



Science For A Better Life



SUSTAINABLE DEVELOPMENT REPORT

2010

Sustainable Development Report 2010

Our Sustainable Development Report describes the economic, ecological and social challenges that are linked to our operations and shows the strategies and solutions that we are applying to meet them.

This report aims to provide our stakeholders with comprehensive, transparent and succinct information. The concerns of our business partners and employees, together with those of stockholders, non-governmental organizations, suppliers, authorities and the general public, form the basis of our reporting. They provide us with crucial impetus for our sustainability strategy.

The Focus Issue articles highlight the key elements of our commitment to sustainability – our contributions to health care, safeguarding food supplies and climate and resource protection. The Management & Corporate Governance, Employees, Ecology, Innovation & Products and Social Commitment sections contain detailed facts and figures about our sustainability performance. With a realignment of the subjects covered, we have modified the structure of our report. The former Human Rights section has been divided between the Management & Corporate Governance and Employees sections, while Product Stewardship is now dealt with in the Innovation & Products section. Targets and performance indicators are used to monitor sustainability within the company. In the Sustainability Strategy section, we take stock of the “2006+” program of objectives and present the new targets we aim to achieve by 2015.

In this Sustainable Development Report, we have endeavored to ensure maximum transparency, clarity of layout and ease of verification. The statements provided here apply to all sites and activities of the Bayer Group. For the first time, all content was subjected to an assurance process by Ernst & Young (see page 69f.).

Due to the abundance of information, selected parts of the report are only available online. Such content is indicated in blue in the text and in the side margin. This information was also subjected to the assurance process.

The report is available in German and English. The editorial deadline was April 28, 2011. Our next Sustainable Development Report is due to be published in 2012.

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.

Our reporting is aligned to a significant degree to the G3 guidelines of the Global Reporting Initiative (GRI) and the 10 principles of the UN Global Compact (UNGC). The summarized GRI Index, including the corresponding UNGC principles, detailed on the back cover of the report lists the pages on which information is provided on the individual GRI indicators and UNGC principles. The GRI has checked and confirmed that level A+ has been maintained (see statement inside the back cover of the report).

A comprehensive overview of the GRI indicators and our progress in implementing the 10 UNGC principles can be found in the online report



WE SUPPORT

1 BAYER WEB
GRI

2 BAYER WEB
UNGC

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 listed with a corresponding code number. An overview of all references including codes can be found under “Additional Info Links” at www.sustainability2010.bayer.com.

ONLINE REPORT	leads to more in-depth information in our online Sustainable Development Report.
BAYER WEB	refers to additional information on the Bayer websites.
WWW	gives links to supplementary information on the websites of third parties.



Quick and easy access to our online report

Save yourself the bother of typing in the Internet address and simply read in this QR code with your smartphone and a corresponding app.

www.sustainability2010.bayer.com

Targets 2015*

Management & Corporate Governance

Supplier management

- Inform all suppliers with purchase-order-relevant volumes about the Bayer Supplier Code of Conduct
- Assess the sustainability performance of suppliers that represent ≥75% of the total procurement volume and ≥75% of the procurement volume from risk areas
- Annually audit the sustainability performance of at least 10% of the suppliers from risk areas or at least 15 suppliers

Compliance

- Extend compliance training to 100% of all Bayer managers

Employees

Diversity

- Increase the proportion of female managerial staff to approaching 30%

Occupational safety

- Reduce the number of occupational injuries with lost days by 25% to 0.3 LTRIR ± 1.5 MAQ

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

Innovation & Products

Research & development

- Maintain or increase R&D spending in relation to sales

Product stewardship

- Roll out Global Product Strategy in another 10 countries with different languages

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

Process and plant safety

- Implement the Bayer-wide initiative to increase process and plant safety; dedicated process and plant safety training for 40,000 employees worldwide by the end of 2012

Emissions

- Reduce other relevant emissions (ozone-depleting substances -70%, volatile organic compounds -50%)

Waste

- Reduce specific hazardous waste from production to 2.5% in relation to manufactured sales volume

* unless indicated otherwise

The Bayer Group

The Bayer Group is a global enterprise with companies all over the world.

The map shows some of our most important locations.



