Bayer, air emissions are caused mainly by the generation and consumption of energy. Our commitment to greater energy efficiency therefore helps reduce both costs and emissions. In addition to this, Bayer intends to contribute to climate protection on several levels and has established a Group-wide Climate Program for this purpose.

Climate Program

Improving resource and energy efficiency and finding solutions for dealing with the consequences of climate change are two key elements of the Climate Program launched in 2007. To this end, Bayer pursues climate targets across all business activities and initiates innovative solutions for the reduction of greenhouse gases.

Our ambitious Group target is to reduce specific greenhouse gas emissions (direct and indirect emissions in relation to manufactured sales volume in metric tons) by 35 percent between 2005 and 2020. To achieve this, our energy-intensive MaterialScience subgroup is to reduce its specific emissions by 40 percent, while absolute emissions at HealthCare and CropScience are to be reduced by 10 and 15 percent respectively. Table 18 shows how much progress we have made toward achieving these goals over the reporting period.

Target 2020

17 Energy consumption (terajoules)

	2008	2009	2010	2011	2012
Primary energy consumption for the in-house generation of electricity & steam (in 1,000 terajoules)	51.9	48.1	51.6	50.1	49.0
Natural gas	29,848	29,413	31,847	31,162	30,411
Coal	19,103	16,976	17,801	16,776	15,954
Liquid fuels	1,077	772	532	660	656
Waste	775	-33	678	515	1,005
Other*	1,078	996	774	983	1,021
Secondary energy consumption as steam, electricity, refrigeration energy (net) (petajoules)	30.9	29.2	34.1	34.8	34.1
Electricity (net)	26,183	23,675	25,229	25,475	25,849
Steam (net from purchase/sale)**	-4,008	-2,092	722	1,054	-121
Steam from waste heat (process heat)	9,580	8,273	8,722	9,000	9,144
Refrigeration energy (net from purchase/sale)	-850	-654	-595	-683	-735
Manufactured sales volume (million metric tons)	10.0	8.7	10.4	11.0	11.2

* Other, e.g. hydrogen

** We have made an adjustment to the invoicing of steam procured from third parties at one of our contracting sites. The net steam figure resulting from this adjustment will give a more exact representation of the actual state of affairs from this reporting period onward.

18 Greenhouse gas emissions by subgroups and service companies (total direct and indirect emissions in million metric tons of CO₂ equivalents)

	2008	2009	2010	2011	2012**	Target 2020*
Bayer MaterialScience	5.06	4.83	5.24	4.63	4.89	
Bayer HealthCare	0.56	0.55	0.54	0.54	0.55	0.53 - 10%
Bayer CropScience	1.20	1.09	1.09	1.00	0.92	1.03 - 15%
Others***	0.02	0.02	0.02	0.01	-	
Currenta****	1.82	1.62	1.62	1.97	1.88	
Specific greenhouse gas emissions for Bayer MaterialScience (metric tons of CO ₂ equivalents per metric ton of manufactured sales volume)*****	0.99	1.09	0.96	0.82	0.86	0.70 - 40%

* Portfolio-adjusted, based on 2005 figures

** The emissions of the Group vehicle fleet to the tune of 0.12 million metric tons CO₂e are not allocated to the subgroups and are reported under the Group's direct emissions.

*** Total greenhouse gas emissions for Bayer Technology Services and Bayer Business Services. The production sites of these two companies were incorporated into those of the subgroups as of 2012.

**** The emissions reported for Currenta are attributable to the provision of energy to other companies at the Chempark sites.

***** The by-products sodium hydroxide solution and hydrochloric acid generated during production are not included in the production volume as they will occur in much smaller amounts in the future, thanks to measures aimed at enhancing energy efficiency. Trade products are also not included. Internal studies at Bayer MaterialScience revealed in 2010 that in the previous years selected polycarbonate materials (so-called compounds) were not included in the calculation, because this would seemingly have led to double counting. On closer inspection this proved to be incorrect. For this reason these materials have been included retrospectively in the annual Bayer MaterialScience product volumes indicated.

News

Bayer honored for its climate strategy

The investor group of the Carbon Disclosure Project (CDP) [132] has honored Bayer for its climate strategy. The company was judged to be a global leader in both performance and reporting, as the renewed inclusion in the Carbon Performance Leadership Index and the Carbon Disclosure Leadership Index confirms. Bayer was awarded the highest rating "A" for performance in the 2012 CDP ranking. With reporting rated in absolute points, the Group achieved the best possible result – 100 points – and is thus not only the best company in its sector as last year but, together with one other enterprise, also the best company worldwide across all industries. Bayer received an award in recognition of this at the German CDP annual conference in Frankfurt in October.

For both Carbon Leadership indices, the 500 biggest publicly traded companies in the world (according to the FTSE Global Equity Index Series) were evaluated. The CDP represents a group that comprises 722 institutional investors with combined assets under management quoted at US\$87 trillion, according to their own figures.

Frank Bethmann, stock market editor of the "ZDF Heute Journal" news program, Henning Gebhardt, DWS Investments, and Dr. Wolfgang Grosse Entrup, Head of Environment & Sustainability at Bayer AG at the German CDP annual conference.



There are three cornerstones to the Climate Program:

1. More efficient production: reducing emissions in Bayer's own production facilities by increasing energy efficiency and by developing and utilizing new, innovative technologies.

We continually monitor and improve our production processes. Our STRUCTese™ (Structured Efficiency System for Energy) [136] energy management system, which we developed ourselves and is certified to ISO 50001, helps us with this. The system has been implemented in 50 energy-intensive Bayer MaterialScience production plants since 2008, and has led to an annual saving of more than one million MWh of primary energy and a reduction in CO₂ emissions of a good 300,000 metric tons per year.

In the field of process innovations, the implementation of an innovative climate-friendly chlorine production process, oxygen depolarized cathode (ODP) technology based on common salt, is continuing successfully. This technology was developed by Bayer and its partners. You can find out more about STRUCTese™ and oxygen depolarized cathode technology in our Strategy & Focus Issues chapter on page 17f.

We use the Resource Efficiency Check for systematic and comprehensive process analysis to fully exploit further potential for reducing resource consumption, emissions and waste.

2. Market solutions: using Bayer products, particularly in the areas of building insulation, lightweight construction and agriculture, to reduce customer emissions. The Group's products play their part in saving energy and conserving resources in many different ways. They help our customers reduce emissions and provide them with solutions for adapting to climate change. The Strategy & Focus

Issues chapter, on page 19, provides an introduction to product innovations from Bayer MaterialScience and their potential for climate protection, such as the EcoCommercial Building (ECB) Program [133]; Dream Production [134]: CO₂ as a raw material for plastics manufacture; Solar Impulse [135], a light-weight aircraft with highly efficient insulation; and Bayer materials for more lightweight, efficient cars.

Bayer CropScience is also rising to the challenges posed by climate change and is working on developing plants and crop protection products that are tailored to withstand extreme environmental conditions and still deliver high yields. Experts anticipate that vector-borne diseases such as malaria will become more widespread due to climate change. CropScience can contribute to protection against malaria with its innovative LifeNet™ mosquito nets. There is also more on this in the Strategy and Focus Issues chapter, on pages 13 and 18f.

3. Supporting activities: reducing emissions in non-production areas, such as the vehicle fleet and IT, involving the workforce.

The third pillar of our Climate Program focuses on measures not connected to production or products that generate real energy savings. The introduction of the EcoFleet initiative for a more environmentally friendly Group vehicle fleet in 2007 had led to a reduction in the average CO₂ emissions per kilometer and vehicle of more than 20 percent by the end of 2012. To date these values were calculated using specific details from the manufacturer and an average for the distance covered. In the future, with the global introduction of a fleet management software system, they will be calculated successively on the basis of actual consumption. With over 24,000 company vehicles worldwide, the above reduction is equivalent to an annual reduction in emissions of CO₂ equivalents of 36,000 metric tons. In December 2012 Bayer once

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again received the International Green Fleet Award in recognition of this. Another project relates to energy efficiency in the Bayer data centers. By improving hardware and systematically introducing virtual servers, an around 35 percent improvement in energy efficiency was achieved in the period 2009 to 2012, far above the 20 percent improvement planned. This corresponds to an annual reduction in CO₂ emissions of just under 5,400 metric tons of CO₂ equivalents. This successful project is to be continued beyond 2012. Since 2009, Bayer has been trying to reduce business travel and the resulting emissions by setting up more than 150 new video conference rooms worldwide and six telepresence rooms in Germany, the United States, France, Belgium and Singapore. In the future, we aim to better integrate mobile terminals too into our communication solutions.

The chemical park operator Currenta, a Bayer service company in Germany, successfully concluded its "Energy efficiency rating A++" climate protection program. The target of sustainably cutting emissions of CO₂ by 200,000 metric tons from 2005 to 2012 was achieved with the aid of approximately 250 individual projects.

CO₂ emissions

Bayer reports its greenhouse gas emissions in line with the requirements of the **Greenhouse Gas Protocol (GHG Protocol)** [137]. Direct emissions from our own power plants, waste incineration plants and production facilities (corresponds to Scope 1 of the GHG Protocol) are determined at all production locations and relevant administrative sites. In 2012 we were once again included in the Carbon Disclosure Leadership Index (CDLI) thanks to our transparent

sustainability reporting. We were included in the Carbon Performance Leadership Index (CPLI) with an "A" ranking as a result of our efforts to reduce carbon dioxide emissions. You can read more on this in the News inset on page 57.

The total amount of greenhouse gases rose by 2.6 percent in 2012, in parallel to the manufactured sales volume, which rose by 2.4 percent in the same period. The proportion of direct emissions remained at the same level as the previous year, increasing by just 0.3 percent. One factor that contributed to this slight increase is the inclusion of emissions from our company fleet in the direct emissions category (Scope 1) for the first time. These had previously been listed under other emissions (Scope 3). Although our electricity and steam requirements were at about the same level as the previous year, indirect emissions rose by 5.1 percent. A significant factor in this regard is the increased demand for energy at the Bayer MaterialScience site in Caojing, China, which led to the use of additional power from the public grid. This electricity is linked to higher emission factors than that generated in a highly efficient gas and steam power plant on the site itself.

The trend toward increasingly energy-efficient production and thus a break in the link between production growth and energy consumption continues, even if greenhouse gas emissions increased slightly in the reporting period due to the special circumstances mentioned above.

Since our own power plants use environmentally friendly and resource-efficient cogeneration technology, they convert approximately 80 percent of the fuel energy used into electricity and heat. Nonetheless, our power plants are also responsible for a significant proportion of the Group's direct greenhouse gas emissions. In this context, it is also important to remember that we include all emissions in our calculations, even if a not insignificant proportion of the direct emissions results from the generation of energy that is delivered to third parties (non-Bayer). According to the Greenhouse Gas Protocol these emissions have to be fully attributed to Bayer. The figure for our greenhouse gas emissions in absolute terms is therefore above that for the emissions actually attributable to consumption.

Our specific greenhouse gas emissions, which take our manufactured sales volume into account, are more meaningful. These are calculated from the total volume of direct and indirect emissions, including the vehicle fleet, divided by the manufactured sales volume of the three subgroups. The volume of emissions resulting from supplying energy to third parties is subtracted from the total volume of emissions. The specific emissions indicator has fallen steadily over the last four years. In the reporting period, it increased slightly due to the special circumstances in China mentioned above, **reaching 0.98 metric tons of CO₂ equivalents per metric ton of manufactured sales volume at the end of 2012.** Table 19

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Target 2020

19 Greenhouse gas emissions* in the Group (million metric tons of CO₂ equivalents)

	2008	2009	2010	2011	2012	Target 2020
Direct greenhouse gas emissions**	5.09	4.57	4.80	4.23	4.24	
Indirect greenhouse gas emissions***	3.57	3.53	3.70	3.92	4.12	
Total greenhouse gas emissions	8.66	8.10	8.50	8.15	8.36	
Specific greenhouse gas emissions**** (metric tons of CO ₂ equivalents per metric ton of manufactured sales volume)	1.14	1.23	1.09	0.95	0.98	0.79***** - 35%

* Portfolio-adjusted in accordance with the GHG Protocol
 ** In 2012 90.0% of greenhouse gas emissions were CO₂ emissions, 9.6% were N₂O emissions, just under 0.3% were partially fluorinated hydrocarbons and 0.04% was methane. At the end of 2012 a globally harmonized fleet management tool was introduced to increase transparency. Bayer is reporting the emissions of the Group vehicle fleet to the tune of 0.12 million metric tons CO₂e under the direct greenhouse gas emissions of the Group until the final analysis of the country-specific agreements in line with the financial control approach of the GHG Protocol is complete.
 *** Typically, CO₂ in incineration processes accounts for over 99% of all greenhouse gas emissions. Therefore, when determining indirect emissions, our calculations are limited to CO₂.
 **** Specific Group emissions are calculated from the total volume of direct and indirect emissions of the subgroups, including from the vehicle fleet, divided by the manufactured sales volume of the three subgroups. Quantities attributable to the supply of energy to external companies (non-Bayer) are deducted from the direct and indirect emissions. For the Bayer MaterialScience subgroup, only manufactured sales volumes that also form the basis for calculating Bayer MaterialScience-specific emissions are taken into account.
 ***** Based on 2005 figures. The presentation of greenhouse gas emissions is portfolio-adjusted, with no portfolio adjustment of production volumes; emissions reported for Currenta attributable to the provision of energy to other companies have been deducted, and at Bayer MaterialScience the by-products sodium hydroxide solution and hydrochloric acid generated during production are not included in the production volume as they will occur in much smaller amounts in the future, thanks to measures aimed at enhancing energy efficiency. Trade products are also not included.

Since 2011 the reporting of all relevant indirect Scope 3 emissions under the GHG Protocol has been bindingly regulated by the Corporate Value Chain Accounting & Reporting Standard. Bayer has initially identified 10 relevant Scope 3 categories. As part of the [Carbon Disclosure Project \(CDP\) \[138\]](#), we will again be publishing a detailed report for 2012 on these emissions from the value-added chain. We are constantly working on optimizing our data collection and calculation methods. We take particular account of those emissions where there is significant potential for reduction, e.g. our transport emissions, which comprise emissions from business travel, vehicle leasing and commuting to work and emissions from the transportation of goods.

Having sold the Norwich site in the reporting period, the Group is now still involved in European emissions trading with 10 incineration plants and approximately 2.4 million metric tons of CO₂. During the second trading period (2008–2012), the climate-friendly energy generation at our cogeneration plants was honored. However, the European Union stipulates that for the third trading period (2013–2020) industry has to purchase allowances for electricity generation. For additional chemical facilities, the allocation of allowances will be based on stringent benchmarks, which in turn are based on the best available technology in each case. Although the burden on “exposed sectors” (sectors that would no longer be globally competitive due to the cost of emissions trading) is set to be reduced significantly through the European Commission’s planned regulations, we expect further cost increases from 2013 onward.

Other direct emissions

In general, we were able to achieve a slight reduction in almost all other reported direct emissions in 2012.

Target 2015 *The target is to reduce emissions of ozone-depleting substances (ODS emissions) by around 70 percent and the volume of volatile organic compounds (VOC) by 50 percent by 2015. ODS (ozone-depleting substances) emissions remained virtually at the same level as last year (-0.2 percent). Total VOC emissions declined by 3.4 percent on the previous year. This was the first sign of the success of a multi-stage VOC reduction program at our Bayer CropScience sites at Vapi and Ankleshwar in India. The construction of waste air treatment plants got under way in Vapi, where most of the Group’s ODS emissions (95 percent) are generated, in 2011, and these should lead to significant reductions in VOC and ODS emissions. Once this measure has been fully implemented, the Group-wide reduction targets for VOC and ODS emissions should be achieved. Tables 20 and 21*

Carbon monoxide (CO) emissions also fell by 23.2 percent in the reporting period. This reduction is due to improvements in the recording of emissions and shorter boiler runtimes at the Currenta site in Leverkusen, Germany, and plant improvements at the Bayer CropScience site in Regina, Canada.

Sulfur oxides (SO_x) fell by 18.5 percent. The main reason for this is the phased closure of the Bayer CropScience site in Institute, United States. The volume of particulate matter worldwide in 2012 amounted to around 185 metric tons (+ 4.9 percent). The increase in particulate emissions is primarily due to their being reported at the new Bayer CropScience site in Parma, United States, for the first time. Table 22

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Use of water and emissions into water

Access to sufficiently clean water is not a given in many parts of the world. Partly because of climatic changes, it is becoming increasingly expensive to extract and clean water in many places. Global companies such as Bayer must adopt a responsible approach to this in their production processes. At the end of 2008 Bayer signed the [CEO Water Mandate \[139\]](#) of the UN Global Compact to work with major stakeholders on developing sustainable strategies for water usage.

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Bayer provides a comprehensive account of its systematic commitment, the measures it has implemented and the results achieved in its report to the [CDP Water Disclosure \[140\]](#) 2012 that corresponds to a progress report for the CEO Water Mandate. In this survey initiated by the Carbon Disclosure Project (CDP), 470 institutional investors call on 318 of the world’s biggest companies to disclose

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Target 2015

20 Emissions of ozone-depleting substances*

	2008	2009	2010	2011	2012	Target 2015**
ODS in metric tons p.a.	17.1	17.5	20.8	16.3	16.3	6.2 - 70%

* In CFC-11 equivalents
** Target to be achieved by 2015 based on 2010 figures

21 VOC emissions

	2008	2009	2010	2011	2012	Target 2015*
VOC in 1,000 metric tons p.a.	3.16	2.59	2.54	2.69	2.60	
VOC in kg per metric ton of manufactured sales volume	0.3160	0.2979	0.2436	0.2457	0.2316	0.1218 - 50%

* Target to be achieved by 2015 based on 2010 figures

22 Other important air emissions (1,000 metric tons p.a.)

	2008	2009	2010	2011	2012
CO	1.7	1.4	1.4	1.3	1.0
NOx	3.9	3.5	3.7	3.7	3.1
SOx	3.2	2.8	2.7	2.3	1.9
Particulates	0.2	0.2	0.2	0.2	0.2

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details of their water management, their company-specific water footprint, and the opportunities and risks they have identified in connection with the use of water.

In December 2011 Bayer adopted a **Water Position [141]** as part of its sustainability strategy, thus establishing a program for the targeted and ongoing improvement of our own operating procedures. Its focus is on protecting water resources and on more efficient water usage. Sites that are particularly affected by the risk of water shortage and poor water quality were set appropriate water reduction targets. For example, our sites in Spain are looking to reduce their water consumption to 2.26 m³ per metric ton of product sold by 2015. A figure of 2.39 m³ per metric ton of product sold had already been achieved by 2012. In Australia and New Zealand, a target was set for reducing water consumption by 10 percent in office buildings and production sites for the period 2008 to 2014. This target had already been achieved by the end of 2012, and new targets are currently being developed for other areas. We also aim to develop innovative products and technologies for the market that will improve water efficiency and quality, including in areas such as agriculture.

With the help of special systems and standards, all three Bayer subgroups are committed to meeting their specific challenges for water usage. In the

Water Protection Directive, Bayer HealthCare commits itself to responsible water usage. For example, new facilities for collecting, treating and using rainwater are under construction at the Bergkamen site in Germany. Bayer HealthCare also sees itself as duty-bound to continue developing its strategy for pharmaceutical residues in the environment so as to keep up with current developments in this area. Bayer CropScience is a member of the Water Programme Leadership Group of the World Business Council for Sustainable Development (WBCSD) and commits itself in its HSEQ Key Requirements to the protection and sustainable use of water. At the end of 2012 a pilot project was launched at the Bayer CropScience site at Quart de Poblet in Spain. As part of the European Water Stewardship Programme, this project will evaluate the sustainable use of water and determine potential for improvement. Bayer MaterialScience regulates the resource-friendly use of water in its HSEQ policy. The Group's Ecological Assessment of New Investments Guideline also states that all new investments above €10 million must be evaluated regarding their impact on water. Table 24 comprises a flow diagram showing water use.