The Bayer Group in 2010 in figures (values for previous year in brackets)

	North America	Latin America/ Africa/ Middle East	Europe	Asia/Pacific	Total
Sales (€ million)	8,228 (7,705)	5,628 (4,783)	13,751 (12,968)	7,481 (5,712)	35,088 (31,168)
Employees	16,400 (16,600)	16,100 (16,800)	54,300 (54,600)	24,600 (23,000)	111,400 (111,000)
R+D expenditures (€ million)	612 (507)	35 (28)	2,246 (2,080)	160 (131)	3,053 (2,746)
No. of fully consolidated companies	42 (44)	43 (45)	150 (156)	53 (57)	288 (302)

Category	Key Data	2009	2010
Economic Indicators (€ million)			
	Sales	31,168	35,088
	EBIT ¹	3,006	2,730
	EBIT before special items ²	3,772	4,452
	EBITDA ³	5,815	6,286
	EBITDA before special items ²	6,472	7,101
	EBITDA margin before special items ⁴	20.8 %	20.2 %
	Income before income taxes	1,870	1,721
	Income taxes	(511)	(411)
	Net income	1,359	1,301
	Earnings per share (€) ⁵	1.70	1.57
	Core earnings per share (€) ⁶	3.64	4.19
	Gross cash flow ⁷	4,658	4,771
	Net cash flow ⁸	5,375	5,773
	Net financial debt	9,691	7,917
	Capital expenditures (as per segment table in the Annual Report 2010)	1,669	1,621
	Research and development expenses	2,746	3,053
	Dividend per Bayer AG share (€)	1.40	1.50
	Personnel expenses (incl. pension plans)	7,776	8,099
	Pension liability ⁹	15,931	17,699
Employees and Society¹⁰			
Diversity and opportunities	Percentage of women in the Group Leadership Circle	5.5	6.5
	Number of nationalities in the Group Leadership Circle	22	21
	Proportion of full-time employees with contractually agreed working time not exceeding 48 hours per week (%)	100	100
	Proportion of employees with health insurance (%)	95	94
	Proportion of employees eligible for a company pension plan or company-financed retirement benefits (%)	74	74
	Proportion of employees covered by collective agreements on pay and conditions (%)	56	55
Safety	Industrial injuries to Bayer employees resulting in at least one day's absence (MAQ* value)	2.0	1.7
	Reportable industrial injuries to Bayer employees (MAQ* value)	3.1	3.1
Ecological Indicators			
Emissions	Direct greenhouse gas emissions (CO ₂ equivalents in million metric tons) ¹¹	4.57	4.80
	Indirect greenhouse gas emissions (CO ₂ equivalents in million metric tons) ¹¹	3.53	3.70
	Volatile organic compounds (VOC) (thousand metric tons per year)	2.59	2.54
	Total phosphorus in wastewater (thousand metric tons per year)	0.74	0.09
	Total nitrogen in wastewater (thousand metric tons per year)	0.64	0.49
	Total organic carbon (TOC) (thousand metric tons per year)	1.35	1.42
Waste	Hazardous waste generated (million metric tons per year)	0.38	0.35
	Hazardous waste landfilled (million metric tons per year)	0.09	0.06
Use of resources	Water use (million m ³ /year)	407	474
	Energy use (petajoules [10 ¹⁵ joules] per year)	77.33	85.71
Environmental incidents and transport accidents	Environmental incidents	13	7
	Transport accidents	10	8

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 Stated in full-time equivalents

¹¹ Portfolio-adjusted in accordance with the Greenhouse Gas Protocol

* MAQ = million working hour quota (injuries per million hours worked)

Bayer: Science For A Better Life

Bayer is a global enterprise with core competencies in the fields of health care, nutrition and high-tech materials. Our products and services are designed to benefit people and improve their quality of life. At the same time we want to create value through innovation, growth and high earning power.

We are firmly aligned to our mission “Bayer: Science For A Better Life” and continue to optimize our portfolio, concentrating our activities in three high-potential, efficient subgroups with largely independent operations: HealthCare, CropScience and MaterialScience. These provide us with access to major global growth markets and are supported by our service companies.

As an inventor company, we plan to continue setting trends in research-intensive areas. Innovation is the foundation for competitiveness and growth, and thus for our company’s success in the future.

Our knowledge and our products are helping to diagnose, alleviate or cure diseases, improving the quality and adequacy of the global food supply, and contributing significantly to an active, modern lifestyle. Our expertise and innovative capability also enable us to offer solutions for protecting the climate and addressing the consequences of climate change.

We are committed to the principles of sustainable development, and to our role as a socially and ethically responsible corporate citizen. For us, there is a clear link between technical and economic expertise and social commitment. This, in turn, we define as our responsibility to work for the benefit of humankind, become socially involved and make a lasting contribution to sustainable development. At Bayer, we regard economy, ecology and social commitment as objectives of equal rank.

We seek to retain society’s confidence through performance, flexibility and open communication as we work in pursuit of our overriding goals: to steadily create corporate value and generate high value-added for the benefit of our stockholders, our employees and the community in every country in which we operate.

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Our success is based on innovation and sustainability



Chairman of the Board of Management Dr. Marijn Dekkers

Dear Reader,

Innovative products and sustainable activities lay a vital foundation for our future success – as clearly demonstrated by the financial and economic crisis. As the new Chairman of the Board of Management, I am keen to work tirelessly with my fellow Board members to continue Bayer's long tradition of sustainable business practices.

This is part of our ethical and corporate social responsibility, and our shared values guide us in our sustainable endeavors. Last year, we reformulated these principles and renamed them the LIFE values, which stand for Leadership, Integrity, Flexibility and Efficiency. These values, in turn, are closely linked to our mission "Bayer: Science For A Better Life." "Science" stands for our innovation expertise, and "Life" stands for the way we want to interact with all stakeholder groups. Our sustainable business activity is firmly anchored, for example, in our values Leadership and Integrity.

Our mission and our values help us achieve our goals. This also applies to our commitment to sustainability, for which we have set ambitious new targets to be achieved by 2015. These targets ensure the enhanced integration of sustainability into our business activities.

Our innovations help solve the major challenges of our time, primarily in the fields of health care, nutrition for the growing world population and conservation of ever scarcer resources.

We aim to reconcile economic growth with environmental and social responsibility. With this in mind, we embrace the principles of the United Nations Global Compact initiative and were one of the first signatories to the new Global Compact platform for Corporate Sustainability Leadership – LEAD – which was launched at the beginning of this year at the World Economic Forum in Davos.

Acting sustainably and responsibly also means always ensuring maximum safety. Our new Safety Council and our global process and plant safety initiative to ensure safe processes and the comprehensive safety of our employees, the people in the vicinity of our sites and the environment are extremely important to us. These efforts play a key role in achieving the social acceptance the company relies on.

A great strength of the Bayer Group is its employees' impressive commitment. It is therefore vital for the company to constantly encourage and further improve staff motivation and capabilities, so our HR policy focuses on this.

As a global enterprise, Bayer aims to have as diverse and international a workforce as possible. Some 21 different nationalities are already represented in the top management echelon. We are keen to keep encouraging this diversity at other management levels, too. The Group Management Board has also decided to aim to increase the proportion of female managerial staff to approaching 30 percent by 2015.

Bayer expects all its employees to act ethically and within the law in day-to-day business operations. Our Corporate Compliance Policy therefore stipulates that absolutely no business activities are permitted that go against these basic principles.

As you can see, innovation and sustainability are the main driving forces behind our activities – wholly in keeping with our mission "Bayer: Science For A Better Life." This is also our promise to society.

Marijn Dekkers

Innovations Drive Growth

Bayer is a global enterprise with core competencies in the fields of health care, nutrition and high-tech materials. As an inventor company, we set trends in research-intensive areas. After all, research means progress and sustainability. With our innovative products, we provide answers to important questions of the future. At the same time, we aim to create value through innovation, growth and high profitability – for the benefit of our stockholders, our employees and the community in every country in which we operate.

Our commercial success

Bayer achieved its Group targets in 2010. Sales rose to a record €35.1 billion. EBITDA before special items increased by 9.7 percent to €7.1 billion. We considerably raised our spending on research and development to €3.1 billion. Group net income in 2010 was €1.3 billion. Net financial debt declined by 18.3 percent to €7.9 billion due to a further improvement in net cash flow.

Our stock

Including the dividend of €1.40 per share paid in May 2010, the performance of Bayer stock came to nearly 2 percent for the year. It closed 2010 at €55.30, having reached a high for the

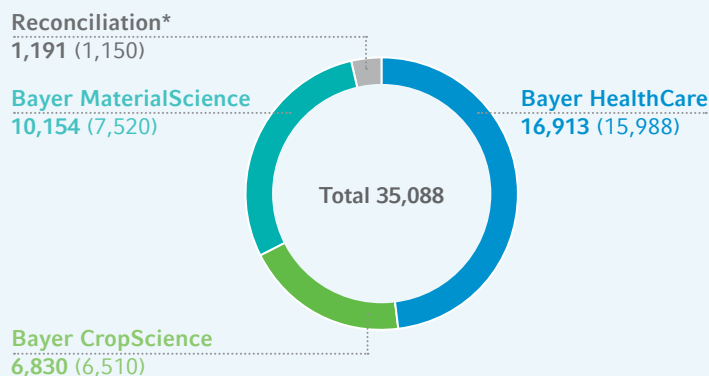
year of €58.62 a short time earlier. Bayer stock thus outperformed the EURO STOXX 50 (performance index) for the fourth year in a row. The trading volume in our shares receded by about 16 percent from the previous year to an average 3.6 million per day. A long-term investor who purchased Bayer shares for €10,000 five years ago and reinvested all dividends would have seen the value of the position grow to €17,965 as of December 31, 2010. That corresponds to an average annual return of 12.4 percent.