Water consumption

Overall, Bayer's water consumption fell by 6.6 percent in 2012 compared to the previous year. This reduction is also primarily attributable to the phased closure of production at the Bayer CropScience site in Institute, United States. The distribution of water procurement among the surveyed sources is almost identical to the previous year. Table 23

Usage of water

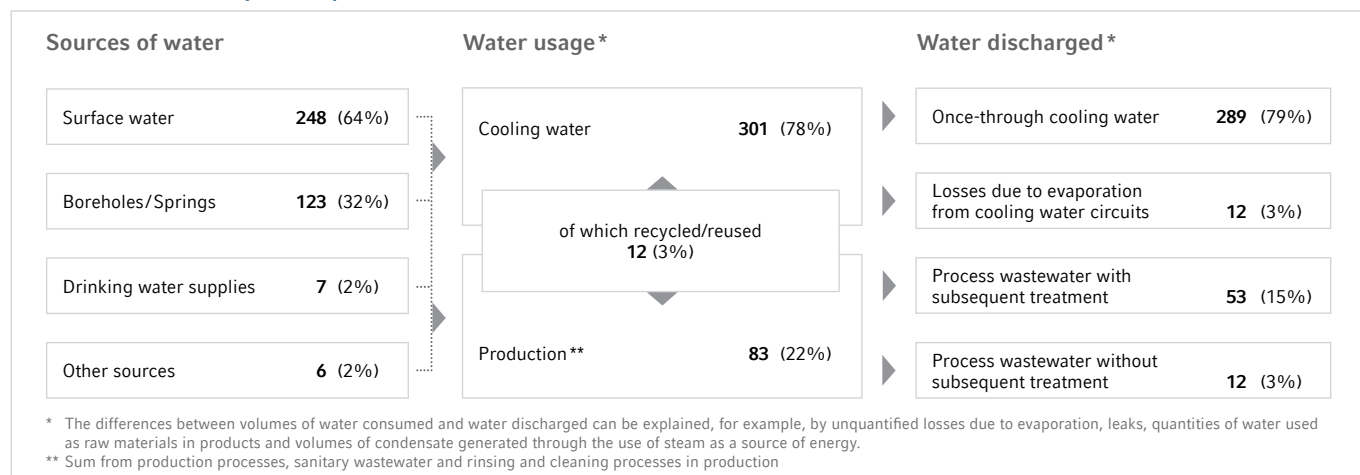
The total volume of cooling water was approximately 301 million m³ in 2012, a reduction of around 7.0 percent compared to the previous year. Some 75 percent of the total water used by Bayer is once-through cooling water. This water is only heated and does not come into contact with products, meaning it can be returned to the water cycle without further treatment in compliance with the relevant official permits. As with water consumption, the drop in once-through cooling water usage is also mainly due

23 Net water intake by source

	2008	2009	2010	2011	2012
Water consumption (million m ³ per year)	439	407	474	411	384
– Proportion from surface water (%)	58	58	71	65	64
– Proportion from boreholes/springs (%)	32	32	25	31	32
– Proportion from public drinking water supplies (%)	1	1	3	2	2
– Proportion from other sources, generally rainwater (%)	9	9	1*	2	2

* Through optimization in the accounting of water use, water consumption from other sources as from 2010 was assigned to the actual sources in most cases.

24 Water use in the Bayer Group in 2012 (million m³)



to the phased closure of the Bayer CropScience site in Institute, United States.

In our production activities, we endeavor to use water several times and to recycle it. Water is already recycled and reused at 38 sites, e.g. in closed cooling cycles, through the reuse of treated wastewater or the recirculation of steam condensates in the form of process water. A total of approximately 12 million m³ of water were reused in the year under review.

Discharge of water

In the reporting period 2012, the global volume of once-through cooling water fell by 22 million m³ to 289 million m³. The total volume of process wastewater fell by just under 9.5 percent. All wastewater is subject to strict monitoring and assessment before it is discharged into disposal channels. Some 81 percent of Bayer's process wastewater worldwide is purified in a wastewater treatment plant (Bayer or third-party facilities). The volume of treated wastewater fell by 1.7 percent compared to the previous year. Its proportion of the total discharge of water remains at the previous year's level. The reduction in wastewater not requiring treatment in 2012 is primarily due to the reduced use of once-through cooling water at the two Bayer MaterialScience sites in Dormagen and Krefeld-Uerdingen, Germany. Table 25

Emissions into water

The goal of our water management system is to minimize harmful emissions released into water. Nonetheless, in 2012 our total phosphorus emissions rose by 82.4 percent due mainly to a new production

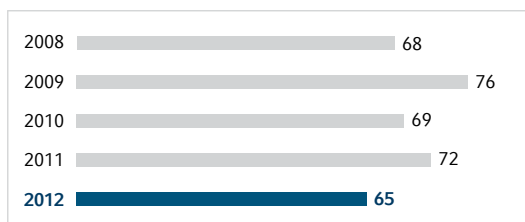
process with eight additional fermenters being installed at the Bayer HealthCare site in Berkeley, United States. Nitrogen emissions increased by 31.5 percent, primarily as a result of higher production volumes at the Bayer CropScience site in Dormagen, Germany, and more comprehensive recording methods at the Bayer MaterialScience site in Caojing, China. At the Bayer CropScience site in Kansas City in the United States, nitrogenous components were used to improve wastewater treatment. These changes in process engineering, above all, led to a 5.7 percent reduction in the total organic carbon (TOC) emission levels Group-wide.

Despite increasing production (+2.4 percent), heavy metal emissions Group-wide fell by almost 10 percent, to just under 9.78 metric tons. The two biggest dischargers – Currenta at the Leverkusen site in Germany, and the Bayer CropScience site in Roussillon, France – both succeeded in reducing their heavy metal volumes significantly. Thanks to technical process improvements, the proportion of tin at Roussillon fell by 44 percent. At Currenta, heavy metal emissions fell due to reduced total wastewater loads. The increase of around 13 percent in emissions of inorganic salts is primarily due to increasing production volumes at the Bayer MaterialScience site in Caojing, China, and at Bayer CropScience at the Chempark Dormagen site in Germany. Table 26

Waste and recycling

In order to minimize material use and waste volumes, Bayer strives to reuse materials or feed them to other processes wherever technically feasible and justifiable in terms of cost. This is good for both cost-effectiveness and the environment. Direct influencing factors, such as increases in production owing to changes in the economic climate and unscheduled clean-up measures, can, however, have a dramatic impact on waste figures and recycling options.

25 Volume of process wastewater (million m³)



26 Emissions into water (absolute)

	2008	2009	2010	2011	2012
Phosphorus (1,000 metric tons p.a.)	0.78	0.74	0.09	0.08	0.15
Nitrogen (1,000 metric tons p.a.)	0.67	0.64	0.49	0.53	0.70
Nitrogen (kg per metric ton of manufactured sales volume)	0.0669	0.0737	0.0474	0.0486	0.0624
TOC* (1,000 metric tons p.a. of organically bound carbon)	1.59	1.35	1.42	1.50	1.42
TOC (kg per metric ton of manufactured sales volume)	0.159	0.155	0.136	0.137	0.126
Heavy metals (metric tons p.a.)	10.4	9.0	11.4	10.8	9.8
Inorganic salts (1,000 metric tons p.a.)	812	726	866	926	1,048
COD** – chemical oxygen demand (1,000 metric tons p.a.)	4.77	4.05	4.26	4.51	4.25

* Total organic carbon

** Calculated value based on TOC figures (TOC x 3 = COD)

27 Waste generated*

	2008	2009	2010	2011	2012	Target 2015
Total waste generated (1,000 metric tons p.a.)	1,077	914	807	958	1,014	
– Hazardous waste generated** (1,000 metric tons p.a.)	365	375	354	474	603	
– of which hazardous waste from production (1,000 metric tons p.a.)	305	302	325	354	397	
Specific volume of hazardous production waste (percent)	3.05	3.47	3.12	3.23	3.54	2.5

* Only waste generated by Bayer

** Definition of hazardous waste in accordance with the local laws in each instance

Waste generation and disposal

In 2012 the total volume of waste generated increased by 5.8 percent to 1,014,000 metric tons. Table 27

The primary cause of this increase is the implementation of two large-scale groundwater and soil remediation projects. In 2012 this led to approximately 126,000 metric tons of waste being generated at the Bayer CropScience site in Thane, India. The excavated earth and rubble from deconstruction activity are classed as "hazardous" under national law and are being disposed of at an external landfill site that does not belong to the Bayer Group. Since 1963 Bayer has been using various production processes in Thane to produce primarily active ingredients for crop protection products. The clean-up project was completed ahead of schedule at the end of 2012. Furthermore, the reporting period included a soil remediation project at the Bayer HealthCare site in Orizaba, Mexico. This also led to an increase in Group-wide waste volumes.

extensive recycling within the framework of legal regulations.

In the year under review, the volume of recycled waste amounted to 301,000 metric tons (equivalent to 29 percent of the total waste disposed of), up around 10 percent on the previous year's figure.

At the Bergkamen site in Germany, Bayer HealthCare binds iodine released during the incineration of waste from X-ray contrast medium production and processes it into an iodide solution that can be marketed. This process enabled us to recover and recycle 214 metric tons of iodine in 2012.

Bayer MaterialScience supports the recycling and utilization of its products and articles made from them and is working closely together with customers and recycling companies in this regard. The focus is on the automotive and electrical industries. You can read more on [plastics recycling \[142\]](#) in the online report.

The Global Sideline Business in turn is endeavoring to recycle, rather than scrap, all facilities and tools that are fully functional but no longer required. Approximately 90 tangible assets worldwide (around half of them from German plants) were recycled by selling them to third parties in 2012. In addition, around 7,500 metric tons of scrap metal were returned to the system.

Bayer CropScience supports the drawing up of guidelines on the return of crop protection product packaging in collaboration with national industrial associations. The subgroup has also been globally committed to establishing efficient take-back systems with the corresponding reclamation organizations. In 2012 the volume of rinsed primary packaging that was able to be collected and, to a great extent, recycled was 15,000 metric tons (about 8 percent of the total volume).

The Bayer service company Currenta has developed a patented pretreatment process for electronic scrap that allows up to 99 percent of precious metals such as gold, silver and copper to be recovered from old computer circuit boards and cell phones. In addition,

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Target 2015

The specific volume of hazardous production waste also rose in 2012. According to the current assessment, we will not be able to achieve our declared target of limiting this to 2.5 percent of the total production volume by 2015. This is due to changes in process steps, mainly in the Bayer CropScience subgroup. Here, for example, "hazardous" production waste is generated during the synthesis of active ingredients in the form of by-products that cannot be further processed or used. Table 28

In parallel with the waste generated, the total volume of waste disposed of increased by 5.8 percent to 1,021,000 metric tons. The overall figure here is also affected by the significant number of clean-up projects in Thane and Orizaba. The absolute volume of incinerated waste rose by 6.2 percent globally in 2012. Table 29

Recycling at Bayer

Legal requirements put strict limitations on the recycling of our end products. This is particularly true for pharmaceuticals and crop protection products. Nonetheless, we are constantly searching in all organizational units for new opportunities for

28 Hazardous waste* disposed of according to means of disposal

	2008	2009	2010	2011	2012
Total volume of hazardous waste disposed of (1,000 metric tons p.a.)	365	375	354	474	603
- Volume landfilled (1,000 metric tons p.a.)	81	89	56	122	175
- Volume incinerated/recycled (1,000 metric tons p.a.)	284	286	298	352	428

* Only waste generated by Bayer

29 Waste disposed of according to means of disposal

	2008	2009	2010	2011	2012
Total volume of waste disposed of* (1,000 metric tons p.a.)	1,061	918	809	966	1,021
- Proportion removed to landfill (%)	45	40	32	38	36
- Proportion incinerated (%)	24	28	36	33	33
- Proportion recycled (%)	28	31	31	28	29
Waste that cannot definitively be categorized according to one of the above disposal methods (%)	3	1	1	1	2

* Bayer serves as a certified waste disposal plant operator at various sites. At these locations, Bayer disposes not only of its own waste but also of waste from third parties (companies not belonging to the Bayer Group). There is therefore a somewhat larger amount of waste disposed of than Bayer has generated itself.

News

New Group position on protecting biodiversity

Bayer commits itself to protecting biodiversity in a new Group position. In this document, published in January 2013, the company expresses its dedication to “the preservation of biodiversity, the sustainable use of its components and the fair distribution of the benefits derived from biological resources and traditional knowledge.” In its position, the Group declares its readiness to use sustainable raw materials and consider the influence of products on biodiversity along the entire value-added chain. This issue is of particular relevance for Bayer CropScience products and technologies. The company advocates sustainable agriculture that combines an adequate and high-quality supply of food with the protection of ecosystems and the diversity of species.

Strips of flowers along the edge of a field supporting biodiversity



Currenta treated approximately 800 metric tons of batteries in rotary kilns in 2012. This burns off all organic raw materials (approximately 30 percent), the heat released is used for steam generation and the waste gases are treated. The pure metals that are left are sent to a recycling company. Another of Currenta's tasks is “building recycling” at the Chempark sites. This involves the inspection of buildings for contamination, the environmentally sound disposal of rubble from deconstruction activity and the reuse of any recyclable materials. The Currenta incineration plants generate approximately one million metric tons of steam a year from the incineration of hazardous waste. Compared to using fossil fuels, this reduces emissions by 200,000 metric tons of CO₂ a year.

Protection of biodiversity

There is increasing global recognition of the importance of healthy biodiversity. In October 2012, at the 11th conference of signatories to the [Convention on Biological Diversity \(CBD\)](#) [145] in Hyderabad, India, industrialized countries committed themselves to giving greater support to developing countries in implementing the international biodiversity goals.

Since the beginning of 2013, a new, Group-wide position on the protection of biodiversity has been in force at Bayer. This emerged from the existing Bayer CropScience subgroup position. It takes into account influences on biodiversity along the whole value-added chain and the sustainable use of raw materials. Particular attention is paid to product innovations that are of particular benefit to biodiversity. In this position, all subgroups commit themselves to the CBD. Bayer CropScience's research and development activities include improving plant health, providing assistance in tackling invasive species and the support and implementation of measures to promote integrated crop management. Farmers and breeders can use Bayer CropScience products to improve their production efficiency, with the goal of reducing the area needed for agricultural use, which in turn leaves room for the preservation

of valuable ecosystems with a large diversity of species.

By taking over the green agriculture company AgraQuest, Inc. in 2012, Bayer CropScience increased its portfolio to include biological crop protection, thereby enabling it to provide solutions for the growing market in ecological agriculture. You can find more information about the Bayer CropScience biodiversity projects, through which we support key elements of the European Union's Biodiversity Action Plan (BAP), and other specific examples of our promotion of biodiversity [143] in the online report.

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As a member of the German Association of [Research-Based Pharmaceutical Companies \(VFA\)](#) [144], Bayer HealthCare supports the association's current position on the UN Convention on Biological Diversity. In its search for new active ingredients, Bayer HealthCare concentrates on the chemical synthesis of substances using state-of-the-art technologies in medicinal, combinatorial and computational chemistry. Our work does not encompass research into natural substances. If they are used during research into new pharmaceuticals, they are first checked with respect to the CBD. At less than 5 percent, however, this is only a very minor aspect of our research activities.

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By comparing our global site database with internationally relevant protected areas, last updated in May 2012, we were able to establish that our sites conform with the minimum distance allowed between a site and a protected area. A Group-wide directive also stipulates that new production sites must not be set up in areas that are protected by statutory requirements of the countries concerned with respect to natural characteristics, biodiversity or other factors. A minimum distance to such areas must also be observed. In order to limit the total area of land use at our production sites, we find new uses for unused land at Chempark locations or demolish disused buildings and renaturize the land. An example of this in the reporting period is the piece of land in Leverkusen that was previously the site of the Group headquarters.

Management systems for the implementation of our HSEQ targets

Bayer aims to achieve an appropriate and uniformly high standard of HSEQ (health, safety, environmental protection and quality) throughout the Group and to constantly improve this. To meet this goal, the company has established corresponding HSEQ management systems in all subgroups and service companies. These are based on recognized international standards and are regularly reviewed and updated.

The boards of management/executive boards of the respective subgroups and service companies and the corresponding line organizations bear operational responsibility for HSEQ. Through continuous updating and development of HSEQ directives and through internal audits, each organizational unit ensures that its HSEQ management systems meet the specific requirements.

International standards and certifications

We measure the extent to which our business activities are covered by HSEQ management systems with respect to energy consumption. In 2012 more than 89 percent of our Group-wide business activities were covered by external certifications to internationally recognized standards. These include ISO 14001, EMAS and OHSAS 18001. We also take into account local regulations such as the Responsible Care Management System (RCMS) in the United States. As part of a Group-wide certification plan, we are seeking to further increase the level of coverage by 2017. Each individual subgroup will then have to achieve at least 80 percent coverage with respect to energy consumption for both environmental and occupational safety management. In 2012 around 99 percent of all our production sites were equipped with an HSE management system audited internally by Bayer.

In the reporting period, a new standard, ISO 50001, was added. This lays out requirements for an organization with respect to the introduction, implementation, maintenance and improvement of energy management systems. The Bayer MaterialScience sites in Brunsbüttel, Dormagen, Leverkusen and Krefeld-Uerdingen in Germany gained certification. Bayer CropScience and Bayer HealthCare are both phasing in this standard at their German sites, and

Currenta has also begun introducing an energy management system in line with the requirements of ISO 50001.

Bayer MaterialScience is one of the first chemical companies in Germany to be certified not only to the European DIN EN 16001 standard but also to the equivalent international norm ISO 50001. The ISO certification authenticates Bayer's systematic energy management concept for recording and evaluating energy consumption and the potential for reducing energy consumption. This procedure is supported by the government in Germany.

In 2012 the Bayer MaterialScience site in Brunsbüttel, Germany, successfully achieved certification to the occupational health and safety management system OHSAS 18001. Preparations to introduce this certification across the board have been under way worldwide since 2012. The major Bayer MaterialScience sites in Caojing, China and Baytown, United States, also received certification to ISO 14001. Table 30

All subgroups also have industry-specific international quality management systems in place that meet the requirements of ISO 9001, ISO 17025, ISO 13485 or GMP (Good Manufacturing Practice). Group-wide, coverage is over 92 percent.

Plant and process safety initiative

Process and plant safety (PPS) is very important for Bayer. We are committed to constantly improving our safety culture. Social acceptance is the foundation of our business. This includes the safe operation of facilities. The goal of the Group-wide initiative for process and plant safety launched in 2010 is the continuing development of the safety culture and safety standards in plants and laboratories and the optimization of safety technology. *By the end of 2012 this initiative had provided training in process and plant safety to approximately 26,000 production and technology employees as scheduled* and had led to the introduction of standardized risk assessment and a catalog of measures. The training method and materials are available in 17 languages. They will also be prepared in electronic form for future regular refresher courses. To maintain the standard in the long term, the process and plant safety training program will be firmly established in the HSEQ management

Target 2015

30 Certifications

Certifications to internationally recognized regulations and internal Bayer audits	Certified to ISO 14001/Validated to EMAS standards	HSE management systems based on other external standards*	Certified to OHSAS 18001	Bayer-audited HSE management systems
Percentage of our operations (with respect to energy consumption) at certified or validated sites 2011	66	54	27	99
Percentage of our operations (with respect to energy consumption) at certified or validated sites 2012	84	58	30	99

* e.g. RCMS (Responsible Care Management System) in the United States or Industria Limpia (Clean Industry) in Mexico

systems of the subgroups. Further standardized KPIs, such as Loss of Primary Containment (LOPC), were also prescribed for all Bayer plants. LOPC refers to chemicals leaking from their primary container, such as pipelines, pumps, tanks or drums. LOPC was introduced as an early indicator. The reporting level is set so low that even material and energy leaks that have no effects on employees, neighbors or the environment are systematically recorded and reported. This approach is in line with our commitment to maintaining the integrity of our facilities at all times. As expected, the evaluations of the first few years have indicated areas where there is room to further improve the safety of existing facilities. The introduction of this parameter in 2009 and the global training program mentioned above (2010–2012) has raised awareness of the significance of minor leaks and releases. With the experience gathered over the last three years, we now intend to determine the development of the indicator in the form of a rate (LOPC-IR – LOPC Incident Rate = the number of LOPC incidents per 200,000 working hours in areas relevant to plant safety) and work toward the continuous improvement of this rate.

ⓘ We stipulated Group-wide uniform procedures and standards on this in the Group Directive on Process and Plant Safety, a revised version of which was published in September 2012. In particular, the method and criteria for identifying and assessing the risks posed to people and the environment by plants and processes were developed and globally standardized.

Bayer Technology Services has managed the Bayer Group Center of Expertise for Process and Plant Safety since 2012. The cross-subgroup initiative with the Group HSEQ Platform for Process and Plant Safety was also established at Bayer Technology Services. This will serve as a base for further expanding technological expertise in process and plant safety in collaboration with the subgroups. This expertise has now been pooled worldwide at three locations – Leverkusen, Germany; Shanghai, China; and Baytown/Kansas City, United States. This brings the experts closer to the regions than has been the case in the past.

ⓘ The second Process and Plant Safety Symposium was held in 2012. This event enables experts to learn from each other and provides a more effective means

News

Award for sustainable building initiative

A network of experts managed by Bayer MaterialScience was honored at the Earth Summit in Rio de Janeiro as a worldwide model for sustainable building. In June 2012 the EcoCommercial Building (ECB) Program was given the accolade of “Best Practice of Global Green Building.” The prize was awarded by the Global Forum on Human Settlements (GFHS), an organization that campaigns for sustainable settlement planning and a better quality of life, especially for poorer population groups.

Launched in 2009, the ECB Program combines the competences of experts from various disciplines relating to sustainable building. It comprises over 80 partners, including companies such as Trane, Philips and CBRE. The focus is on planning and constructing tailored, energy-optimized buildings according to a holistic concept. Bayer itself has constructed several buildings in Germany, Belgium, the United States, Brazil, India and China using this approach.

for sharing their experiences outside their sites and subgroups. The key issue during the two-and-a-half-day meeting was the introduction and discussion of globally standardized requirements and criteria for identifying and assessing process risks and of standards for designing safer procedures and installations. More than 120 participants provided ideas for enhancing cross-subgroup and international collaboration. The next symposium is scheduled for 2014.

🎯 Target 2015

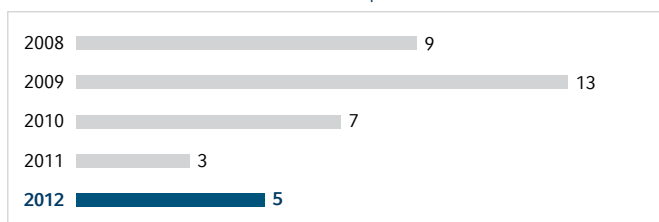
Environmental incidents and transport accidents

Bayer uses the term “environmental incidents” to cover incidents in the course of Bayer business activities that result in the release of substances into the environment. Factors that influence reporting obligations include, in particular, the quantity and nature of the substance, the amount of damage caused and any consequences for nearby residents. In accordance with our internal voluntary commitment, we report any leakage of substances with a high hazard potential from a quantity of 100 kilograms. Table 31

We interpret “transport accidents” as critical incidents that occur during the transportation of our products. These include, for example, accidents or incidents leading to personal injury or significant material damage, and environmental impact due to the release of substances or leakage of hazardous

🎯 Target 2015

31 Environmental incidents (number p.a.)



32 Transport accidents according to means of transport (number p.a.)

	2008	2009	2010	2011	2012
Road	8	8	6	6	6
Rail	1	2	1	1	0
Inland waterways	0	0	1	0	0
Sea	1	0	0	0	0
Air	0	0	0	0	0
Pipeline	0	0	0	0	0
Total	10	10	8	7	6

goods. We record the transport accidents based on defined criteria, such as leakage of the load, graded according to the volume and dangerous goods class, personal injury and blocked transport routes, and take into account both our own chemical transports and those commissioned and paid for by us.

The corresponding Group Directive on Transportation Safety was revised and adopted in 2012. It describes responsibilities more clearly and aims to help improve performance. A Group-wide Transportation Safety Platform under the rolling chairmanship of the subgroups has been newly established. Areas of focus in 2013 include training, validation of internal directives and guidelines on transport safety and the evaluation and selection of our logistics service providers. This is documented in appropriate targets.

Despite all our extensive safety precautions and training, it is unfortunately impossible to prevent

environmental incidents and transport accidents altogether. The number of reportable environmental incidents based on these Group specifications rose in 2012 – from three the previous year to five. The number of transport accidents fell from seven to six. Table 32 shows the development of figures for transport accidents, broken down according to the means of transport. In total, around one million transport movements took place in 2012. All incidents are carefully analyzed and evaluated so that adequate steps can be taken to prevent a recurrence.

Table 33 gives a detailed overview of environmental incidents and transport accidents.

In the online report we have also listed and commented on [other incidents that were observed and reported by stakeholders \[146\]](#) but that do not meet our criteria for environmental incidents and transport accidents.

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33 Environmental incidents and transport accidents in 2012

	Personal injuries
Environmental incidents	
Currenta, Krefeld-Uerdingen, Germany, May 13, 2012: The breach of a temporary wastewater pipe led to wastewater for biological treatment overflowing onto a track bed and the undermining of a road. The affected area was sealed off completely and repairs were initiated.	No
Bayer MaterialScience, Baytown, United States, August 18, 2012: There was a technical breakdown in an incineration plant. The waste gases released were therefore temporarily transferred to a less efficient alternative incineration plant. As a result, the volume of nitrogen oxide gases (NOx and NO) released into the environment exceeded the permissible level. The authorities were informed accordingly.	No
Bayer MaterialScience, Dormagen, Germany, September 17, 2012: During the start-up procedure of a production facility, a leakage led to the permissible phosgene level being exceeded briefly. This triggered an ammonia vapor wall (safety measure) as required by the applicable regulations. Approximately 600 kilograms of ammonia was released. The authorities were informed of the incident.	No
Bayer CropScience, Dormagen, Germany, October 8, 2012: A flammable dust cloud ignited during the transfer of an intermediate product. The fire consumed approx. 950 kg of the product Triazan and the fumes were released into the environment. Despite immediate extinguishing measures, the resulting fire caused considerable material damage.	No
Currenta, Dormagen, Germany, November 27, 2012: Approximately 7 cubic meters of benzyl chloride leaked from a tank. The resulting product vapor around the tank farm was suppressed with water and the tank farm was treated with heavy foam several times to reduce further outgassing of the product.	No
Transport accidents*	
Bayer MaterialScience, Brunsbüttel, Germany, January 5, 2012: A tank truck loaded with isocyanate (TDI) turned over due to a gust of wind. A small amount of the product escaped from the tank as a result. The road was sealed off and the leaked product was disposed of correctly by the fire department.	No
Bayer MaterialScience, West Alexander, United States, January 21, 2012: The tank trailer of a haulage vehicle became separated from the tractor unit during an accident and hit the guard rail. An iron beam of the guard rail pierced the tank, causing product leakage.	No
Bayer CropScience, Knapsack, Germany, February 2, 2012: During heavy braking, the cover plate (dome cover) of the tank trailer flew open, allowing 20 l of liquid n-heptane to escape. The fire department used binding agents to clean up the liquid and disposed of it appropriately. The road had to be closed temporarily.	No
Bayer MaterialScience, Brno, Czech Republic, February 21, 2012: The driver of a Bayer hazardous transport died from inhaling poisonous fumes. The fumes came from a gasoline generator that was the power supply for mixing the polyol/quartz dispersion he was carrying. The driver went against instructions and entered the loading area of the tilt truck without first allowing it to ventilate.	Yes
Bayer MaterialScience, Matamoros, Mexico, April 25, 2012: The driver of a Bayblend (Bayer MaterialScience product) transport vehicle and his safety officer died in a traffic accident. Chemicals were spilled onto the asphalt, and these were disposed of appropriately. There was no environmental impact. The road had to be closed temporarily.	Yes
Bayer CropScience, Cheboksary, Russia, June 28, 2012: A traffic accident occurred while a haulage contractor was transporting Bayer products. The passenger of the other vehicle involved was killed, and both drivers suffered serious injuries. Around 80 l of Pantera, the Bayer product being transported, escaped, but this had no environmental impact.	Yes

* The regrettable fatalities mentioned in this table did not involve Bayer employees, but employees of various transport companies who were transporting Bayer products at the time of the accidents.

Social Commitment

With our core business, we have a major impact on societal development. At the same time, we depend on intact social framework conditions and an innovation-friendly business environment. For us, it is therefore important to contribute to society's future viability and create value in diverse ways. Within the scope of our social commitment, we thus make targeted strategic investments in the areas of science and education, health, social needs and community projects. This commitment is an integral element of Bayer's corporate policy.

We promote social development outside our core business areas and engage ourselves in many respects voluntarily and without expecting a direct service in return. Through themes of fundamental relevance to Bayer, we also address people outside our core business activities with innovative ideas and projects in the social needs and education sector. In this connection, we benefit in various ways from our commitment: it promotes an environment in which we as a company can perform good services, makes potential new employees aware of Bayer, strengthens our employees' identification with the company, and increases the acceptance of technological innovations among target groups outside our narrower customer base.

We reprioritized the focal points of our funding in 2012 and now concentrate our commitment on three fields of action: education and research, health and social needs, and sports and culture. The activities we previously assigned to the field of environment and nature now form the second area of focus for our education and research sponsorship activities. The centerpiece of this involvement is our partnership with the United Nations Environment Programme (UNEP), with a special focus on youth education.

Organization and steering

Social commitment in the Bayer Group is strategically planned and steered from the company's headquarters and implemented decentrally. An important role is played by our three company foundations [147]: the research-oriented Bayer Science & Education Foundation, the Bayer Cares Foundation to promote social initiative, and the Bayer USA Foundation in the United States. Our commitment is supplemented by specific projects maintained by the Bayer holding company and/or our subgroups, as well as community projects supported by our country companies around the world. *In 2012 Bayer spent around €49 million within the scope of our social commitment [148].* Table 34

The Foundation & Donations Management Department within the Corporate Office of Bayer AG holds primary responsibility for aligning the



Bayer Sustainability Camp: American and German school students Paul Schulze, Anna-Lena Eickelberg, Yannik Cormaux and Tre'Von Walker (from right) get actively involved during the 2012 Sustainability Camp in Pittsburgh.

strategy, coordinating the budget and conducting the related monitoring and reporting activities. All project sponsoring is subject to the provisions of the Group-wide Bayer Donation Directive, which establishes a framework for its content-related and strategic alignment, as well as the proper handling of the funds. This directive, which is binding for all companies worldwide, is designed to ensure the targeted, proper handling of funding by the Bayer Group to promote general welfare. Donations are not made to political parties or associations affiliated with them.

We steer the selection of our projects with three indicators: "social relevance," "coverage of concrete demand" and "thematic proximity to the company's fields of expertise." *In all activities, we focus on countries in which Bayer is represented and on areas that are of relevance to our subgroups and their areas of business.* In addition to financial support, we aim to specifically contribute our technological and economic expertise and the involvement of our local employees – for example through the company's Making Science Make Sense program or our volunteering programs.

In 2012 we restructured our IT platform for the Group-wide steering of our charitable projects and for supporting the global analysis of the activities' effectiveness. We will further internationalize our

147 BAYER WEB

Target 2015

Target 2015

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149 BAYER WEB

sponsorship programs and align them more closely to the aspect of innovation. In 2013 we intend to maintain our expenditures for social commitment at the average level of the previous years.

Education and research

As a research-based company, we depend heavily on recruiting well trained scientists and on society's acceptance of technology. As education is a vital factor in achieving sustainable prosperity, furthermore, Bayer places tremendous emphasis on supporting education and research within its social environment. Here we focus mainly on the fields of science, technology and medicine, as well as environmental protection.

150 BAYER WEB

The funding programs of the Bayer Science & Education Foundation cover the entire scientific training and career path of young people. In 2012 the foundation approved sponsorship money totaling some €1.6 million for school students and school projects, trainees, university students, young scientists and leading researchers. Through our scholarship programs, we pledged some €240,000 to 56 recipients for the implementation of projects abroad. We plan to link these scholarship programs more closely in the future with our company's talent advancement process.

151 BAYER WEB

We teach scientific education and knowledge through hands-on experiments in our Bayer laboratories for school students (BayLabs) [151]. In addition, the Making Science Make Sense (MSMS) [152] educational initiative, which was founded in the United States, was once again implemented in 14 countries on four continents around the world in 2012.

152 BAYER WEB

Fundamental and industrial research represents an investment in future development and value creation. The Bayer Science & Education Foundation therefore honors outstanding research achievements with scientific awards [153]. In 2012 Bayer's scientific foundation presented three young researchers with the Bayer Early Excellence in Science Award. The €50,000 Bayer Climate Award 2012 went to Professor Markku Kulmala from the University of Helsinki for his contributions to aerosol research.

153 BAYER WEB

154 BAYER WEB

155 BAYER WEB

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34 Social commitment (€ million)

	2011	2012
Total	54.3	48.6*
Education and research**	10.0	13.1
Health and social needs	24.2	15.7
Sports and culture	20.1	19.8

* Lower figure due to one-time effects in 2011 (mainly larger product donations in the United States)
 ** Including expenditures for "environment and nature" (2011: €2.5 million; 2012: €2.2 million), which were reported separately in the previous year

Bayer also strives to pass on environmental knowledge within the scope of its partnership with the United Nations Environment Programme (UNEP) [149]. In 2012 Bayer once again invited some 50 young people from 19 countries throughout Latin America, Africa and Asia to undertake a one-week study trip to Germany as part of the Young Environmental Envoy education program.

Health and social needs

We demonstrate an active commitment to improving health services and social conditions in many regions of the world.

Supplementing Bayer's economic activities in its core health care field is the Access to Medicine (ATM) strategy. As part of this program, we supplied medicines free of charge to combat neglected tropical diseases again in 2012. In the area of public health, Bayer continues to work together with the Chinese government to promote advanced training for physicians [150] in the rural western part of the country, where there is a shortage of hospitals. You can find more information on the internet.

Our social needs organization, the Bayer Cares Foundation, supports volunteering by Bayer employees and community members to improve living conditions near Bayer's sites. The foundation accepted 44 new charity projects in the communities near the company's German sites into its volunteering program in 2012, providing funding of approximately €128,000. On the occasion of Bayer's 150th anniversary, the foundation will expand this sponsorship program in 2013 to include all Group sites worldwide.

Disaster aid is another area of activity for the Bayer Cares Foundation. While the company itself provides areas hit by natural disasters with immediate aid in the form of donations of money and goods, the foundation supports sustainable reconstruction projects to help people who find themselves in acute hardship. Bayer donated a total of some us\$280,000 to the American Red Cross and the Save the Children Fund for victims of Hurricane Sandy in the northeastern United States.

Sports and culture

Bayer has contributed to the attractiveness of its corporate locations for more than a century through its commitment to culture [154] and sports. Our involvement in professional soccer is not part of our social sports sponsorship activities but plays a role in the Group's image advertising.

Bayer is restructuring its sports sponsorship [155] in the communities around its Lower Rhine sites in Germany and will gradually shift its focus to six large clubs by 2015. These clubs received a total of some €13 million in 2012 for activities in the areas of recreational, youth and disabled sports. You can read more about our soccer initiatives for children [156] such as "Simply Soccer" in our online report.



To Bayer AG, Leverkusen

We have been engaged to perform a limited assurance engagement on the Sustainable Development Report and the online report of Bayer AG, Leverkusen, (the Company), for the business year from 1 January to 31 December 2012 (hereinafter: the report¹).

Management's Responsibility

Company's Board of Managing Directors is responsible for the proper preparation of the report in accordance with the criteria stated in the Sustainability Reporting Guidelines Vol. 3.1 (pp. 7 to 17) of the Global Reporting Initiative (GRI):

- Materiality,
- Stakeholder Inclusiveness,
- Sustainability Context,
- Completeness,
- Balance,
- Clarity,
- Accuracy,
- Timeliness,
- Comparability and
- Reliability.

This responsibility includes the selection and application of appropriate methods to prepare the report and the use of assumptions and estimates for individual sustainability disclosures which are reasonable in the circumstances. Furthermore, the responsibility includes designing, implementing and maintaining systems and processes relevant for the preparation of the report.

Practitioner's Responsibility

Our responsibility is to express a conclusion based on our work performed as to whether anything has come to our attention that causes us to believe that the data of the report of the Company for the business year 2012 has not been prepared, in all material respects, in accordance with the above mentioned criteria of the Sustainability Reporting Guidelines Vol. 3.1 (pp. 7 to 17) of the GRI. We also have been engaged to make recommendations for the further development of sustainability management and sustainability reporting based on the results of our assurance engagement.

We conducted our work in accordance with the International Standard on Assurance Engagements (ISAE) 3000. This Standard requires that we comply with ethical requirements and plan

and perform the assurance engagement, under consideration of materiality, to provide our conclusion with limited assurance.

In a limited assurance engagement the evidence-gathering procedures are more limited than for a reasonable assurance engagement (for example, an audit of financial statements in accordance with § (Article) 317 HGB ("Handelsgesetzbuch": "German Commercial Code")), and therefore less assurance is obtained than in a reasonable assurance engagement.

The procedures selected depend on the practitioner's judgement.

Within the scope of our work we performed amongst others the following procedures:

- Inquiries of personnel responsible for the preparation of the report regarding the process to prepare the reporting of sustainability information and the underlying internal control system;
- Inspection of documents regarding the sustainability strategy as well as understanding the sustainability management structure, the stakeholder dialogue and the development process of Company's sustainability program;
- Inquiries of personnel in the corporate functions that are responsible for the individual chapters of the report;
- Recording of the systems and processes for collection, analysis, validation and aggregation of sustainability data and its documentation on a sample basis;
- Performance of site visits as part of the inspection of processes for collecting, analyzing and aggregating selected data at:
 - Bayer MaterialScience New Martinsville (United States of America),
 - Bayer MaterialScience Niihama (Japan),
 - Bayer MaterialScience Antwerpen (Belgium),
 - Bayer HealthCare Beijing (China),
 - Bayer HealthCare Wuppertal (Germany),
 - Bayer HealthCare Bergkamen (Germany),
 - Bayer CropScience Frankfurt (Germany),
 - Bayer CropScience Dormagen (Germany),
 - Bayer Technology Services Leverkusen (Germany),
 - Currenta Dormagen (Germany);
- Analytical procedures on sustainability data of the report;
- Comparison of selected data with corresponding data in the Company's Annual Report 2012;
- Gaining further evidence for selected data of the report due to inspection of internal documents, contracts and invoices/reports from external service providers.

¹ Our engagement applied to the German and English version of the report. This text is a translation of the Independent Assurance Report issued in German language – the German text is authoritative. The report is published both as a printable version and as an online version on Bayer's web presence www.nachhaltigkeit2012.bayer.de and www.sustainability2012.bayer.com respectively. Any data or links that refer to sections beyond these websites were not part of our limited assurance. Our engagement also did not include any prospective statements or the statements from external experts on pages 12, 16, 18, 21 and 22 in the printable version and in the online version respectively.

Conclusion

Based on our limited assurance engagement, nothing has come to our attention that causes us to believe that the data of the report of the Company for the business year 2012 has not been prepared, in all material respects, in accordance with the above mentioned criteria of the Sustainability Reporting Guidelines Vol. 3.1 (pp. 7 to 17) of the GRI.

Düsseldorf, April 23, 2013

PricewaterhouseCoopers
Aktiengesellschaft
Wirtschaftsprüfungsgesellschaft

Michael Werner

Emphasis of Matter – Recommendations

Without qualifying our conclusion above, we make the following recommendations for the further development of the Company's sustainability management and sustainability reporting:

- Further formalization of the internal controls system for sustainability information with view to the implementation of Integrated Reporting starting in the reporting period 2013;
- Systematization of the stakeholder dialogue by developing a comprehensive and systematic stakeholder dialogue concept.

ppa. Aissata Touré
Wirtschaftsprüferin
(German Public Auditor)

Glossary

A

Actuators convert electrical signals into mechanical motion or other physical properties. A current example of their application is actuators for electronic games on mobile devices that create a realistic gaming experience. The actuators are based on electroactive polymers from Bayer MaterialScience's ViviTouch™ brand that react to electrical signals like artificial muscles.

African sleeping sickness Infection caused by parasites (trypanosomes). These are single-cell parasites (protozoa) that are transmitted by tsetse fly bites.

ATM (Access To Medicine) indicates the commitment of pharmaceutical companies, for example, to promote general access to vital drugs and improve knowledge of health issues.

B

BMBF German Federal Ministry of Education and Research

BMU German Federal Ministry of the Environment

BMW German Federal Ministry of Economics and Technology

C

Carbon nanotubes are cylindrical carbon tubes that are nanometers in size. The tensile strength of these tubes can be several times that of steel, while having a fraction of the weight.