Equity of the Bayer Group was €18,896 million as of December 31, 2010, including €63 million attributable to non-controlling interests. Our stockholder structure remains very international. According to a survey of shareholdings by institutional investors conducted in November 2010, around 27.0 percent of the identified capital is held by investors in Germany and 24.8 percent is held by investors based in the United States or Canada. 14.1 percent of investors are based in the United Kingdom or Ireland, 8.6 percent in France, Spain, Italy or Portugal, 4.0 percent in the Benelux countries, 3.7 percent in Denmark, Finland, Norway or Sweden and 3.5 percent in Austria, Switzerland or Liechtenstein. All other countries together account for 6.0 percent of institutional investors. The survey covered all but 8.3 percent of the capital stock.

Intensive dialogue with the capital market has traditionally been a high priority for Bayer. In 2010, our Investor Relations team visited 26 financial centers – mostly accompanied by the Chairman of the Board of Management or the Chief Financial Officer – and held more than 400 one-on-one meetings. In addition to our regular quarterly, half-yearly and annual reporting, we held IR conference calls to update stockholders, for example on the development status of rivaroxaban.

Sales by subgroups in 2010 (€ million)

(2009 figures in parentheses)



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

Our investments and acquisitions in 2010

Investment in additions to property, plant, equipment and intangible assets amounted to €1,621 million. Of this figure, Bayer HealthCare accounted for €605 million, Bayer CropScience for €366 million, Bayer MaterialScience for €505 million, and the service companies for a combined amount of €145 million. This figure includes expenditures for the expansion of our Chinese site in Shanghai (polymer products), of our pharmaceutical production capacities in Berkeley, United States, and of our fungicide and insecticide capacities in Dormagen, Germany, and Kansas City, United States.

In 2010, we made acquisitions totaling €43 million. In March 2010, Bayer MaterialScience acquired Artificial Muscle, Inc., in the United States, for €21 million. This company is a technology leader in the field of electroactive polymers for the consumer electronics industry. The remaining 50 percent interest in BayOne Urethane Systems LLC was acquired on

November 30, 2010. The purchase price was €15 million. Our Annual Report 2010 gives an overview of the main investments and further acquisitions that were made in the period under review.

Our 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 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 GmbH, Bayer Technology Services GmbH and Currenta GmbH & Co. OHG – provide services for both internal and external customers.

Bayer AG (holding company)

Group Management Board



Dr. Marijn Dekkers
Chairman
(effective October 1, 2010)



Werner Baumann
Finance
(effective May 1, 2010)



Dr. Wolfgang Plischke
Technology, Innovation
& Environment



Dr. Richard Pott
Strategy & Human
Resources

Corporate Center

- Corporate Office ■ Communications ■ Investor Relations ■ Corporate Auditing
- Corporate Human Resources & Organization ■ Finance ■ Corporate Development
- Law & Patents, Insurance ■ Environment & Sustainability ■ Group Accounting & Controlling ■ Regional Coordination

Subgroups

Bayer HealthCare

Bayer CropScience

Bayer MaterialScience

Service companies

Bayer Business Services

Bayer Technology Services

Currenta

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Bayer HealthCare

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



Dr. Jörg Reinhardt*,
Chairman of the Board
of Management of
Bayer HealthCare AG

Bayer CropScience

Bayer CropScience, with its highly effective products, pioneering innovations and keen customer focus, holds global leadership positions in crop protection and non-agricultural pest control. The company also has major activities in seeds and plant traits.



Sandra E. Peterson*,
Chairman of the Board
of Management of
Bayer CropScience AG

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,
Chairman of the Board
of Management of
Bayer MaterialScience AG

Innovations for better health care

As a health care company we develop and market innovative therapies and diagnostic procedures for people and animals. At the same time we assume social responsibility and allow broad access to our innovative products.

We do this through numerous collaborations with various private and government organizations.

We offer differentiated price models and customized access programs in medical care. In addition, we are also engaged in providing continuing education programs for physicians and other medical staff.

High-quality food for all

The challenge of the 21st century is to feed a continually growing world population in the face of dwindling resources, without negatively impacting on climate change and biodiversity. We are convinced that we can only meet this challenge with agriculture based on the principles of sustainable development.

We have committed ourselves to make as substantial a contribution as possible to sustainable development and, as a result, are continually integrating sustainability principles into our business strategies. This applies to all organizational units along the value chain. In this way we generate value for our customers, our company and our employees.