Chagas (South American trypanosomiasis) Infectious disease caused by parasites (*Trypanosoma cruzi*). It is transmitted to humans by the assassin bug (Reduviidae).

Commercial excellence Bayer CropScience has developed a standardized framework for global marketing and sales activities, with the aim of further increasing customer orientation. Implementing the measures of this standardized framework involves process changes, a binding, structured marketing and sales training concept for the organization and supporting IT systems. The progress of implementation is measured and monitored regularly.

Compliance

- **Compliance** with respect to drug safety comprises the observation of regulatory requirements in quality assurance and monitoring of the risk-benefit ratio in human and veterinary medicine.
- **Corporate compliance** refers to compliance with statutory and company regulations on lawful and responsible conduct by the company, its employees and its management and supervisory bodies.

- **Code Compliance Officer** The Compliance Officer for Bayer HealthCare who is responsible for the implementation of and compliance with the relevant industrial codes where there is collaboration between the pharmaceutical industry and health care professionals or patient organizations.

- **Compliance functions** (also Compliance Managers) are compliance officials who support the compliance organization, particularly the compliance officers.

- **Compliance Officer** Person responsible for compliance in the subgroups and countries

- **Group Compliance Officer** Senior Compliance Officer in the Group

Crowdsourcing refers to a company's web-based outsourcing of specific tasks and solutions to problems – especially in R&D – to a large number of voluntary cooperation partners, in the form of an internet appeal, with the aim of mutually beneficial collaboration. Bayer uses this approach as part of its "open innovation" activities.

Cytotoxic Cell-destroying. Cytotoxic active ingredients are used, for example, in combating cancer.

D

Diversity designates the variation within the workforce in terms of gender, origin, nationality, age, religion and physical incapacitation.

E

Ecotoxicity Harmful effects that chemical substances, preparations or formulations have on living organisms, their population and the natural environment.

EMAS (Eco Management and Audit Scheme) also known as E.U. Eco-Audit or Eco-Audit. EMAS is a voluntary European Union instrument that assists companies and organizations of all sizes and sectors to continually improve their environmental performance.

G

GHG Protocol The Greenhouse Gas Protocol is a standard for the recording and reporting of greenhouse gas emissions. The various standards summarized in the GHG Protocol were developed by the World Business Council for Sustainable Development (WBCSD) and the World Resources Institute (WRI) in a multi-stakeholder process involving industry representatives and NGOs. They cover direct and indirect greenhouse gas emissions and emissions relating to a company's value-added chains. Detailed definitions (Scope 1, 2, 3) can be found in the publications.

"Go-to-market" approach Consideration of the requirements and trends of the market and other current demands in the marketing strategy.

GRI (Global Reporting Initiative) A non-profit multi-stakeholder foundation created by CERES (Coalition of Environmentally Responsible Economies) and UNEP (the United Nations Environment Programme) in the United States in 1997. In a participatory process, GRI drew up comprehensive guidelines for sustainability reporting that are used worldwide. These are continuously developed as part of multi-stakeholder processes.

H

Hybrid varieties High-yield seeds produced by crossing two pure, genetically different parent lines.

I

Incubators Here: institutions that support companies with their start-up. Young companies are given assistance in expanding their research activities in an environment similar to university. These incubators, or start-up centers, support young companies in various ways – from advice, providing rental space and IT equipment to comprehensive service packages.

Indigenous plants These are considered to be those plant varieties that are native to a particular area, i.e. have spread to that area without human help and have an established presence there.

ISO 14001 International standard with requirements and instructions on establishing an environment management system.

ISO 50001 International standard on energy management systems that supports organizations in establishing systematic energy management. This replaces the EN 16001 European standard.

L

License to operate License where the focus is less on the law and more on the socially perceived legitimacy of business activities.

M

Materiality Relevance of particular aspects of management in the context of corporate sustainability, based on the priority of particular topics that are frequently identified and discussed in stakeholder dialogues. These are often documented in a materiality matrix.

Millennium Development Goals Representatives of 189 states agreed a Millennium Declaration in New York in September 2000. The fundamental goals include democratization, equal rights and environmental protection. A working group of representatives from the UN, the World Bank, the OECD and several NGOs developed a list of targets in 2001 for implementing the UN Millennium Declaration. These eight targets, such as fighting poverty and hunger and improving health care for mothers, which are supposed to be achieved in 2015, became known as the Millennium Development Goals.

N

Neglected (tropical) diseases (N(T)Ds) A group of infectious diseases that occur mainly in tropical and subtropical countries and are often associated with poverty. In endemic areas they can be extremely widespread and are usually caused by parasites. Examples include African sleeping sickness, bilharziosis, Chagas and dengue fever.

O

ODS – ozone-depleting substances Ozone-depleting substances include chlorofluorocarbons, other fully halogenated chlorofluorocarbons, halons, carbon tetrachloride, 1,1,1-trichloroethane, methyl bromide, partially halogenated hydrobromofluorocarbons and partially halogenated chlorofluorocarbons. The gradual discontinuation of their use was agreed in 1987 by the Montreal Protocol.

OHSAS 18001 The OHSAS (Occupational Health and Safety Assessment System) 18001 standard forms the basis of an occupational safety management system for operational occupational safety and health protection in the company.

Open innovation approach This approach describes the optimization and opening up of companies' innovation processes and thus the active strategic use of knowledge from outside sources to expand their own innovation potential.

P

Performance management system A system for controlling and evaluating the performance of managers based on individually agreed (annual) targets that are based on the company's strategic objectives and values (LIFE).

Pharmacogenetics Science investigating the connection between human hereditary factors and the effects of pharmaceuticals.

Phase I-III studies Phases in the development of a drug product. The active ingredient candidate is tested in healthy subjects (with the exception of oncology) in Phase I, and in sick patients in Phases II and III. The studies are bound to strict legal requirements and documentation obligations.

Product stewardship Product responsibility and safe handling of products. Product stewardship includes the monitoring of a product over its entire life cycle as an integral element of activities that satisfy the principles of sustainable development and Responsible Care.

Pultrusion process is a method of manufacturing fiber-reinforced plastic profiles in a continuous process.

R

Responsible Care (RC) initiative Voluntary global initiative by the chemical industry aimed at achieving continuous improvement in environmental protection, occupational health and safety, product stewardship, and the safety of sites and their immediate surroundings.

Reversible long-term contraception Methods of contraception (for up to 5 years) such as implants and coils. This is reversible, meaning that fertility returns after removal.

S

Smart breeding refers to a way of breeding plants. "Smart" stands for "Selection with Markers and Advanced Reproductive Technologies." In this breeding method, also known as precision breeding, the genome is examined to identify suitable plants at an early stage.

T

TDI (toluene diisocyanate) Intermediate product in plastics production.

TOC (total organic carbon) Total volume of organically bound carbon in water.

U

UN Global Compact (UNGC) This global pact represents an agreement between companies and the United Nations. It calls upon companies to participate in sustainable globalization in a constructive, responsible manner. The participating companies are committed to acting responsibly based on minimum social and ecological standards and to documenting their commitment to 10 principles from the areas of human rights, labor standards, environmental protection and anti-corruption. Signatories of the Global Compact LEAD, an additional platform introduced in 2011 – including Bayer – are committed to the Blueprint for Corporate Sustainability, an ambitious catalog of measures.

UNEP (United Nations Environmental Programme) The United Nations Environment Programme was founded in 1972 and is based in Nairobi, Kenya. UNEP is a suborgan of the UN General Assembly.

USAID (United States Agency for International Development) State-run agency for development aid in the United States.

V

Vector control Methods for the avoidance or targeted control of organisms that transmit pathogens triggering infectious diseases. Vectors include blood-sucking insects such as the Anopheles mosquito, which can transfer malaria parasites, among others.

VOC (volatile organic compounds) Volatile organic compounds are gaseous organic chemicals that contribute to smog or ozone formation. These enter the environment primarily from production processes, waste incineration or fuel consumption.

W

WHO Class I The World Health Organization (WHO) divides crop protection products into various hazard classes. Class 1 products are deemed to be extremely hazardous.

WHO Essential Drug List As defined by the World Health Organization (WHO), this list details the drugs required to meet the most urgent needs of the population in terms of medical care. Within any health care system, these should be available in sufficient quantities, the correct dosage forms, good quality and at a price affordable to patients.



Statement GRI Application Level Check

GRI hereby states that **Bayer AG** has presented its report "Sustainable Development Report 2012" to GRI's Report Services which have concluded that the report fulfills the requirement of Application Level A+.

GRI Application Levels communicate the extent to which the content of the G3.1 Guidelines has been used in the submitted sustainability reporting. The Check confirms that the required set and number of disclosures for that Application Level have been addressed in the reporting and that the GRI Content Index demonstrates a valid representation of the required disclosures, as described in the GRI G3.1 Guidelines. For methodology, see www.globalreporting.org/SiteCollectionDocuments/ALC-Methodology.pdf

Application Levels do not provide an opinion on the sustainability performance of the reporter nor the quality of the information in the report.

Amsterdam, 11 April 2013

A handwritten signature in blue ink, appearing to read "Nelmara Arbex", is written over a faint, large watermark of the GRI globe logo in the background.

Nelmara Arbex
Deputy Chief Executive
Global Reporting Initiative



The "+" has been added to this Application Level because Bayer AG has submitted (part of) this report for external assurance. GRI accepts the reporter's own criteria for choosing the relevant assurance provider.

The Global Reporting Initiative (GRI) is a network-based organization that has pioneered the development of the world's most widely used sustainability reporting framework and is committed to its continuous improvement and application worldwide. The GRI Guidelines set out the principles and indicators that organizations can use to measure and report their economic, environmental, and social performance. www.globalreporting.org

Disclaimer: Where the relevant sustainability reporting includes external links, including to audio visual material, this statement only concerns material submitted to GRI at the time of the Check on 3 April 2013. GRI explicitly excludes the statement being applied to any later changes to such material.

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AR = Annual Report 2012

Blue links refer to weblinks and our online report

S6FI = Strategy & Focus Issues, M6CG = Management & Corporate Governance, Em = Employees, I6P = Innovation & Product Stewardship, Eco = Ecology

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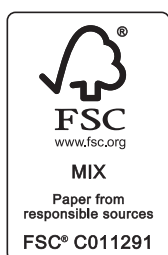
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Bayer on the internet:

www.bayer.com
www.annualreport2012.bayer.com

Financial Calendar

Q2 2013 Interim Report	July 31, 2013
Q3 2013 Interim Report	October 31, 2013
Annual Report 2013	February 28, 2014
Q1 2014 Interim Report	April 28, 2014
Annual Stockholders' Meeting 2014	April 29, 2014



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Main risks from law suits

A detailed description of the main risks arising from the law suits beyond those cited in this report can be found in the Annual Report 2012.

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Cover picture: through the “Much More Rice” program Bayer wants to help rice farmers in Vietnam to increase both yields and quality of rice. Bayer employee Rui Van Kip (right) and farmer Phan Minh Phat check ears of rice in the Tan Tru district. Through “Much More Rice,” or the sowing of pregerminated rice, the company wants to drive forward the spread of hybrid varieties in Asia and support farmers with comprehensive agronomic programs.

SUSTAINABLE DEVELOPMENT REPORT

2012

ONLINE REPORT

In-depth information to supplement the printed report



Science For A Better Life

In-depth information to supplement the printed report

Strategy & Focus Issues

8 Bayer Sustainability Program – lighthouse projects

We drew up a Sustainability Program in 2009 based on our sustainability strategy. To illustrate the core of our strategy clearly, we had selected “lighthouse projects” from the areas of sustainable health care, high-quality nutrition, and protection of the climate and natural resources.

The following tables provide detailed information on the goals we have set ourselves for the lighthouse projects and also provide information on results and measures implemented in the reporting period.

Bayer lighthouse projects for health care

Family Planning (FP)		
Goals	Implemented measures	Results in 2012
Introduce original products (oral contraceptives) at prices in line with the local market in 11 African countries jointly with USAID	Contraceptive security initiative (CSI) project Market launches: Ethiopia (Dec. 2010), Uganda (Sept. 2011), Tanzania (Nov. 2011) and Rwanda (July 2012) Another seven countries to follow by 2014 Microgynon Fe registrations are also being pushed forward in preparation for the new market launches.	Ethiopia (2012): Outlets supplied ***: 1,225; cycles provided: 62,927; CYPs: 4,195 Uganda (2012): Outlets supplied: 284; cycles provided: 8,454; CYPs: 564 Tanzania (2012): Outlets supplied: 156; cycles provided: 12,272; CYPs: 818 Rwanda (2012): Outlets supplied: n/a; cycles provided: 1,212; CYPs: 81 Total CYPs: 5,658 Measurements are based on CYP* (Couple Years of Protection). Example for oral contraceptives: 1 CYP = 15 cycle packs
Increase deliveries of contraceptives together with partners (e.g. USAID, UNFPA, IPPF)	Bulk delivery of oral contraceptives, injections and implants for family planning programs in developing countries in agreement with partners Jadelle Access Program with the Bill & Melinda Gates Foundation for 27 million units of Jadelle over the next six years from 2013	Hormone implants: 2.4 million; CYPs: 8.4 million Oral contraceptives: 120.6 million; CYPs: 8.0 million Injections: 9.8 million; CYPs: 2.5 million Total CYPs: 19 million Increase in deliveries by 35 percent in 2012 Measurements are based on CYP* (Couple Years of Protection). All CYPs are calculated using the MSI Impact Calculator (Version 1.2). Goal defined in 2009 and met in 2010; the level was sustained in 2011 and increased once again in 2012.
Neglected Diseases		
Support the WHO in the battle against Chagas disease Goal: Bring Chagas disease under control by 2020	Bayer’s participation in the London Declaration on NTDs, a Bill & Melinda Gates Foundation initiative for combating and eliminating 10 neglected tropical diseases by 2020 Extension of the collaboration with the WHO for combating Chagas disease and doubling of the nifurtimox provision from 500,000 to 1 million tablets per year over the period 2012-2017 and financial support of the WHO for logistics and distribution amounting to US\$300,000 per year	Fulfilling contractual agreements: Bayer supports the WHO in its battle against Chagas disease by providing 1 million nifurtimox (Lampit) tablets per year, in line with a five-year agreement. Number of nifurtimox tablets already provided by WHO to 12 countries: 510,900 Patients treated: 1,702

In-depth information to supplement the printed report

<p>Support the WHO in the battle against African sleeping sickness (HAT)</p> <p>Goal: Eliminate the disease by 2020</p>	<p>Annual provision of 400,000 tablets containing nifurtimox to the WHO for the nifurtimox-eflornithine combination therapy (NECT) for treating African sleeping sickness</p> <p>Expansion of the collaboration with the WHO in the battle against HAT (East African subtype, 5% proliferation) and increase in the annual provision from 2,000 up to 10,000 ampules of suramin over the period 2012-2017, depending on the WHO's need</p>	<p>Fulfilling contractual agreements: Bayer supports the WHO in its battle against two different subtypes of HAT by providing suramin (Germanin) and nifurtimox (Lampit) in accordance with a five-year agreement:</p> <ul style="list-style-type: none"> • 10,000 ampules of suramin • 400,000 nifurtimox tablets <p>Comments: The report on the WHO's control and monitoring program on African sleeping sickness from 2012 indicates that:</p> <ul style="list-style-type: none"> • The number of cases of both forms of the disease has continued to decline. • The nifurtimox-eflornithine combination therapy (NECT) has made a contribution to this decline. • The chances of eliminating the disease by 2020 continue to be high.
	<p>Continuation of the collaboration with the WHO in the battle against HAT (West African subtype, 95% proliferation) and annual provision of 400,000 nifurtimox tablets over the period 2009-2014</p> <p>Provision of nifurtimox for the nifurtimox-eflornithine combination therapy (NECT) and inclusion of this therapy in the WHO's list of essential medicines in 2009</p>	<p>Number of suramin ampules provided according to the WHO to 6 countries: 376 Patients treated with suramin: 37 Number of nifurtimox ampules provided according to the WHO: 77,000 Patients treated with nifurtimox-eflornithine combination therapy (NECT): 2,890</p> <p>Number of nifurtimox tablets provided by the WHO to 6 countries: 77,000 Patients treated with NECT: 3,130</p>
<p>Research into shortening the duration of tuberculosis therapy together with the Global Alliance for TB Drug Development</p>	<p>Continued support of the ReMOXTB**** study</p>	<p>Patient recruitment for the ReMOXTB**** study concluded mid-January 2012 Total number of patients selected and treated: approx. 1,900</p>
<p>Cooperate on the treatment of multi-resistant tuberculosis (MDR TB)</p>	<p>Continued cooperation between Bayer, the WHO and the Stop Tuberculosis (TB) Partnership to tackle multi-resistant tuberculosis (MDR TB)</p>	<p>The following 15 countries have been included since December 2011: China, Haiti, Peru, Georgia, Philippines, Venezuela, Ecuador, Ukraine, South Africa, Russia, Belarus, Mexico, Indonesia, Cuba, India.</p> <p>Moxifloxacin was supplied to the following 7 countries in 2012: Georgia, Philippines, South Africa, Mexico, Indonesia, Cuba, India.</p> <p>Number of moxifloxacin tablets provided: approx. 300,000 Expected number of MDR TB patients treated*****: approx. 800</p>

CYP* = Couple Years of Protection. CYP is the number of couples who used the provided contraceptives for a year. All CYPs are calculated using the MSI Impact Calculator (Version 1.2), and the USAID calculation basis.

** MSI Impact Calculator: Marie Stopes International (MSI) is one of the biggest international organizations committed to the support of family planning programs and reproductive health. The Impact Calculator is a method for controlling the influence of family planning programs, for example. More information is available at <http://www.mariestopes.org/>

*** Outlet: pharmacies or drug-dispensing outlets

**** ReMOXTB = rapid evaluation of moxifloxacin in the treatment of sputum smear positive tuberculosis. (This study investigates a short, fast therapy involving moxifloxacin for the treatment of pulmonary tuberculosis.)

***** Based on the assumption of a minimum treatment period of 18 months required for treatment of MDR-TB patients

In-depth information to supplement the printed report

Bayer lighthouse projects for nutrition

Goals	Measures implemented in 2012	Results in 2012
Food Chain Partnership – Vegetables		
Work together with partners to develop solutions for sustainable vegetable growing	Successful project development with local partner organizations and farmers	Partners communicate projects independently as "Sustainable Value Chain initiatives"
Help Indian farmers with sustainable vegetable cultivation	The ongoing project has been well received. Successful presentations at international trade fairs (Fruit Logistica, Berlin; Asia Fruit Logistica, Hong Kong)	Projects in 140 cultivation regions with 60,400 farmers on an area of 53,000 hectares
Direct Seeding of Rice		
Program for sustainable rice-growing with a combination of new growing methods involving the direct seeding of pregerminated rice and the efficient use of crop protection products and fertilizer	<p>Project launch in Indonesia in 2009</p> <p>Bayer Tabela staff training module introduced (incl. innovation, weak point analyses, seed treatment, crop protection, general aspects of activities in the field, group discussion)</p> <p>Wide-ranging training activities in the field (demonstration trials, field trial days with farmers and discussions with farmers)</p> <p>Joint field trials with public institutions and specialist consulting services</p>	<p>Target of 50,000 hectares by 2015.</p> <p>Achieved in 2012: 6,331 hectares and 7,445 farmers</p> <p>Staff training of 5 agronomists and 45 field engineers</p> <p>Approx. 540 demonstration trials were conducted; 1,036 field trial days, 377 farmer meetings, 14 Bayer rice shows organized and more than 31,900 farmers trained.</p> <p>Field trials were conducted with the following institutions:</p> <ul style="list-style-type: none"> a) IAERI (Indonesian Agriculture Environment Research Institute) Jakenan in Klaten, Central Java (Bayer Tabela vs. transplanted rice) b) Agricultural Faculty of Padjadjaran University, Bandung c) Indonesian Centre for Rice Research (ICCR), Sukamandi d) Assessment Institute for Agriculture Technology (AIAT) (Bayer Tabela vs. transplanted rice vs. system of rice intensification)
Increase yield by up to 10 %	Yield evaluation of Tabela field trials	Up to 22 % average yield increase was determined for Bayer Tabela vs. transplanted rice in approx. 540 field trials.
Reduce water consumption by up to 20 % and emissions of the greenhouse gas methane by up to 30 %	The Bayer Tabela direct seeded rice project in Java is recommended by the Republic of Indonesia's National Committee on Clean Development Mechanism (CDM)	<p>Receipt of the official letter approving the project and its contribution to sustainable development in Indonesia</p> <p>Submission to the UNFCCC* to obtain official Clean Development Mechanism project registration is scheduled for 2013.</p>

*United Nations Framework Convention on Climate Change

In-depth information to supplement the printed report

Bayer lighthouse projects for protection of the climate and natural resources

Goals	Measures implemented in 2012	Results in 2012
EcoCommercial Building (ECB) Program		
Focus on large-scale commercial and public building projects; alignment to international core and growth markets	<p>Development of international marketing and industry networks</p> <p>Support for the Bayer Climate Program through energy-efficient new buildings</p> <p>Emissions-neutral and energy-efficient Bayer buildings in line with the ECB standard in Qingdao, China</p>	<p>Founding of seven centers of excellence worldwide with 82 network partners</p> <p>9 memorandums of understanding signed with high-profile decision-makers in the construction industry</p> <p>Inauguration of an ECB building in Qingdao, China</p> <p>Lighthouse project in Greater Noida, India, awarded the LEED Platinum certificate, the highest quality level in the Leadership in Energy and Environmental Design (LEED) classification system of the U.S. Green Building Council for Sustainable Construction. The ECB building received the highest score ever.</p>
Energy Efficiency		
Oxygen depolarized cathode (ODC) technology based on common salt: used at Bayer MaterialScience for industrial-scale chlorine manufacture; reduction in electricity requirement by up to 30 % compared with the membrane process and thus a reduction in indirect CO ₂ emissions	<p>At Bayer MaterialScience: demonstration plant taken into operation at the Krefeld-Uerdingen site in 2011 (capacity: 20,000 metric tons of chlorine per year)</p> <p>Successful launch of two-year production trial</p>	Measured data from demonstration plant to date confirm savings potential indicated during laboratory operation.
Establish STRUCTese™ to achieve a sustainable and systematic reduction of CO ₂ emissions at energy-intensive production plants	<p>By the end of 2012, STRUCTese™ had been successfully rolled out at 50 facilities. The originally planned rollout at 60 facilities was not achieved for a number of reasons. Rollout at three Japanese facilities has been delayed by several months due to organizational changes; the handover of two completed facilities in China was postponed till 2013; rollout at five less energy-intensive plants in Brazil has been postponed due to a management decision.</p> <p>Implementation is thus planned at 58 facilities by the end of 2013 (including three additional new energy-intensive plants in China).</p>	<p>First certification of STRUCTese™ at Bayer MaterialScience in Germany to ISO 50001 in fall 2012</p> <p>First marketing success in outlicensing the management tool</p> <p>In 2012 a further global reduction in annual CO₂ emissions of 129,000 metric tons was achieved through STRUCTese™.</p>
Solar Impulse		
Develop innovative lightweight construction solutions for the use of renewable energy concepts with materials from Bayer MaterialScience	Development of the cockpit shell for the new, larger solar aircraft HB-SIB; initial test flights planned for 2014; circumnavigation of the globe in 2015	New cockpit design finalized; construction, simulation and prototyping completed; good successes with thermal management of new cabin – despite the larger surface, comparable thermal comfort can be ensured

In-depth information to supplement the printed report

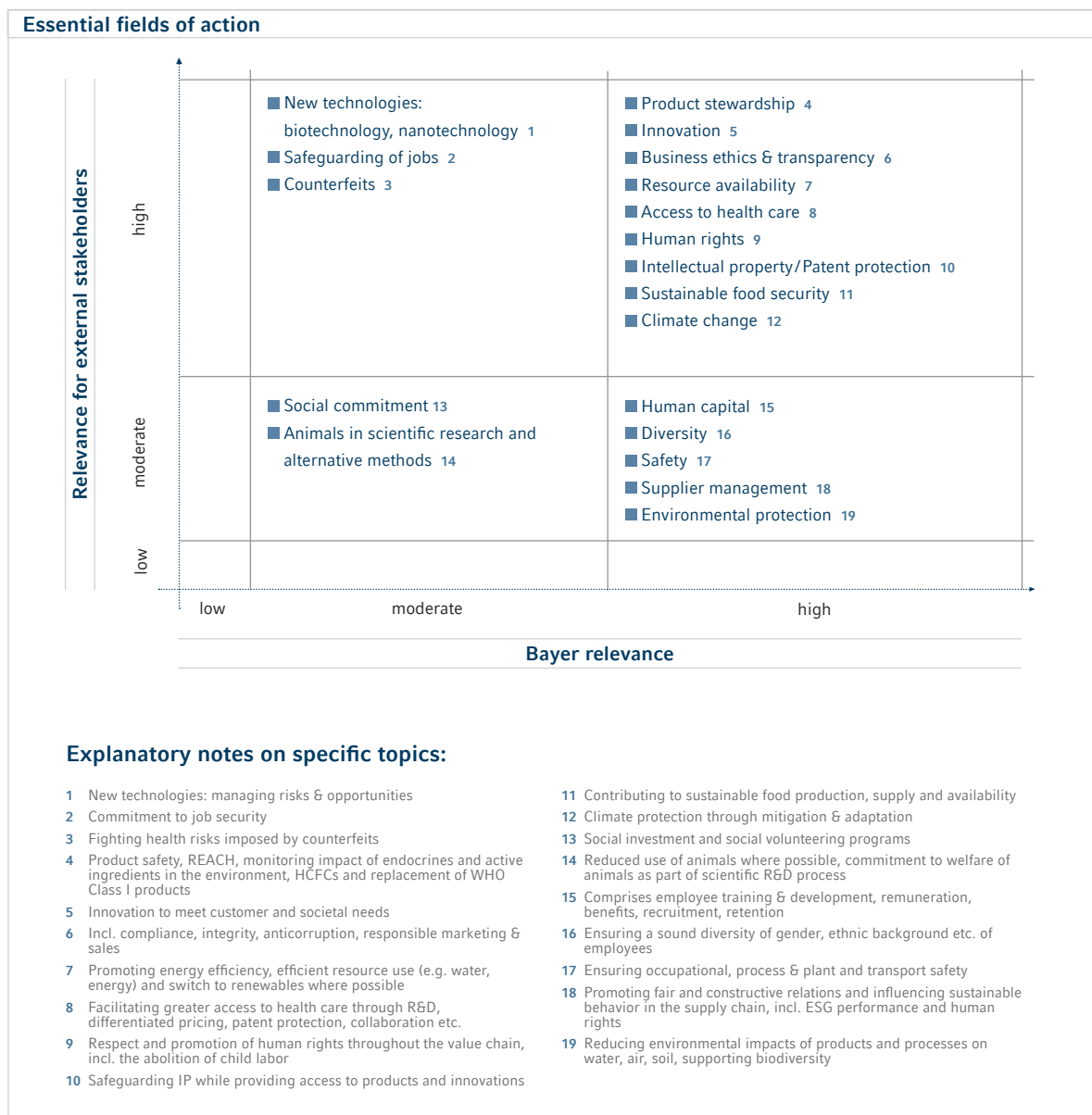
16 Evolution of sustainability at Bayer

Our path to the development of sustainability in the company		
	Strategic steps	Projects and measures
From 2012 on-ward	<p>Integrated reporting from 2014; systematic integration of sustainability into businesses, functions and regions</p> <ul style="list-style-type: none"> ■ New growth strategy for sustainable agriculture ■ Further development and implementation of the Access to Medicine strategy ■ Further efficiency increase and new technologies in our productions processes for innovative market solutions <p>2013: Directive on Process and Plant Safety 2013: Bayer's position on the protection of biodiversity 2012: Responsible Marketing & Sales Policy 2012: New target for the reduction of industrial injuries 2012: Updating of Anticorruption Procedure 2012: Implementation of the CSO (Chief Sustainability Officer) function on the Board of Management</p>	<ul style="list-style-type: none"> ■ From 2013: Project group for the implementation of integrated reporting ■ 2013: Bayer HealthCare Compliance Manual and training <p>2013: Launch of the Bayer Academy 2013: Implementation of the Group-wide Transportation Safety Platform 2012: Co-founder of the supply chain initiative "Together for Sustainability" 2012: Third party due diligence project</p>
2010 – 2011	<p>2011: Water Position 2011: Directive on Integrity & Responsibility in Communications and Marketing 2010: Completion of the Program of Objectives for 2006-2010 2010: Directive on the Management of Compliance incidents 2010: Procedure for recording and reporting greenhouse gas emissions at Bayer</p>	<p>From 2011: Rollout and implementation of the process and plant safety initiative 2011: Expansion of the Sustainability Program 2011: Rollout and implementation of the sustainability targets for 2015, including new and ambitious climate goals 2011/12: Pilot projects: Stakeholder Check 2011: Introduction of Group Compliance Office 2011: Membership of the Pharmaceutical Supply Chain Initiative (PSCI) Since 2011: Support for the UNGC's LEAD initiative 2010: Pilot projects for the Resource Efficiency Check 2010: Introduction of the STRUCTese™ energy efficiency management system 2010: Rollout of the Sustainability Check 2009: Launch of the worldwide implementation of the Bayer Supplier Code of Conduct</p>

In-depth information to supplement the printed report

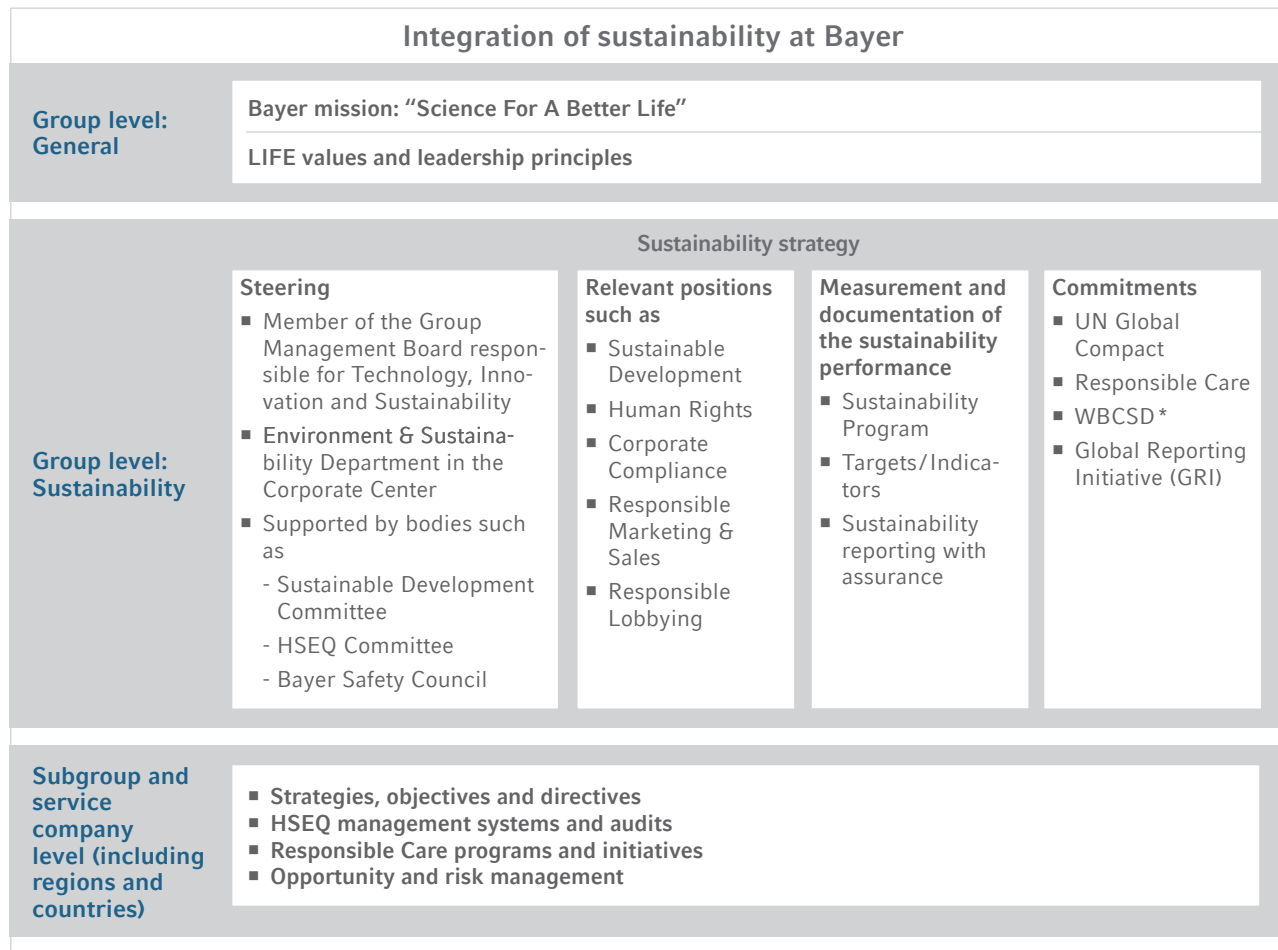
17 Materiality matrix – key areas of activity

We regularly analyze the suggestions and expectations of external and internal stakeholders through stakeholder dialogues and surveys to compare the pertinence of sustainability-relevant issues for our stakeholder groups with that of our own assessments. In this way, we can determine the areas in which our sustainability strategy requires further development and identify issues that we must focus on more clearly in the future. We document the comparison of external and internal priorities in a materiality matrix. Within the context of a stakeholder process, we examined, restructured and refocused this matrix in 2011 together with an international think tank. This process involved surveys of external stakeholders, internal stakeholder workshops at various levels, benchmarking and external analyses. We have also expanded the matrix to include a number of explanations.



Management & Corporate Governance

41 Integration of sustainability



* World Business Council for Sustainable Development

47 Risk management in the subgroups

In addition to Bayer AG's risk management, the three subgroups are individually responsible for managing their own specific risks.

Bayer HealthCare

In 2009 Bayer HealthCare published a Directive on Enterprise Risk Management. On the basis of this it introduced an integrated enterprise risk management approach in 2012. The objective here is to apply a globally standardized process for identifying at an early stage and foresightedly managing possible risks for patients, the environment or the achievement of the company's objectives. The goal of this global process is to minimize the impact of potential risks on the supply of our products to patients and to limit the possible negative implications for the company. This approach generally takes into account all relevant types of risks, such as operational, strategic, compliance-related or market risks, as well as both internal and external factors.

Risks are recorded and assessed in the global functions according to a standard methodology so that the relevant risks can be transparently reported to subgroup management. The process for managing these risks is then developed and implemented, and its effectiveness assessed. Results from existing risk management systems in individual Bayer HealthCare units are included in the comprehensive enterprise risk management approach. Risks can be depicted at the subgroup level in a comparable and transparent way thanks to the globally standardized method. This improves the decision-making basis for possible countermeasures.

In-depth information to supplement the printed report

Bayer CropScience

Bayer CropScience takes an all-round approach to risk management, which it regards as an integral part of its organizational structure and planning processes. The company defines four key areas for risk management: first, the subgroup focuses on external compliance. This means the company observes applicable law, adheres to effective patent protection legislation and meets all requirements in the area of HSEQ. Second, the subgroup endeavors to minimize operational and strategic risks by continually monitoring its strategy. Third, it always keeps track of risks arising from events or developments both outside or within the company (so-called event risks) that could jeopardize the company's value. The fourth area of risk management at Bayer CropScience is centered around internal compliance, which is monitored with the aid of internal audits. In addition, an internal controlling system is generally used to minimize our financial risks.

Bayer MaterialScience

The management system at Bayer MaterialScience breaks down risks into four categories: process and organizational risks, event risks, planning and market risks, and legal risks. In the first category, we have introduced an internal control system. To manage event risks, Bayer MaterialScience has developed a system to ensure timely identification of risks in keeping with the German Stock Corporation Act (AktG). Risk management is the responsibility of an Overall Risk Coordinator, supported by a number of functional risk coordinators and appropriate experts. Their task is to identify and evaluate risks and document them where appropriate in the Group-wide database BayRisk. Planning and market risks are addressed centrally by the Bayer Group. The key tools used for this are strategy and portfolio management and Group planning and auditing conferences. Bayer MaterialScience minimizes legal risks principally through systematic implementation of its Corporate Governance Policy.

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Stakeholder dialogue

Open and transparent dialogue with stakeholders is extremely important for Bayer as a global company. We are convinced we cannot achieve acceptance of our business activities without communication with our stakeholders. For that reason we view systematic dialogue as a basis for mutual understanding. For us, the suggestions of our stakeholders are important indicators of social trends, views, expectations and needs. They help us to avoid risks, identify trends and markets at an early stage, assess our contribution to society – and thus also to define focus areas for our activities. The interests of our stakeholders are not always identical with our own assessments. Rather, they often harbor a certain potential for conflict that requires Bayer to find flexibility in its decision-making.

We seek targeted dialogue with players from sections of society that are directly impacted by our business activity (Group A in the table) and which for their part can directly or indirectly exert influence on our business activity (Group B in the table).

A. Stakeholders who are impacted directly by our business activity	B. Stakeholders who can impact our business activity
<ul style="list-style-type: none"> • Employees • Customers • Suppliers • Neighbors/Residents 	<ul style="list-style-type: none"> • Employees • Customers • Suppliers • Neighbors/Residents • Investors • Politicians/Administration • Schools/Scientific community/Research • Non-governmental organizations (NGOs)

Our current stakeholder activities range from targeted dialogue locally, nationally and internationally at Group and subgroup level, through active participation in committees and specialist workshops, to comprehensive information programs and participation in international initiatives and collaborations. We also use surveys to determine which issues are particularly important to our stakeholders. In winter 2011, 328 external stakeholders such as suppliers, customers, financial market participants and individuals from the political and scientific communities took part in our online survey. Among other things, we asked about key sustainability issues for Bayer, our performance in these areas and an assessment of our sustainability reporting. For more information, see page 92 at www.sustainability2011.bayer.com/en/sustainable-development-report-2011.pdf. Bayer conducted a major employee survey in 2012. Find out more on page 15.

In-depth information to supplement the printed report

To systematically involve our stakeholders, we use a manual that describes the Bayer stakeholder engagement process. The process demonstrates how – throughout the Group and on a project-by-project basis – stakeholder groups can be identified, their expectations cataloged and dialogue with them managed. This process helps us perform sustainability activities even more intensively on the basis of a partnership-based dialogue.



The engagement process itself and the forms of engagement require regular monitoring and need to reflect social trends to check their strategic focus. This focus ranges from objectives and personal commitment to addressing the needs of target groups with suitable efficiency and effectiveness. During the reporting year, we started to review our stakeholder engagement and processes. As well as various workshops – including at top management level – this also involved the implementation of intensive benchmarking and best practice analyses. In the course of this year, the results of this are to be used to draw up action plans in various project teams.

Below is an overview of our engagement with various stakeholder groups and on various topics drawing on examples from 2012.

Stakeholder dialogue: concept – implementation – effectiveness

Below you will find selected examples of stakeholder dialogue – from the concept through the implementation to the determination of its effectiveness.

Bayer HealthCare:

- International Dialogue on Population and Sustainable Development

Since the formulation of the Millennium Development Goals (MDGs) of the United Nations, the issue of population and sustainable development has been discussed more intensively. Bayer HealthCare works to help achieve these development goals as a private-sector partner, maintaining close contact with governmental agencies and non-governmental organizations.

To promote ties between the various players and offer a forum for dialogue about issues related to reproductive health, Bayer HealthCare since 2002 has organized together with a number of development policy organizations a series of conferences entitled "International Dialogue on Population and Sustainable Development." This two-day international conference takes place once a year in Berlin. The issues are developed together with partners and other protagonists. The format of the event has changed over the years to satisfy the need for intensive exchange and maximum participation, and the spectrum ranges from panel discussions through meetings of experts to interactive stakeholder forums. With the establishment of the World Café, an additional discussion forum was created that even more intensively integrates the participants.

In-depth information to supplement the printed report

The goal of this conference is to exchange experiences and opinions, discuss strategies and – based on the results of the conference – develop recommendations that can be passed on to political decision-makers. For further information, see <http://www.dialogue-population-development.info/index.htm>

- **Parliamentary Evening of the German Foundation for World Population and Bayer HealthCare**

It is important to Bayer HealthCare – as the market leader in the field of hormonal contraception – to improve public awareness about issues pertaining to reproductive health, self-determined family planning, women's health care, population and development. Together with the German Foundation for World Population, Bayer HealthCare established a regular parliamentary evening in Germany in 2010. The annual meeting is held at the Parliamentary Society in Berlin, and is aimed at politicians, governmental representatives, non-governmental organizations and representatives of the private sector, as well as the diplomatic core and interested scientists.