Green products aren't everything

An industrial company that wishes to be truly sustainable cannot limit itself merely to manufacturing "greener" products. As important as it is to focus our attention – especially in terms of innovation – on products that are environmentally friendly and that above all mitigate the consequences of climate change – we must not ignore other important areas if we are to become a truly sustainable business in the future.

As well as environmentally beneficial products we also include cleaner, low-carbon manufacturing processes and the safety of employees as key elements in developing a sustainable business model. These are joined by a healthy financial performance, the development of talented individuals and a corporate culture where change is wholeheartedly embraced.

Headquarters: Leverkusen, Germany
Headcount: 55,700 (2010),
55,800 (2009)
Sales: €16,913 million (2010),
€15,988 million (2009)
Sites: in over 120 countries
Website: www.bayerhealthcare.com

Headquarters: Monheim, Germany
Headcount: 20,700 (2010),
20,500 (2009)
Sales: €6,830 million (2010),
€6,510 million (2009)
Sites: in over 120 countries
Website: www.bayercropscience.com

Headquarters: Leverkusen, Germany
Headcount: 14,700 (2010),
14,600 (2009)
Sales: €10,154 million (2010),
€7,520 million (2009)
Sites: in over 55 countries
Website: www.bayermaterialscience.com

* until April 30, 2010 A. Higgins,
from May 1 until August 14, 2010 M. Dekkers,
effective August 15, 2010 J. Reinhardt

* until September 30, 2010 F. Berschauer,
effective October 1, 2010 S. E. Peterson

Bayer Business Services

Bayer Business Services is the Bayer Group's global competence center for IT and business services. Its innovative solutions make the business processes of Bayer companies faster, simpler and cheaper, making an important contribution to sustainable development at Bayer.



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

Bayer Technology Services

Bayer Technology Services, the global technological backbone and a major innovation driver of the Bayer Group, is engaged in process development and in process and plant engineering, construction and optimization.



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

Currenta

Currenta is the manager and operator of Chempark with its three sites in Leverkusen, Dormagen and Krefeld-Uerdingen. Including Bayer and Lanxess, more than 70 manufacturing and service companies enjoy the benefits of being located in Germany's largest chemical park network.



Dr. Klaus Schäfer*,
Chairman of the
Executive Board of
Currenta GmbH & Co.
OHG

IT and business services for sustainable development

Our "EcoFleet," "Business Travel" and "Green IT" initiatives are part of the Bayer Climate Program. With EcoFleet, we are looking to cut the carbon dioxide emissions of Bayer company vehicles by 20 percent between 2007 and 2012. In 2010, Bayer received a "green card" from the Deutsche Umwelthilfe (German Environmental Aid) and a CSR Mobility Award 2010 for this initiative. Through the introduction of high-definition video conferencing systems, the Business Travel initiative is providing carbon-dioxide-cutting alternatives to business trips. And through Green IT we aim to increase the energy efficiency of our three data centers by 20 percent between 2009 and 2012.

Technological expertise for environmental protection

Bayer Technology Services works closely with the Bayer subgroups to ensure that Group-wide ecological and social responsibilities are met globally. This includes implementing international standards at all sites, as well as developing processes, and planning and constructing plants in line with the latest technology and optimizing them during ongoing operation.

We have, for example, developed the Bayer Climate Check and hold responsibility for the process and plant safety platform for the entire Group.

Performance for the chemical industry

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. Energy efficiency and environmental protection have a top priority at Currenta, an example from the field of environmental protection being our innovative process for the recycling of electronic scrap. Here, we focus across the board on using new, sustainable technologies. Precious metals such as gold, silver and copper can be recovered in this way from old computer circuit boards to an efficiency of up to 99 percent. The recovery rate of this process is thus around 20 to 30 percent higher than that of conventional methods.

Headquarters: Leverkusen, Germany
Headcount: 6,500 (2010), 6,300 (2009)
Sites: in over 70 countries
Website: www.bayerbbs.com

Headquarters: Leverkusen, Germany
Headcount: 2,700 (2010), 2,600 (2009)
Sites: Belgium, Brazil, Germany, India, Mexico, P.R. China, Russia, Singapore, United Arab Emirates, United States
Website: www.bayertechnology.com

Headquarters: Leverkusen, Germany
Headcount: 5,400 (2010), 5,500 (2009)
Sites: Leverkusen, Dormagen, Krefeld-Uerdingen (all Germany)
Website: www.currenta.com

* until May 31, 2010 A. Noack,
effective June 1, 2010 D. Van Meirvenne

* effective August 1, 2011 G. Hilken

Our Sustainability Strategy

We are convinced that Bayer can only be commercially successful over the long term if we balance economic growth with ecological and social responsibility. Bayer regards itself as a member of society and believes it needs society’s long-term acceptance to be able to act entrepreneurially. We allow ourselves to be guided by long-term values in the implementation of our sustainability strategy.

3 BAYER WEB
Bayer: Science For A Better Life

4 ONLINE REPORT
LIFE

5 BAYER WEB
Sustainable Development Policy

In our mission “[Bayer: Science For A Better Life](#)” we summarize what we stand for as a company: innovative solutions to socially relevant problems. Our new values concept **LIFE** combines innovative performance with the personal actions of each employee, thus providing orientation for our everyday business. Our mission and our values concept serve as the basis for our sustainable activity. We have summarized the guiding ideas in the [Bayer Sustainable Development Policy](#), which forms the basis for a common understanding of sustainability at Bayer.

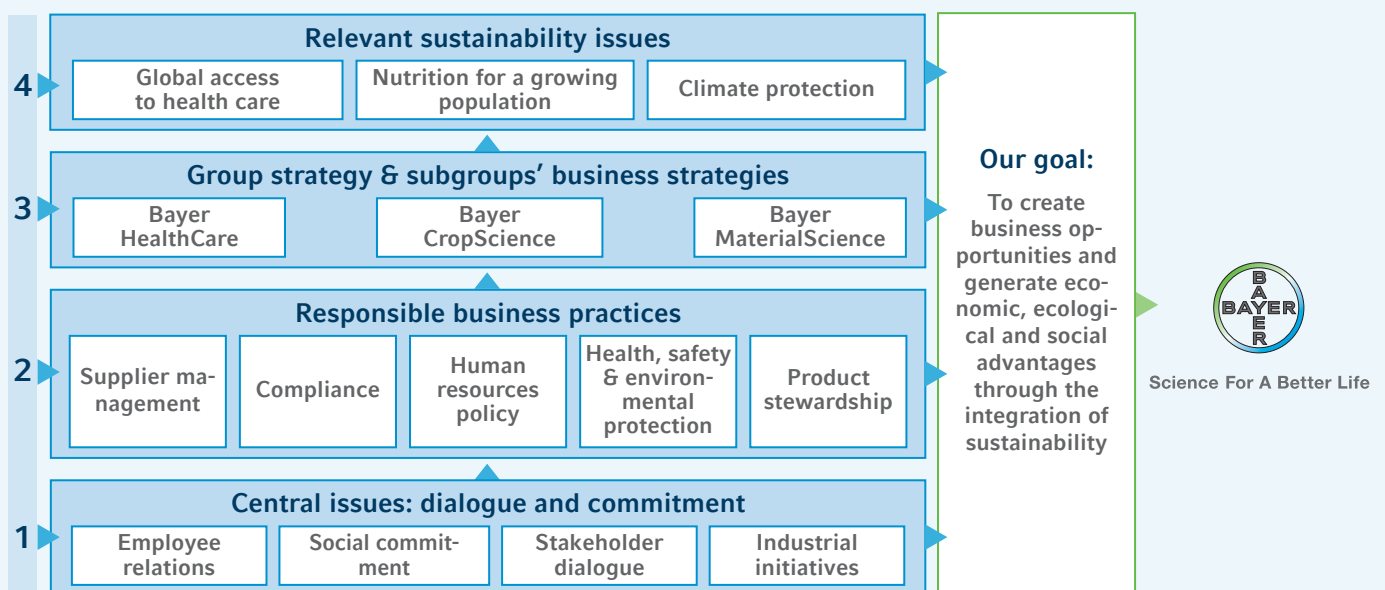
In its sustainability strategy, Bayer specifies the guiding idea of its policy. On the one hand, sustainability is strategically integrated into the core business across all subgroups, while new market opportunities are identified and can be exploited. On the other hand, we effectively address central global challenges with our products and innovations. “In this way, we create economic, ecological and social value-added through our sustainability strategy and thus safeguard our future viability,” says Dr. Wolfgang Grosse Entrup, Head of Environment & Sustainability.

Strategic sustainability at four levels

Our sustainability strategy supports on four levels our objective of balancing ecological and social activities with the interests of our

company. We comment on all four levels in detail in the following pages, as well as in the focus issue articles and our performance report.

Bayer’s Sustainability Strategy



We realize at four levels our goal of balancing ecological and social responsibility with corporate interests.