With the Parliamentary Evening, the organizers have succeeded in creating a forum for this area in which not just experts, but also representatives of other political business areas and an interested audience from the scientific community and industry can interact. And the steadily growing number of participants since the introduction of this event shows that the themes and format are relevant: with panel discussions and the subsequent opening up of the forum to the audience along with the informal exchange of opinions at the get-together following the event, awareness can be raised about this development policy issue.

- **Bayer HealthCare in dialogue**

Demographic change, medical advances, and political and health economic framework conditions have a crucial impact on companies in the health care industry. They also raise the question of what value society places on health and long-lasting quality of life, and how much it is willing to pay for this. Within the framework of its social commitment and as a company that mainly conducts research in areas and develops medicines for which there is a high and often unmet demand, Bayer HealthCare aims to actively contribute to this socially relevant discussion by inviting experts from the political sphere, medicine, the scientific community and industry to debate controversial issues. The "Bayer HealthCare in Dialogue" event series was established in 2010 and is primarily geared toward journalists and political representatives.

We often develop the program of the event in cooperation with patient organization representatives so as to ensure a broad range of discussion contributions. A discussion was held in Paris about the burden posed by increasing visual impairment against the background of an aging population. The social and medical challenges were illuminated in a forum involving international journalists and representatives of further patient organizations. For further information, see <http://www.bayerpharma.com/en/press/in-dialogue/overview/index.php>

Bayer CropScience:

- **Bayer CropScience in dialogue**

Safeguarding harvests, boosting crop yields and improving crop quality in the face of continuing climate change are major challenges. We are pursuing the goal of raising agricultural productivity through innovation.

We therefore explain the importance of innovation in state-of-the-art crop protection and improved seed in discussions with the media and in our contact with a wide range of stakeholders on a continuous basis – and not just locally, but worldwide, too. For us and our customers – such as farmers, wholesalers and retailers, processors, breeders and seed producers – an innovation-friendly environment is essential. We are committed to ensuring that innovations and technologies are accepted by society and we achieve this by entering into partnerships around the world and bringing together resources, ideas and people.

A key focus in 2012 was on the stakeholder dialogue at our German production sites in Dormagen, Frankfurt and Knapsack, where Bayer CropScience is planning further investments in expanding its crop protection capacities – plans that the company has communicated widely.

Representatives from Bayer CropScience, which has production and research operations at the Frankfurt-Hoechst Industrial Park, regularly take part in the „Gesprächskreis Höchster Nachbarn“ discussion group. This forum takes place twice a year with participants that include citizens' initiatives, representatives of church communities, the regional press, representatives of the Höchst Industrial Park, the companies located at the Park, and its neighbors.

Neighbors of and visitors to the Knapsack Chemical Park near Hürth can find out about innovations from the companies based there, for example, in the "Knapsack-Spiegel" journal published by chemical park operator InfraServ. This publication actively encourages participation in local dialogue and other local events. Personal discussions with company representatives are an important part of the dialogue process.

In-depth information to supplement the printed report

Representatives from Bayer CropScience also have expressed a clear commitment to the Dormagen site. The safety of production facilities in particular is extremely important for Bayer CropScience. As part of the safety dialogue, experts explain to interested members of the public what Chempark companies do for their and our safety. This includes target group-specific presentations, plant visits and tours of the Chempark Dormagen site. Bayer CropScience also participated in the social initiative "Zukunft durch Industrie" (Securing the future through industry) and invited participants to visit its Dormagen and Monheim sites as part of the "Long Night of Industry."

■ Symposium on Rural Advisory Service: Modes of Sustainable Development

In October 2012 Bayer CropScience participated in a symposium on training for small-scale farmers in emerging markets and developing countries organized by the German Society for International Cooperation (GIZ). The main focus was on a coordinated approach by various public and private sector organizations to prepare small-scale farmers for key challenges such as tackling soil erosion, adapting to climate change, and achieving business success on extremely dynamic and increasingly globalized agricultural markets. This is where Bayer CropScience, with its comprehensive technical training for small-scale farmers on good agricultural practice, can play a major role. However, close consultation with public advisory services is a crucial factor in this regard. Small-scale farmers are at the heart of efforts to safeguard global food supplies and combat poverty. The results of the symposium show the need for renewed efforts by the public and private sectors to enable small-scale farmers to bring about lasting growth in their productivity and market their products successfully.

Bayer MaterialScience:

■ "Innovation in large-volume CO₂ recycling – policy, environment and business opportunities" workshop

The use of carbon dioxide as a raw material – with the aim of closing materials cycles – is an area where intensified international efforts are being undertaken, including activities backed by political support. The specialist term here is "carbon capture and usage": separating and sensibly utilizing CO₂ from waste gases. As in the natural process of photosynthesis, the goal is to use carbon dioxide as a building block and raw material for chemical and biotechnological applications. Considerable breakthroughs are expected here in the coming years.

To drive forward the political and social discussion about carbon capture and usage (CCU), the Institute for Advanced Sustainability Studies (IASS) joined with Bayer MaterialScience in December 2012 to organize a workshop in Potsdam, Germany, in which representatives from the scientific community, the political sphere, industry, associations and the media took part. The discussion focused on the social and economic potential of CO₂ usage, the communicative challenges associated with the issue and the ecological assessment of CCU processes.

The German Federal government is supporting CCU research with total funding of €100 million. Bayer, too, is participating in funding measures – including, for example, the Dream Production project, which involves the manufacture of a chemical component for polyurethane foam with the help of CO₂ from power plants. This enables the replacement of a portion of the petrochemical raw material that usually makes up 100 percent of this substance.

Stakeholder dialogue according to dialogue partners

Customers

Our conduct toward customers is also characterized by responsibility. The long-term success of our company is crucially dependent not just on the provision of innovative products, but also on a partnership-based relationship with – and a high level of satisfaction on the part of – our customers. In our view, products that satisfy customer demands while at the same time providing a societal benefit are the key to sustainability. Due to our highly diversified business activities, our resulting widely varying product range and the customer structure, the three Bayer subgroups have put in place both specific systems for measuring customer satisfaction and their own complaint management systems.

Bayer HealthCare is comprised of the Animal Health, Consumer Care, Medical Care and Pharmaceuticals divisions. These divisions maintain their own active dialogue with target groups whose portfolios differ substantially from one another. The sales organizations of the divisions carry out various satisfaction studies, for example with physicians of various specializations or with pharmacists and other partners in the health care system. Furthermore, customer studies are carried out and systematically evaluated so as to better understand the needs of patients, health system employees, hospitals, wholesalers, and public and private payers.

However, different legal requirements apply to prescription medicines than to non-prescription medicines or medical products. Thus the conditions for compiling data on customer satisfaction in the health care market are correspondingly complex. For example, it is not permitted to directly survey patients about the effects and side-effects of prescription medicines.

In-depth information to supplement the printed report

Primary market and data research is regularly conducted at Bayer HealthCare. The Global Market Research function at Pharmaceuticals initiated a study in 2012 to assess the satisfaction of about 3,000 physicians in six countries; a second phase is currently being planned that will include even more countries.

Bayer HealthCare also makes use of externally commissioned industry reports to compare the expectations of physicians, pharmacists and consumers as regards the quality of our own services. Examples include the non-interventional meta-analysis study about the Consumer Care Division's Aspirin™ brand conducted in 2011 and the TNS Healthcare study in 2009 about European health care trends.

As a link to the German customers, Bayer HealthCare's German distribution company (Bayer Vital) tracks key indicators pertaining to customer service matters. This applies, for example, to the observance of delivery deadlines and specifications by external logistics companies, complaints (order- or supply-related) or telephone availability. In this connection, different KPIs (Key Performance Indicators) have been set that routinely give information about availability and are regularly analyzed.

At Bayer Animal Health, the methods for measuring customer satisfaction depend on the respective market segment. In addition, the division carries out market research projects on certain disease-related issues (e.g. vector-borne diseases in dogs) and measures satisfaction with its own products. In 2010 Bayer HealthCare conducted seven different market research projects at various levels of customer satisfaction.

Feedback and responses to questions about products and services of Bayer HealthCare are made available via the respective business units and country organizations. In Germany, this includes (in German only):

Bayer Vital: <https://www.bayervital.de/de/service/kundenservice/index.php>

Bayer HealthCare Germany: <http://www.gesundheit.bayer.de/de/service/kundenservice/index.php>

To ensure optimal service, the Customer Service Center, Diabetes Care and Animal Health apply a quality management system certified according to ISO 9001:2008.

Bayer CropScience gauges the satisfaction of farmers and distributors with the help of standardized surveys and other tools. Our regions and countries launched their own customer satisfaction surveys in countries such as Malaysia and Germany in 2012. This year we began revising and expanding this globally defined approach, and examined the internal user community and whether the compiled data can be utilized with regard to implementability within the organization. We hope to be able to present in the first quarter of 2013 an improved approach for evaluating and measuring customer satisfaction that will also be reflected in our commercial excellence activities.

By the end of 2014, Bayer CropScience will have completed the full reorganization of its Customer Relationship Management (CRM) processes. The focus here is on a new understanding of CRM that does not concentrate so much on technical aspects, but rather is strictly aligned toward customer needs. This new approach takes into account not just farmers, but also distribution channels and multipliers. Two software systems with different degrees of elaboration will be available for a) complex developed markets and b) smaller markets and users. A central global CRM platform will standardize core processes and reduce maintenance work.

At **Bayer MaterialScience**, four global Supply Chain Centers serve as the central link to the customers. At their disposal are respective Customer Service Centers in the Europe/Middle East/Africa, Latin America, NAFTA and Asia/Pacific regions. This means that all information streams are pooled – from order acceptance to dispatch planning, delivery and complaint acceptance. Through the online information platform BayerONE, customers of MaterialScience can check the status of their orders at any time.

Supply, production and delivery processes are certified according to DIN ISO 9001 and are subjected to regular internal and external audits. New system controls and a new documentation form were introduced in 2012 that have significantly reduced manual effort and time input. The changes did not impact the effectiveness of the controls.

Customer satisfaction data are systematically compiled at Bayer MaterialScience as well. To ensure optimal quality of service, customers are surveyed, their complaints systematically evaluated in the global complaints management system, and the supplier evaluations carried out by customers analyzed in detail. In 2012 the subgroup succeeded in reducing the processing time for completed complaints by nearly one third. Customer satisfaction analyses are carried out separately by the various business units. In 2012, for example, analyses were carried out in the Polyurethanes business unit. The results are directly incorporated into the quality management system and the continuous improvement process.

Suppliers

Procurement of products and services in differentiated markets and locations results in special challenges for our procurement organization.

Dialogue with our suppliers is essential to establish smooth production processes. It should bring transparency to business relationships and help to establish reliable relations. Through this process, we want our suppliers to better understand the principles of our procurement policy and our requirements, particularly as regards sustainability. In return, we would like to learn more about our suppliers' situation.

Dialogue about sustainability issues plays an important role. After all, our products benefit overall when our suppliers support our sustainability policy. In addition, this enables us to better address the needs of our customers and other stakeholders.

In-depth information to supplement the printed report

Examples of activities from 2012:

- June 6, 2012, Leverkusen, Germany: the first Group-wide Global Supplier Day focused on increased efficiency in relations between Bayer and its suppliers, as well as on the expectation that all suppliers support Bayer's LIFE values.
- November 2012: sustainability aspects were a focus theme of the local supplier days held at the sites in Pittsburgh, Pennsylvania, United States, and Shanghai, China.
- December 10, 2012, Leverkusen, Germany: employees at sites around the world were also able to participate in the first Group-wide Town Hall Meeting of the Procurement Community and ask questions about sustainability via live broadcast through the online chat function.

Employees

The know-how and commitment of our employees safeguard our business success. To sustain this performance, the Bayer Group needs a modern human resources and talent management organization with competitive structures and processes. This includes regularly providing up-to-date information to our workforce, as well as involving our employees through active and targeted dialogue.

Active employee dialogue at all levels	
Ask the CEO: employees pose questions to the CEO via the intranet	Ongoing
"Bayer Talk" with the Chairman of the Board of Management	Once a year
CEO newsletter to all employees	Several times a year
Town hall meetings with a direct question-and-answer session	Quarterly with Chairman of the Board of Management Dr. Dekkers from the Corporate Center, broadcast to all Bayer sites worldwide; intermittently in the subgroups and service companies as well
Global Leadership Conferences in workshop form	At least once a year
Global employee surveys*	Regularly, of late every 1.5 years
Forums for the exchange of information about changes in the company	
Information meeting for managerial employees	Regularly in the Corporate Center for the holding company and at all subgroups and service companies
Employee assemblies	Regularly, at unspecified intervals; at least once a year at German sites
European Forum: discussion between the Board of Management and Bayer employee representatives from all European countries where Bayer has sites	Once a year
Discussions on performance, motivation and development perspectives	
Obligatory feedback conversations as part of the Bayer Performance Management Process and the Bayer Development Dialogue	Continuous communication
360 degree feedback for managerial staff	Optional as required
Examples of subject-specific dialogues and events for different employee groups	
W11 dialogues: national and international stakeholders in discourse with Bayer's top management	Regularly, at unspecified intervals
Expert Club Meeting: exchange of experiences on the theme of innovation among the scientific network of experts comprising Bayer scientists from the R&D units and the member of the Board of Management responsible for Innovation, Technology & Sustainability	At least once a year
Process and Plant Safety Symposium with approximately 100 Bayer experts from around the world and international experts	Every two years
Global Safety Day	Annually in September
Ongoing training seminars in the areas of compliance, human rights, sustainability in procurement, and diversity	Continuous (see "Continuing education")

In-depth information to supplement the printed report

Regular discourse in the global Public & Governmental Affairs Community on political developments and framework conditions of relevance to Bayer.	Regularly
Exchange of experiences in dealing with working capital (e.g. receivables from customers, payables to suppliers, credit management).	Four round tables in Sao Paulo, Budapest, Berlin and Bangkok through July 2012
The Traffic Safety Day for employees focused on commuting accidents.	April 2012
Joint quality objectives were on the agenda at the Global Bayer HealthCare Procurement Conference in Potsdam, Germany, for the purchasers' network at Bayer.	September 2012
Bayer data protection experts' conference in Leverkusen, Germany: more than 50 Bayer Group and external experts discussed the private use of workplace IT and private mobile devices at the workplace.	December 2012
Publications for employees	
Bayer Group publications: print and online	Employee magazines; intranet; numerous regular newsletters and occasion-related mailings, social media
Print and online media by the subgroups and service companies for their employees	Employee magazines; intranet; newsletters and occasion-related mailings, social media

* Global Employee Survey 2012

Employees were invited to take part in the second global Bayer Employee Survey in March 2012. Bayer carried out the survey with support from a renowned international consulting firm that also possesses extensive data from other companies. This therefore provides the opportunity for benchmarking – in other words, an anonymous comparison with results from other companies.

More than 70 percent of all Bayer employees participated in the global Bayer Employee Survey in 2012, a further increase on the figure of just under 69 percent for the first survey in 2010. There was also a positive trend at Group level for most of the topics covered.

Employee commitment was once again a focus of the survey in 2012, as Bayer views employee dedication and motivation as key to the company's development. The results in this key area were already above average in the first survey, and now there has been a further improvement. Some 91 percent of respondents agreed with the statement "I fully apply my skills and abilities in my work," compared with 90 percent in 2010.

Bayer employees now also identify more closely with the company's values, which were reformulated after the last survey under the acronym LIFE and rolled out worldwide. 92 percent of employees support these values (90 in 2010), and 71 percent confirm that people in their respective organizations are indeed living by them. However, acceptance of them needs to be improved even further, with LIFE permeating the work environment of all Bayer employees.

The ratings employees gave for diversity and inclusion at Bayer were already very positive in the fall of 2010 and improved by a further 2 percentage points to 75 percent this time. And Bayer continued to score very highly on the perception of occupational safety, with 91 percent of employees confident that their safety in the workplace is ensured (90 in 2010). Environmental awareness at Bayer also continues to score highly, with positive ratings from 86 percent of respondents (84 in 2010), of whom 81 percent (83 in 2010) feel that Bayer takes responsibility for society.

Including in the areas of innovation & customer orientation, diversity & inclusion and leadership by senior management, the gap to the benchmark values for other top companies has narrowed since the first survey. And yet we are committed to achieving even further improvements in these areas.

The results have been evaluated in detail by the holding company, subgroups, service companies and countries and individual measures developed. Bayer takes the findings seriously, and believes it is important to take a collective approach to improvements to make further progress.

Investors / Analysts

Intensive dialogue with the capital market is a high priority for Bayer. In 2012 we visited 21 broker conferences, conducted 21 roadshows – often accompanied by members of the Board of Management – and took part in several field trips. Overall we appeared last year in 26 financial centers.

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The Meet Management Conference, which we have organized for many years in Germany for our investors and analysts, was expanded in 2012 to include New York and Tokyo for the first time. We also participated in several private investor forums in which we presented the businesses, innovations, products and perspectives of our company to a large number of interested investors. We also maintain and intend to expand an intensive dialogue with analysts and investors from the area of sustainable investment.

In addition, Bayer actively participates in discussions and events on the subject of sustainable investment, including with the Sustainable Investing Working Group of the World Economic Forum. Furthermore, we were involved in the dialogue on the German Sustainability Code initiated by the German Council for Sustainable Development.

Society / Community

The communities near our sites play a key role in our success: we can only be successful if we gain the trust and support of our neighbors. For this reason, we endeavor to be recognized at all of our sites as a reliable partner and attractive employer that meets its social responsibility. This makes both the region and the company more competitive.

Bayer HealthCare

- June 2, 2012, Berlin, Germany: Bayer HealthCare Pharmaceuticals took part in the "Long Night of Science" with, among other things, an exhibition entitled "The Future of Cancer Research," a walk-in model of a kidney, an exciting excursion into the 3D world of chemical molecules, hands-on experiments in the laboratory for school students, and researcher and sweepstakes contests for young and old.
- September 20, 2012, Bergkamen, Germany: a 37-member delegation from the Lions Club gained insight into the production of contrast agents and other products during a tour of the facilities.

Bayer CropScience

- In 2012 various events were held at the German production sites in Dormagen, Frankfurt and Knapsack.

Bayer MaterialScience

- With regard to the planning and construction of the new TDI production plant at the Chempark Dormagen site that was approved at the end of 2012, Bayer MaterialScience initiated an active information policy from the beginning of planning in 2008 and pursued this policy throughout the process. In open and intensive dialogue about the project, the company conducted numerous discussions with environmental associations, politicians, community members, and citizens' initiatives in the neighboring communities of Dormagen and Monheim, for example. An essential task was to take the questions and concerns seriously and explain the complex circumstances in a way that was comprehensible to a lay audience.

Service companies

- October 5, 2012, Leverkusen-Bürrig: together with the waste disposal company Avea, Currenta provided information at a town hall meeting about a newly planned slag processing plant on the premises of the Currenta landfill in Leverkusen-Bürrig.
- November 7, 2012: together with many other companies from the region, Currenta as a chemical park manager and operator took part for the second time in the "Long Night of Industry" and operator. Some 300 participants took advantage of the offered Chempark tours to learn during a somewhat unusual sightseeing event about what takes place at night in a large chemical production facility.

Girls' Day

Once again in 2012, numerous Bayer companies participated in the nation-wide day of activities, opening the doors of workshops, laboratories and production facilities. In Leverkusen, some 30 schoolchildren visited Currenta's vocational training facilities. And 30 other girls accepted the invitation of Bayer MaterialScience to become acquainted with the Baylab plastics laboratory for schoolchildren. At Bayer Business Services, 60 school students from classes 8 through 12 signed up for the Girls' Day activities. The program included the presentation of the IT training vocations, a tour of the Data Center and practical tutorials with laptops and software. In the Baylab laboratory for schoolchildren at the Bayer Communication Center (BayKomm), 26 girls from Leverkusen area high schools spent a day as researchers. By conducting experiments in small groups dealing with the theme of "Enzymes – the catalysts of life," they learned why enzymes are ideal target molecules for medicines and what role they play in cancer research. Bayer MaterialScience and the chemical park operator Currenta organized a joint activity day at the Dormagen and Krefeld-Uerdingen sites. Those who visited the Dormagen Vocational Training Center produced distilled water in a process plant, while the Girls' Day participants in Krefeld-Uerdingen toured the Makrolon compounding facility. At Bayer Bitterfeld GmbH, 20 girls and boys from schools in the region visited a pharmaceutical manufacturing plant to gain a first impression of the production processes there.