The four levels of our sustainability strategy (see also graphic on page 8) are:

- 1. Dialogue and commitment:** We take account in our sustainability strategy of the expectations of our stakeholders. This basic understanding also applies to our employee relations and the discourse between industry, academia and politicians. In addition, it includes our social commitment.
- 2. Responsible business practices:** Core aspects are compliance, a responsible human resources policy, product stewardship, issues of safety and health maintenance, and sustainable supplier management.

3. Integrating sustainability into our business: The sustainability strategy is accepted by all areas of the company, integrated into their business activities and implemented. Our innovations and products in particular make it an integral component of our business activities.

4. Social challenges (relevant sustainability issues): Our [Sustainability Program](#) – close to our products – comprises solutions to major social challenges such as sustainable health care provision, high-quality nutrition for a growing population, and climate and resource protection. Our nine lighthouse projects illustrate particularly clearly the core of our strategy.

6 [BAYER WEB Sustainability Program](#)

7 [ONLINE REPORT Development of the Bayer Sustainability Program](#)

In dialogue with our stakeholders

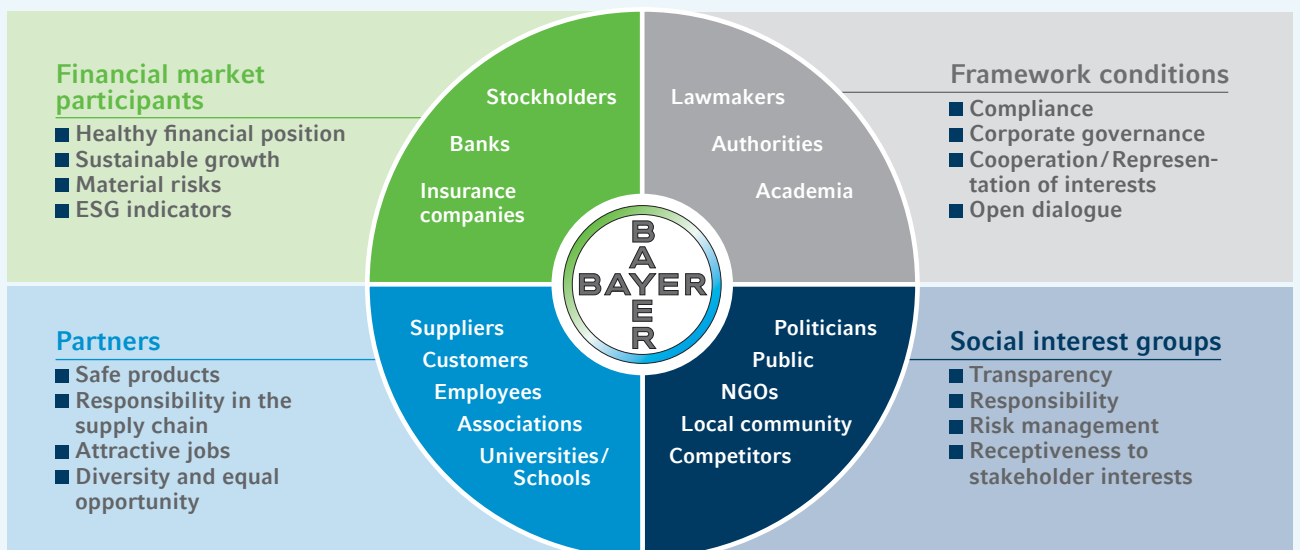
As a socially engaged, globally operating company, we know that open and transparent dialogue with our stakeholder groups is essential. We cannot achieve acceptance for our business activities without this regular discourse with our stakeholders. We believe that sustainable business and continuous dialogue are mutually dependent. We underscore this basic attitude with our commitment to the [Responsible Care®](#) initiative of the chemical industry and the 10 principles of the [United Nations Global Compact](#). Furthermore, we are driving forward the strategic evolution of sustainability internationally as an original signatory to the Global Compact initiative “Corporate Sustainability Leadership – LEAD” under the auspices of the United Nations.

We seek targeted dialogue with our stakeholders at the local, national and international levels. Our direct partners are our employees, customers and suppliers. The group comprising investors safeguards our economic foundation. We also seek dialogue with representatives of public interest groups, with residents in the communities near our sites, non-governmental organizations and politicians comprising the third stakeholder group. Also among the representatives of the public interest is the general public itself. Finally, we operate within a framework of action that is determined by legislation, scientific findings and public bodies.