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NGOs / International organizations

Bayer participates in a large number of projects, thematic initiatives and specialist conferences at national and international levels to help jointly shape sustainable development. This includes our cooperation with NGOs and international organizations.

Bayer AG

- Dialogue with the Access to Medicine Foundation (events, discussions) together with Bayer HealthCare
- Membership and participation in the UN Global Compact and the LEAD, "Caring for Climate" and "CEO Water Mandate" initiatives as well as in the UNEP-SBCI for sustainable building projects together with Bayer MaterialScience
- Cooperation with the United Nations Environment Programme (UNEP)
- Organizational stakeholder in the Global Reporting Initiative (GRI)
- Membership in the World Environment Center (WEC) and host of the round-table event "21st century megatrends and their impacts on business strategy and innovation opportunities" in November 2012

Bayer HealthCare

- International Dialogue on Population and Sustainable Development
- Parliamentary Evening of the German Foundation for World Population and Bayer HealthCare
- Cooperation in the area of reproductive health with the United Nations Population Fund (UNFPA), the non-governmental organization International Planned Parenthood Federation (IPPF), the United States Agency for International Development (USAID) and other partners
- As a continuation of the successful partnership between Bayer HealthCare Pharmaceuticals and the Pulmonary Hypertension Association (PHA) Europe, the "Breathtaking" campaign was launched in February 2012. This initiative is supported by patient groups in 15 European countries, and is geared toward increasing awareness about pulmonary hypertension (PH) and its symptoms, as well as about the significant unmet need among patients.
- At the first European prostate cancer information day organized by the patient organization Europa Uomo on September 19, 2012 in Berlin and Brussels, Bayer HealthCare provided details on this disease and treatment options.
- Bayer Medical Care, a division of Bayer HealthCare, supports patient and other non-governmental organizations, including the International Diabetes Federation (IDF), the Foundation of European Nurses in Diabetes (FEND) and the Juvenile Diabetes Research Foundation (JDRF). The division also supports the Young Leaders in Diabetes Programme of the IDF, which aims to help in the establishment of leadership expertise and networks.
- In January 2012 Bayer HealthCare supported the International Diabetes Federation (IDF) in an education campaign among members and employees of the British Parliament in London.
- The 6th Political Lunch of Bayer HealthCare in Berlin on March 13, 2012 focused on the question of how patients can be better integrated into the major agenda decisions in the health care market. The health policy working level in Berlin had been invited to take part in this series of discussions. The Dialogue Lunch in Paris on October 9, 2012 centered around the "Growing problem of visual impairment among the elderly. What social and medical challenges does this pose for society?"
- More than 40 health experts from the political sphere, the scientific community and industry attended the 17th Bad Orb Discussions on Controversial Issues in Health Care, hosted by Bayer HealthCare in Berlin in November 2012. Last year's issue was how to ensure functioning competition at the interface between in-patient and out-patient treatment, as well as in particular in the pharmaceuticals market.

Bayer CropScience

- Participation in the 39th Full Conference of the Committee for World Food Security (CFS) of the Food and Agriculture Organization (FAO) of the United Nations in Rome, Italy, in October 2012, with an exhibition booth and discussions involving some 2,000 participants
- Participation in the Business and Industry Advisory Committee (BIAC) of the OECD and in the Food & Agriculture Committee and various other committees of CropLife International
- In May 2012 representatives of Bayer CropScience participated in the Multistakeholder Consultation of the UN Working Group on Business and Human Rights in Geneva, Switzerland.
- At the initiative of the Friedrich Ebert Foundation, Geneva, and the Geneva Peacebuilding Platform, and in cooperation with the UN Peacebuilding Support Office and the PeaceNexus Foundation, Bayer CropScience in November 2012 took part in the Conference on Conflict Prevention in the Context of Large-Scale Business Investments.
- Participation over the course of 2012 in various expert discussions organized by the Society and Technology Advisory Group of the Association of German Engineers (VDI) on the topic of public dialogue and early involvement of the public.

In-depth information to supplement the printed report

- Bayer CropScience is a founding member of the Sustainability Consortium (www.sustainabilityconsortium.org) coordinated by Arizona State University and the New Vision for Agriculture Initiative of the World Economic Forum (www.weforum.org/issues/agriculture-and-food-security).
- Bayer CropScience is one of 35 international founding partners of the German Initiative for Agriculture and Nutrition in Emerging and Developing Countries (GIAF), which was established in June 2012. Under the auspices of the German Ministry of Economic Cooperation and Development (BMZ), the initiative aims to make a lasting contribution to food security in such countries.
- After long discussions also involving Bayer CropScience, the Advisory Committee for the 21st Century (AC21), which was revived in the United States in 2011, in November 2012 published a final report which found that the coexistence of genetically modified and unmodified agricultural crops is possible under certain circumstances.

Bayer MaterialScience

- We are intensively collaborating on the national and international standardization of terminology and test procedures for nanomaterials as promoted by the German standardization institute DIN and at the ISO level, as well as on the development of toxicological testing guidelines at the OECD level.
- Specialist dialogue on the issue of nanotechnology in Leverkusen on November 9, 2012, also including members of the German Advisory Council on the Environment

Associations / Politicians

Bayer is an active member of numerous national, European and international associations and their committees, while the Bayer subgroups are additionally active in their respective industry associations. Bayer chairs the Board of Management of the sustainable development forum of German industry, econsense. We also participate in political activities (see also page 27 of the Sustainable Development Report).

The Bayer holding company is also a member of the associations CEFIC, BDI, VCI, BusinessEurope and ICC.

Bayer HealthCare maintains important memberships in the associations EFPIA, VFA and pHarma; Bayer CropScience is a member of Europbio, ECPA, Crop Life International and Copa-Cogeca; and Bayer MaterialScience is a member of Plasticseurope, CEFIC, VCI, EurACE and PU Europe.

Schools, universities and scientific institutions

Bayer traditionally places great importance on support for education and research. This is because, as a research-based company, we depend heavily on recruiting highly trained scientists and on society's acceptance of technology.

Schoolchildren / Students

- Teaching schoolchildren about science at an early stage: further expansion of our "Making Science Make Sense" education program, United States
- Baylab program at the Bayer Communication Center in Leverkusen, Germany
- Constructive dialogue and support for environmentally committed youngsters, for example through our cooperation with UNEP
- Young Environmental Envoys from 19 countries visited Bayer for a week again in November 2012 as part of our partnership with UNEP. Topic: environmental protection and sustainability
- Presentations, discussion and tours for student groups from various disciplines and from around the world on the issue of sustainability at the Bayer Communication Center
- Bayer International Summer Sustainability Camp 2012 Pittsburgh, Pennsylvania, United States, for German and American schoolchildren
- At the Alfried Krupp schoolchildren's laboratory at Ruhr University Bochum, Bayer CropScience in January and February 2012 discussed the topic of food ethics with schoolchildren.
- Since 2007 Bayer has discussed business management issues with students and professors at the annual BayDay in Leverkusen. In 2012 Bayer organized the 7th BayDay on the issues of controlling, finance, accounting and auditing.
- In July 2012, 500 7th and 8th-graders from various junior high schools, comprehensive schools and special schools visited the Bayer HealthCare Supply Center in Bergkamen, Germany, as part of a career orientation project.
- At the youth forum in connection with the project "Young people embrace diversity in North Rhine-Westphalia" at the BayArena in Leverkusen in December 2012, member of the Board of Management responsible for Human Resources Dr. Richard Pott discussed diversity as a competitive advantage with some 50 young people.

In-depth information to supplement the printed report

Universities and scientific institutions

Bayer's research and development activities are supported by an international network of collaborations with leading universities, public-sector research institutes and partner companies. Bayer's researchers maintain a constant dialogue with scientists from leading universities, as well as with customers and cooperation partners.

- Professorships at universities in the fields of medicine, pharmacy and chemistry
- Strategic collaborations with universities in Cologne, Germany; the NUS, Singapore; Tsinghua University, Beijing, China; and the German Cancer Research Center (DKFZ), Heidelberg, Germany
- Collaboration between Pforzheim University, Germany, and Bayer CropScience to evaluate the Model Village Project in India. This long-term cooperation agreement was concluded in 2012.
- February 2012, Bergkamen, Germany: a group of 13 students from RWTH Aachen University visited the Supply Center of Bayer HealthCare to learn about the effectiveness of membrane bioreactor technology in wastewater treatment.

Theme-based dialogue

We work closely with our stakeholders on many initiatives. The topics of these initiatives and the perspectives of the various stakeholder groups are extremely diverse by nature. Although sustainability is a global issue, regional priorities and perspectives can vary widely. We constantly strive to view the various challenges in a differentiated manner and take account of context in order to develop solutions on a case-by-case basis that satisfy the framework conditions. For this reason, stakeholder dialogue is an important task for the various functions, organizational units and regions.

Below we present examples of our dialogue in the context of different topics that affect several of our businesses.

Innovation

- 1st Frankfurt Innovation Forum, September 3, 2012, organized by Johann Wolfgang von Goethe University, the Handelsblatt publishing group and the JDB MEDIA media company with a presentation by Management Board Chairman Dr. Dekkers
- Leverkusen, September 19, 2012, conference of the New Responsibility Foundation on the opportunities and risks of "collaborative democracy 21," dealing with the theme of stakeholder integration / citizen participation in major innovation projects

Family planning

- Contraceptive Security Initiative: the collaboration with the United States Agency for International Development (USAID) facilitates access by middle-income women in sub-Saharan Africa to affordable oral contraceptives.
- Support for World Contraception Day, which is held each year on September 26 in about 70 countries. Various initiatives and organizations draw attention to the responsible use of reliable methods of contraception.
- Education program by the German Foundation for World Population (DSW) entitled "Improving the Sexual and Reproductive Health of Young Adolescents in Uganda" (YAP) for teenagers aged 10 through 14
- Series of events in cooperation with the DSW entitled "Parliamentary Evening on the Issue of Reproductive Health"
- Annual series of conferences entitled "International Dialogue on Population and Sustainable Development," organized jointly with numerous other partners from the area of development cooperation

Health policy subject matters

- July 2012, Singapore: at the renowned World Animal Health Congress, a representative of Bayer HealthCare spoke about the importance of high-quality veterinary medicine for the livestock industry in Thailand.
- September 2012, Leverkusen, Germany: the 6th Experts' Round-Table of Bayer HealthCare on strategies to fight antibiotic resistances in animals focused on strategies for the responsible prescribing and use of antibiotics.
- September 2012 (international): in connection with the 12th International World Heart Day, Bayer HealthCare Pharmaceuticals and Consumer Care joined with the World Heart Federation and more than 200 other organizations worldwide in carrying out events – from the "Walk For a Healthy Heart" in Hungary through a blood pressure measurement initiative at a park in Kiev, Ukraine, to a campaign involving brochures and posters in Mexico.
- October 2012, Paris, France: at the International Press Dialogue, Bayer HealthCare addressed the problem of visual impairment in elderly patients and its societal implications against the backdrop of demographic change.
- November 2012, Leverkusen, Germany: Bayer HealthCare hosted the 9th European Diabetes Nursing Symposium (EDNS).
- November 2012, Heidelberg, Germany: Bayer HealthCare and the German Cancer Research Center (DKFZ) organized their second joint symposium under the title "Targeted Cancer Therapy."

In-depth information to supplement the printed report

Animal studies

- Participation in the EPAA (European Partnership for Alternative Approaches to Animal Testing)
- Dialogue and support for the Foundation for the Promotion of Alternate and Complementary Methods to Reduce Animal Testing (SET)
- More than 10 tours including a discussion about our animal facilities in Berlin and Wuppertal, Germany, for internal employees, and tours and information assemblies for students
- More than 10 audits by the respective authorities and an information event for animal health trainees of the North Rhine-Westphalia State Office for Nature, Environment and Consumer Protection
- Dialogue with members of the German Parliament including a tour of Bayer's animal study laboratories at the site in Berlin, Germany

Biotechnology

- On March 19 and 20, 2012, representatives from Bayer CropScience met with numerous representatives of the political sphere, industry and civil society in Entebbe, Uganda, at the Partners and Stakeholders Meeting of the African Biosafety Network of Expertise (ABNE) and the Program for Biosafety System (PBS) to discuss the issue of biological safety in food.
- In August 2012 representatives from Bayer CropScience participated in the Seed Innovation Forum in Harbin, north-east China, to discuss the patentability of seed.

Protection of resources and the climate

- Joint workshop on December 3, 2012, with the Institute for Advanced Sustainability Studies (IASS) in Potsdam, Germany, entitled "Innovation in large-volume CO2 recycling – policy, environment and business opportunities"
- Workshop with the Potsdam Institute for Climate Impact Research (PIK)
- Participation in the "Caring for Climate" and "CEO Water Mandate" initiatives of the UN Global Compact
- Founding member of the European Climate Knowledge and Innovation Community (Climate KIC) – an initiative of the European Institute of Innovation and Technology (EIT)

Innovation & Product Stewardship

65 More innovation through Triple-i

Triple-i stands for “inspiration, ideas, innovation” and is a global Group-wide initiative which aims to motivate all employees to make an active contribution to innovation at Bayer. The initiative gives all employees the chance to submit their innovative business ideas directly to a team of innovation managers. Together with experts from the subgroups and service companies, the Triple-i team follows up promising ideas. Ideally, these could lead to expansion of the existing business or even to new areas of business. Idea generation workshops and idea campaigns derived from specific issues arising out of business operations are designed to inspire employees. The fifth idea campaign has been running since December 2012. This time the search is on for new areas of application and uses for thermoplastic polyurethanes.

Around 13,000 ideas have been submitted since the launch of the initiative in 2006, of which 158 have resulted in their instigators being rewarded with a statuette. That means that these ideas are being further evaluated in the subgroup concerned and prepared for implementation.

66 Company suggestion plan: Bayer Ideas Pool

Bayer employees once again displayed their commitment to the company with numerous valuable improvement suggestions in 2012. A total of 4,696 creative ideas were submitted to the Bayer Ideas Pool. In all, 51 percent of these ideas were implemented, resulting in savings of some €4.55 million by the end of the year from the proposals implemented in 2012.

This commitment also paid off for the employees. Bayer distributed bonuses of more than €1.5 million for the implemented proposals. The highest individual award, at €39,906, went to an employee of Bayer HealthCare.

A total of 1,003 of the rewarded proposals involved measures to improve occupational safety, while 79 contributed to environmental protection.

69 Precautionary principle

Bayer accepts the precautionary principle as a possible tool for consumer protection and and/or risk management. The precautionary principle is defined in Article 15 of the Rio Declaration of the United Nations Conference on Environment and Development (1992) and in the communiqué from the European Commission (COM 2000/1). It is applied whenever there is scientific uncertainty in a given area and sufficient evidence also exists that people or the environment could suffer significant or irreversible damage.

We support the application of the precautionary principle according to the stipulations of the European Commission. These measures should be proportionate – i.e. they should meet the desired level of protection; be applicable without discrimination, in other words comparable circumstances must not be treated in different manners; be consistent with similar measures undertaken previously; and be examined to determine which costs and benefits are associated with the application of the precautionary principle. The measures undertaken are evaluated as soon as new scientific data are available for the particular circumstance.

73 International commitment to product safety

International associations such as CEFIC*, ICCA* or OECD* and political initiatives such as ECETOC* or EPAA* work to evolve the scientific assessment of chemicals, research new test methods and implement statutory regulations. Bayer actively accompanies these efforts.

We are also involved in the Long-Range Research Initiative of the International Council of Chemical Associations (ICCA) and endorse the goals of the World Health Organization and European Union action plans for improving health and environmental protection, for example with the further development of human biomonitoring. We play a leading role in a human biomonitoring alliance established in February 2010 by the German Chemical Industry Association (VCI) and the German Environment Ministry (BMU) and scheduled to run for 10 years. The VCI develops analytical methods for relevant substances that are not yet measurable in the human body. The BMU applies these methods within the context of suitable population studies. The common objective of the alliance is to make previously immeasurable chemicals in the human body identifiable with analytical methods, apply these methods in suitable investigations and thereby gain new findings about the real impact the respective substances have on the population.

* CEFIC Conseil Européen de l'Industrie Chimique (European Chemical Industry Council); ICCA International Council of Chemical Associations; OECD Organization for Economic Co-operation and Development; ECETOC European Centre for Ecotoxicology and Toxicology of Chemicals; EPAA European Partnership for Alternative Approaches to Animal Testing

In-depth information to supplement the printed report

75 Product safety and information obligations: Group-wide registration of product data

All subgroups compile product information worldwide enabling them to meet the respective product safety and information obligations for raw materials, intermediates or end products. Targets and procedures for providing useful information about substance properties in response to inquiries and incidents are specified in the Group Directive on Substance Information and Information Capability. The subgroups' global IT systems are currently being established to ensure worldwide access to this information.

Bayer HealthCare further expanded its substance databases in the United States and Argentina in 2012 to further improve the accessibility of data for the assessment of possible environmental and health hazards. With the international rollout of the IT systems, standard processes are being defined that are closely integrated into logistical processes and put in place a global obligation to uphold a high safety and environmental protection level.

Bayer CropScience uses the "E-Label Server" to pool printing templates for all product packaging marketed in Europe and parts of Asia, South America and Africa. Argentina, Pakistan and Bangladesh were integrated into the program in 2012 as part of the global rollout. With the help of the External Adverse Incident Guideline, Bayer CropScience regulates the identification, processing, internal communication and, if necessary, implementation of correctional measures worldwide in the event of external incidents involving its products.

Bayer MaterialScience also has a global product safety database that was rolled out in Japan, India and Russia in 2012. This database provides the employees with all product safety data relevant for them. Bayer MaterialScience is prepared to deal with potential incidents involving its products thanks to regulations covering product surveillance and recall management.

98 E.U.-wide crop protection product requirements

Bayer CropScience only distributes crop protection products that have been granted regulatory approval by the responsible authorities, that are safe when used responsibly and as intended, and that pose no risk to either people or the environment. The new E.U. authorization regulation (EC No. 1107/2009) imposing requirements on crop protection products took effect throughout Europe on June 14, 2011. The regulation has direct legal authority in the E.U. Member States and does not require conversion into national law. Nonetheless, amendments to the national crop protection laws were implemented in numerous Member States so as to ensure consistency between E.U. law and national law.

It is of major importance for Bayer CropScience and the European agricultural industry that the protection regulations are enacted based on independent scientific findings, so that the desired harmonization goals can be achieved in practice as intended in the national plans of action. Furthermore, plans of action should be sufficiently balanced that the benefits of agricultural crop protection and progress made so far in minimizing risks also are adequately taken into consideration. Bayer CropScience will continue to contribute its experience and expertise so as to support appropriate solutions in the respective committees.

Employees

118 Continuing education and training

Our ongoing education and training activities comprise a wide range of work-related programs that enable employees to broaden and update their knowledge and abilities or acquire new skills, for example by learning a language or acquiring leadership competencies. In addition, the goal of the Bayer Academy, which launched its first modules in 2013, is to provide systematic training for managers throughout the Bayer Group and to harmonize function-related continuing education worldwide and make it available to all employees.

Examples of continuing education offerings	
Training categories	Conception and implementation level
Bayer Academy	Global/Group-wide
Leadership training, general management training	
Knowledge and skills training in specific areas:	
<ul style="list-style-type: none"> ■ Introduction to and knowledge of the company ■ Leadership skills ■ Communication, working methods and project management ■ Business administration and law ■ Marketing, sales and customer focus ■ Languages and intercultural skills ■ Information technology and SAP ■ Research, production and technology 	
Group focuses	Global/Group-wide
<ul style="list-style-type: none"> ■ Corporate compliance / anticorruption ■ Human rights ■ Changes in technology (Personalized Workplace Program) ■ Supplier management/Supplier Code of Conduct 	
Subgroup focuses	Global/Group-wide
<ul style="list-style-type: none"> ■ Occupational safety (PEGASUS) ■ Fit in Production (FIP) at Bayer MaterialScience 	
Continuing education offerings for employees outside worktime	Local/national

120 Employee networks to promote our culture of diversity

Many of Bayer's sites in the United States have employee networking organizations and affinity groups. These and other options give employees platforms to share their experience, build valuable contacts that foster collaboration and drive forward their personal development. These network groups work to further improve our activities within the organization and the communities which we serve. Bayer provides an annual budget of US\$5,000 for each networking group.

Every employee network is tailored to specific interests, but the prime goal is always to reflect the diversity of the workforce. The 12 networking groups that inspire a culture of diversity at Bayer are:

- African American Employee Network (AAEN) – promotes greater cultural diversity, enhanced awareness and more educational opportunities for African American employees.
- African American/Hispanic Association (AAHA) – fosters the ability of the company to improve its business performance, the recruitment and development of talents with Afro-American or Hispanic roots and its contact with their community through increased diversity.
- ANGLE B – a network of lesbian, gay, bisexual and transsexual (LGBT) Bayer employees. This is the first network of its type in the global Bayer organization.
- Bayer Asian Society in America (BASIA) – a network for Bayer employees who wish to broaden their awareness and understanding of Asian culture and its values.
- Bayer Resource for Armed Forces Veteran Employees (BRAVE) – provides resources for new and established employees and their families who previously served with the U.S. forces or U.S. allies. This group offers support and opportunities to create a network within the company.
- Pharmacists at Bayer (PhAB) – enhances Bayer employees' awareness and understanding of the value and contributions made by pharmacists.

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- Professional Moms (ProMoms) – a forum where working mothers can learn from one another and provide mutual support.
- Professional Networking Group (Links) – the purpose of this network is to connect a new generation of employees with the existing Bayer community.
- Sandwich Generation Networking Group (SGNG) – seeks to reduce the distress felt by caregivers that is often associated with the searching, selecting and supporting efforts of providing care. This provides a platform to assist both caregivers and care recipients of all ages.
- Women’s Leadership Initiative (WLI) – provides networks, continuing professional development and mentoring programs and other resources for female managers at Bayer HealthCare. The goals of the WLI are attracting more highly able women to the company, fostering the professional development of women through focused career planning, management training and supportive networks, and creating an environment that opens up career prospects in the company to top-performing women.
- Women’s Advocacy Through Visioning and Education (WAVE) – cultivates a professional environment for women that recognizes and supports their development in accordance with Bayer’s values and leadership principles.
- Women’s Initiative Networking Group (WINGs) – dedicated to the advancement of women; also supports work-life balance at Bayer’s site in Pittsburgh.

Alongside these employee networks, whose goals and activities are geared principally to work at Bayer, there are a number of other Bayer employee associations in the United States with a greater focus on social issues or private educational opportunities:

- Bayer Association for Science in Communities (BASIC) – this is a group of volunteers who take part locally in Bayer’s “Making Science Make Sense” initiative, which aims to improve scientific education in Pittsburgh and foster scientific knowledge.
- Baytown Employee Recreation Association (BERA) – this network is dedicated to promoting and developing recreation activities for Bayer employees in Baytown, Texas.
- Employee Connection – fosters employee appreciation and interaction through social activities that inspire and motivate us to be an employer of choice offering a healthy work-life balance.
- Junior Board – endeavors to improve the quality of working life for employees by identifying and implementing projects that extend beyond the scope of functional groups.
- Kansas City FUN Committee – develops and implements employee initiatives and activities to increase the sense of community and morale of employees in view of the present ongoing cultural changes.
- Toastmasters International – promotes a positive learning environment to help employees improve their communication and leadership skills.

122 Parental leave: number of employees returning to work/giving up working

The scope comprised all employees in Germany who have taken parental leave since January 1, 2008. It covers both those on “standard” parental leave programs and those on Bayer’s Family & Career model.

The table shows the number of employees who have returned to work following parental leave or the Bayer model and the proportion of men and women involved.

Employees returning from parental leave		
Total employees taking parental leave since 2008	100 %	1,680
Returnees by December 31, 2012	81.9 %	1,375
Women	52.9 %	727
Returned		674
Terminated		53
Men	47.1 %	648
Returned		602
Terminated		46

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126 General Works Agreement on lifetime working and demographic change

The General Works Agreement on lifetime working and demographic change concluded in 2010 implements the collective agreement of the same name. The focus at Bayer is on fostering the health and long-term employability of its employees. The specific measures comprise reducing the workload on older shift workers, easing the return to work after long-term illness and an extensive health screening program for all employees. To finance these measures Bayer pays around €4.8 million a year into a demographic change fund.

Reducing the workload of shift workers from the age of 55 combines several key principles of demographic change management: it enables the company to continue to benefit from valuable employees, even if they have physically challenging jobs. Reducing their workload means that they have a realistic chance of remaining in employment until they reach the statutory employment age. At the same time, it creates additional employment opportunities for younger people because the resultant gaps in shift rosters are filled by hiring new employees, generally former trainees. In this way, skilled workers are kept in the company, so they can pass their practical experience on to the next generation.

Other aspects of the General Works Agreement on lifetime working and demographic change include reducing the workload for employees returning to work after a long illness – under a special reintegration management program, they can claim 80 additional hours of paid leave – and a special medical-check-up program for around 21,000 employees in Germany. Such measures are also designed to maintain the health of employees over the long term as a basis for continued employment as they become older.

Take-up rate (in % of eligible employees)	2011	2012
Easing the workload for older employees	92.4	95.7
Easing the burden on employees returning to work after a prolonged illness	87.5	93.5
Medical screening	25.0	25.0

127 Examples of health promotion programs

The number and type of health promotion programs varies between Bayer companies worldwide depending on national health care provision and access to it. In many countries, preventive health care measures are a discretionary benefit provided by the company, while in others they are required by law. Preventive programs are often organized in cooperation with external physicians or organizations. These examples from 2012 are only a small selection of the very broad global offering.

In 2012 **Bayer HealthCare** country organizations increased the quality and number of health care programs. At the site in Wuppertal, Germany, the company health management team collaborates with a professional medical service. In Germany, this subgroup added a seminar on demographic change and working to age 67 to its offering, along with various local programs, such as pilates in the lunch break at Bayer Vital in Leverkusen. The Health Days 3.0 organized in Berlin in September comprised a wide range of instructive and practical events on dealing with stress. In October free screening was organized in collaboration with the German Society for Men's Health (DGMG) to inform men about the negative health effects of low testosterone levels.

A special women's health event was organized in Colombia, while in Mexico the HealthCare subgroup offered screening for cervical and prostate cancer and a special event to mark World Day of Diabetes. Examples of the increase in more complex topics within our health promotion programs are our breast cancer information offering in Berlin and at our U.S. sites in Mishawaka and Edison Lakes and ergonomics activities in Berlin, Germany, and Madrid, Spain.

Stress was a center of attention at **Bayer CropScience's** sites in Germany, with talks at various levels, for example in the Health Taskforce, at the Global Safety Day and at a meeting of all managerial employees. In Germany, participation in the Bayer-wide health promotion program was particularly high at the Bayer CropScience site in Monheim. In addition, the "FollowMe" program introduced in Monheim in 2011 was continued in 2012. In the first quarter, the "Exercise in the Lunchbreak" program to prevent back problems was completed with a second 10-week workshop. Between April and the end of November, a further 10-week workshop was offered, this time on responding safely and calmly to stressful situations. Professional sports therapists trained employees and efficiently communicated knowledge. Moreover, all employees at the site can download instructions on the exercises from the intranet.

Further health promotion programs were offered to all employees in India. These are coordinated centrally by a physician at the Bayer CropScience Wellness Center. In 2012 focal areas included health-aware behavior, stress management and ergonomics in the office. More than 720 employees took up the offering. Health weeks with checkups and special examinations were organized in Ecuador and Peru. The goal was to achieve a general improvement in health.

At its production sites in Filago, Mussolente and Nera Montoro in Italy, **Bayer MaterialScience** ran a program on reducing stress in the workplace. An interdisciplinary project team investigated workplace-related stress levels among various employee groups and implemented measures to prevent stress.

In-depth information to supplement the printed report

Since 2009, a program to enhance the quality of life has been run at the Bayer MaterialScience site in Belford Roxo in Brazil. The focus is currently on the prevention and early identification of cardiovascular disease and cancer. Alongside a thorough annual survey of risk factors such as obesity, smoking and high blood pressure, it includes training programs to encourage a more healthy lifestyle. One result has been that about 30 percent of overweight participants had lost weight within a year.

During the past year, **Currenta** completed the introduction of structures for occupational health management in the various business units and support areas. On the basis of health surveys, it developed and introduced measures geared to specific target groups. These include a low-level exercise program, recovery skills (a problem-oriented workshop for shift workers) and stress management (a preventive offering on how to handle stress factors).

128 Occupational safety: ideas and measures

Avoiding accidents and safeguarding the health of employees in the workplace is a central element of corporate responsibility. This includes foresighted occupational safety and health management. The following examples illustrate specific campaigns in 2012.

They include the annual Safety Day in September, when all Bayer companies provide a simultaneous signal of the commitment to improving occupational safety and protecting health. Among other aspects are communication campaigns and a video by our Management Board Chairman on the subject of occupational safety showing his commitment to the issue.

In 2012 **Bayer HealthCare** ran campaigns worldwide to raise awareness of occupational safety, partly through targeted training programs and partly through less formal campaigns. Here are a few examples: at the site in Monheim, Germany, occupational safety issues were played out by actors, with employees being encouraged to take part. In Istanbul, Turkey, first-aid courses, a climbing wall and a safety quiz were on the program. In Beijing, China, there were fire department exercises, Berkeley, United States, provided an earthquake simulator for the employees, and at the site in Cancioneiro in Brazil, one of the topics was "home emergencies." A employee poster competition on the topic of safety was organized in Cibubur in Indonesia. In a further competition, many employees presented the key safety aspects associated with their jobs to their colleagues. Once again, the Bayer Safety Day on September 18, 2012 was a key focus.

Road safety and traffic accidents were an important theme at many of Bayer HealthCare's worldwide sites as they account for most occupational injuries leading to lost work days. Creativity and specific local aspects were stressed in driver safety sessions, for example with a driving simulator in Berlin, Germany, a slow motorcycle race in Cibubur, Indonesia, and a safety check on children's car seats in Wayne and Montville, New Jersey, United States. Further activities and campaigns are planned for 2013.

At **Bayer CropScience**, the focus in 2012 was on strengthening safety awareness, safety training, improving safety in the Seeds Operational Unit and on test farms, and achieving a fundamental improvement in occupational safety reporting. Measures included extensive audits, project reviews and visits to Seeds sites around the world, combined with specialist advice and training. The "Safety City" program was introduced for warehouses operated by the Seeds Operational Unit in North America. This program provides ideas on safe and effective warehouse operations and stepwise implementation of improvements. It is complemented by a film highlighting innovative steps to improving safety and effective warehouse management.

Road safety also played an important role at Bayer CropScience, with extensive programs being organized in India and China in particular. In India, courses are run almost every week in order to reach a total of 4,000 employees. In China, Road Safety Stars were honored at the Bayer Safety Day. A driver safety course was also organized in Karachi, Pakistan, and road safety training was on the agenda in Peru, Venezuela and Brazil as well. All relevant employees in Australia and New Zealand received road safety training as part of a program that was extended by half a day. Bayer's subsidiary Nunhems in Haelen, Netherlands, produced a film on safe driving practices. The site in Villefranche, France, ran a week-long program on road safety and fuel-efficient driving.

Regular training sessions are held at many sites to improve general safety awareness. For example, several sites in Latin America ran programs on basic safety standards and the necessary self-assessments. In Colombia, training on health, safety, safe working practices and how to behave in an emergency was provided for contractors' employees. Many activities were organized to prevent accidents caused by tripping and falling, for example in Dormagen, Germany, and Muttentz, Switzerland. Activities were also organized at many of Bayer CropScience's sites around the world on Bayer Safety Day 2012. BioScience India even organized a full Safety Week immediately after the national Safety Day.

For a number of years, the CEO Safety Award has played a central role in occupational safety initiatives at **Bayer MaterialScience**. The concept was revised in 2012: suggestions in nine categories can now be submitted to an international panel, which includes external jurors. The competition attracted a record 129 suggestions from around the world in 2012. All nominated suggestions, the three finalists and the winner were presented at the Bayer Global Safety Day. The winner was the "Safety for Lab Managers" project, a practical three-day safety training module for managers of research laboratories that goes well beyond regulatory requirements. It was rolled out to all of Bayer MaterialScience's research and development sites in Germany in 2012 and will now be rolled out worldwide with regional modifications.

In-depth information to supplement the printed report

In 2012 all 14,800 Bayer MaterialScience employees worldwide took part in a survey of the HSE (health, safety, environmental protection) culture in the subgroup. The purpose was to raise awareness of HSE, identify areas requiring improvement and prioritize safety programs. The results were very pleasing.

The questionnaire contained 75 questions arranged in 10 categories such as employee engagement, the example set by management and process safety. In nine out of the 10 categories Bayer MaterialScience achieved good to very good scores. The results for 26 of the 75 questions were excellent, with over 90 percent of employees in agreement. Based on the findings, action plans to improve the HSE culture further will be established for each site and business unit by mid-2013.

Ecology

142 Plastics recycling

Bayer MaterialScience is committed to product stewardship and supports the recycling and reuse of its products and those made from them.

We are therefore playing our part in upholding waste and recycling legislation and the Responsible Care™ initiative. We work closely with our customers and recycling plants. The focal points lie in the automotive and electrical industries. Our sales portfolio in the engineering thermoplastics sector includes material grades containing recyclates.

The latest product from Bayer MaterialScience is a sustainable high-tech material for car bodywork. It is manufactured from the highest quality recyclates. For three years, increasing quantities of flame-retardant grades of Bayblend™ based on polycarbonate water bottle recycle have been marketed for applications such as notebook housings.

Bayer MaterialScience plays a preeminent role in contributing HR and financial resources in the area of large-volume recycling technologies across industries and product groups. This is achieved through intensive cooperation with trade associations, such as the Sustainability Platform of PlasticsEurope at the German level, and extends to financial involvement in a corresponding expertise platform.

143 Promoting biodiversity

We attach great importance to the protection of biodiversity as part of the European Union's reform of its Common Agricultural Policy in line with the Convention on Biological Diversity (CBD). Building on the measures initiated as part of the International Year of Biodiversity in 2010, Bayer CropScience started a raft of other projects in 2011 and continued them in 2012. We therefore also support the European Union's Action Plan for Biodiversity in the key areas that are of relevance to us.

To protect and encourage pollinating insects and hymenoptera, several strips of flowers were planted in front of the site in Monheim as part of the "Blühendes Monheim" (Flowering Monheim) initiative. These were well received by both the insects and the local community. More flowers were planted on the grounds around the new Bayer Bee Care Center and further bee colonies acquired in 2012. In that year, the flowers blossomed from May until the first frost in late fall, providing continuous nourishment for pollinating insects. In the years ahead, this project will be continued in communal spaces along streets and paths throughout Germany under the name "Blühende Wege" (Areas in bloom) to create a widespread network of flowering areas.

In Oberrheingraben in southern Germany, a project examining the influence of strips of flowers, beetle banks and other measures on the populations of wild bees and butterflies is already in its third year.

A Bayer Forward Farming project earmarked for launch throughout Europe started in 2011 in the United Kingdom, Germany and Belgium to test and demonstrate that it is possible to strike a successful balance between productive agriculture on the one hand and the maintenance and promotion of biodiversity on farmland on the other. The project was extended to six farms in France in 2012. Concepts were also developed in the Netherlands and Poland in 2012 and these are scheduled for implementation in 2013.

146 Incidents observed by stakeholders

The following incidents are not classed as environmental incidents or transport accidents according to our criteria, but came to the attention of our stakeholders in their reporting.

	Location of the incident	Description	Explanation
1	Bayer MaterialScience, Tarragona, Spain	January 11, 2012 Leak in gas pipeline	During roadworks at the production site, a digger damaged a gas pipeline and caused a leak. This was plugged by an emergency team. No one was hurt and there was no environmental damage.
2	Bayer CropScience, Haelen, Netherlands	March 31, 2012 Fire in operations room of Research & Development (R&D) Department	In an operations room in the R&D building, a faulty freezer cabinet caused a fire. The fire protection measures were initiated right away. The fire department extinguished the fire immediately. No one was hurt and there was no environmental damage.
3	Bayer MaterialScience, Krefeld-Uerdingen, Germany	April 3, 2012 Burst waste gas line	For reasons still unknown, a waste gas line in the nitrobenzene wastewater treatment plant burst under pressure. No one was hurt and there was no environmental damage.
4	Bayer MaterialScience, Dormagen, Germany	May 14, 2012 Deflagration	A deflagration occurred in a hydrogen drying tower. The building sustained material damage, but no one was hurt. No substances were released into the environment.

In-depth information to supplement the printed report

5	Bayer MaterialScience, Brunsbüttel, Germany	July 24, 2012 Perforation of a double-walled container on a ship	On a ship loaded with hydrochloric acid for Hamm Chemie Oberhausen, a perforation developed in the inner casing of a double-walled container. Countermeasures were initiated to prevent the perforation of the outer casing. As a result, no hydrochloric acid was released into the environment.
6	Bayer MaterialScience, Noginsk, Russia	December 18, 2012 Disappearance of a truck	A truck belonging to a contractor disappeared on November 30, 2012. According to the police investigation it can be assumed that the truck was stolen.

Social Commitment

148 Expenditures for social commitment

Social commitment in 2012: overview of expenditures			
	€ million	Share of total in %	Share of category in %
Education and research	13.1	27.0	
Science and research support (e.g. awards, endowed chairs)	3.6		27.1
Medical research	3.0		22.8
Science education in schools (e.g. Baylabs school support program, scientific competitions, "Making Science Make Sense" initiative)	2.9		22.2
Environmental education	1.6		12.4
Scholarships for students	1.5		11.5
Nature, environment, sustainability	0.5		4.0
Health and social needs	15.7	32.3	
Public health care programs (e.g. access to contraceptives)	9.4		60.2
Health education	3.4		21.5
Social community projects	1.9		12.4
Disaster aid	0.6		3.5
Social volunteering projects	0.4		2.4
Sports and culture	19.8	40.7	
Bayer sports clubs	14.9		75.0
Bayer Arts & Culture and clubs	4.6		23.3
Social sports projects	0.2		1.0
Other sports sponsorship	0.1		0.7
Total	48.6		

156 Bayer soccer initiatives

The pilot program "Simply Soccer" is now offered in 13 ordinary sports clubs – including the German Bundesliga club Bayer 04 Leverkusen. Some 200 girls and boys with disabilities regularly play soccer in these. One component of this joint initiative between Bayer and the German Soccer Federation (DFB) is the involvement of some of the clubs' non-disabled youth team players. They support the trainer during the coaching sessions. This is important because one of the pilot program's objectives is to develop the social skills of all participants – whether or not they have disabilities.

The aim of "Simply Soccer" is to give more children and young people with disabilities access to club-level soccer and thus make their equal participation in organized sports as natural as possible. This program thus also fits in with the objectives of the UN Convention on the Rights of Disabled People.

The FIBS (Research Institute for Inclusion through Exercise and Sports) at the German Sports University Cologne is following up on all its cooperation arrangements to see how special schools and clubs work together and to evaluate the long-term viability of "Simply Soccer." The focus is, for example, on questions related to the change in the social skills of the participants and the structural framework necessary to make the program a success. At the end of the scientific follow-up evaluation, a guideline will be developed for cooperation between clubs and schools.

To help training run smoothly, Bayer and the DFB supply a package of coaching materials to the cooperation partners and free kit for the participating boys and girls.

Bayer already founded a soccer academy in Brazil for children living on the streets back in 1993. This is situated directly next to Bayer's Belford Roxo site. Children are only allowed to train if they can prove that they regularly and successfully attend classes at the local school. In addition to soccer training, the curriculum includes Portuguese, writing and computer skills and, in some cases, supplementary tuition. Over the years, more than 3,000 of the children at Bayer's soccer academy have turned into promising young players. "With our commitment we want to make an important social contribution to improving the life of disadvantaged youngsters and enhancing their educational opportunities by focusing on soccer, which is such an important element of Brazilian society," said Bayer AG Sports Coordinator Jürgen Beckmann.