8 [www Responsible Care](#)

9 [www un Global Compact](#)

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



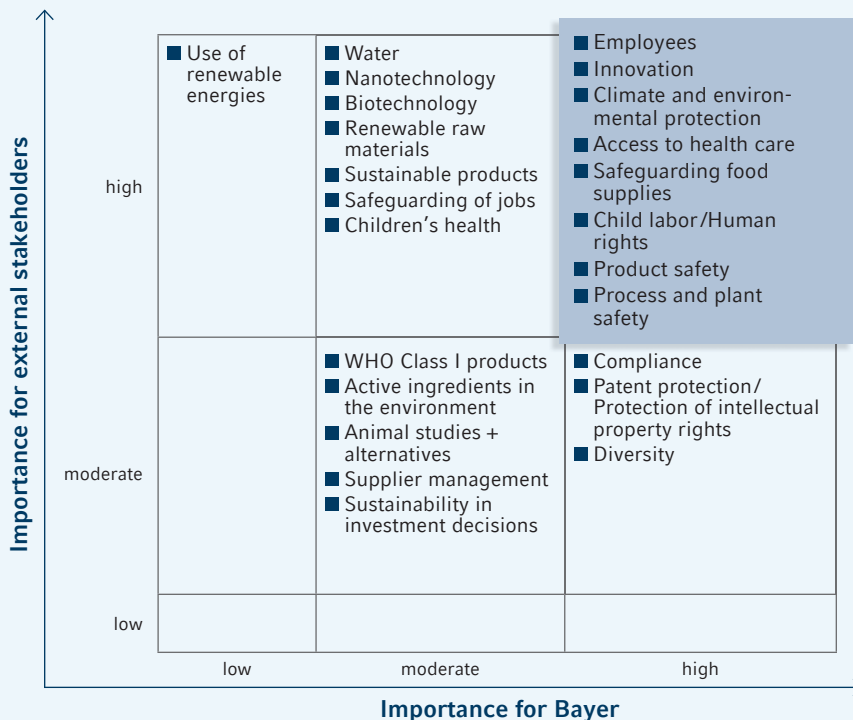
Our most important stakeholder groups can be divided into four major areas. Each respective stakeholder has different areas of focus.

Essential issues

This materiality matrix juxtaposes the importance of various issues from the viewpoint of our stakeholder groups with their importance to Bayer: through regular surveys, we determine which issues are particularly important to our stakeholder groups. In addition, information from our diverse dialogues enables us to systematically assess the relevance of issues. This information is applied in the further development of our sustainability strategy.

To allow the importance of issues to be determined equally systematically from the company's perspective, workshops with management representatives from all subgroups have been held since 2009. We have outlined the rank in importance of issues for the Bayer Group as a whole.

This juxtaposition in the so-called "materiality matrix" shows which issues we must focus on most urgently. Renewable energies will generally be an important issue for the future but they are currently not available in sufficient amounts to make sense for energy-intensive chemical production.



Strategically aligning stakeholder management

We see dialogue with our various stakeholders as the global basis for building mutual understanding and trust, and as an opportunity to openly communicate to each other points of view and courses of action. Together, we identify challenges and analyze them from various perspectives. Important suggestions by our stakeholders serve as impulses for the company. Through this approach, we recognize risks earlier, discover improvement possibilities and are able to exploit trends and new market opportunities. In 2011, therefore, we aim to apply a newly developed tool for all strategic investment projects: the Stakeholder Check should make it possible to consider the views of stakeholders more effectively in investment decisions. With the materiality analysis, we determine which issues are crucial to the company by juxtaposing their importance for our external stakeholders with their relevance to Bayer (see table above).

Bayer has developed a range of measures and formats that enable us to adequately communicate with our stakeholder groups. We have integrated various practical examples of stakeholder dialogue into the following sections. Examples and forms of dialogue that were central for us in 2010 are summarized additionally in an online overview.

Employee surveys and annual discussions in particular provide our employees with further opportunities to voice suggestions and criticisms. More on this topic can be seen on page 35f. in the Employees section. In interaction with our investors, investor conferences, roadshows, individual meetings, the Annual Stockholders' Meeting and the IR website are important communication tools. Our Board of Management and the Investor Relations Department maintain a regular dialogue with private and institutional investors and financial analysts, informing them, for example, about our sustainable development activities with the support of the Environment & Sustainability Department in the Corporate Center.

Bayer Community Board for Sustainable Development



The Group-level Community Board for Sustainable Development (CB SD) forms the core of our leadership structure: front row (from left): **Dr. Tony Van Osselaer**, Bayer MaterialScience, Head of Industrial Operations, **Ursula Mathar**, CB SD Secretary, **Dr. Wolfgang Plischke**, Head of CB SD, member of the Board of Management of Bayer AG, **Jörg Krell**, Head of the Corporate Office. Middle row (from left): **Dr. Roland Hartwig**, Head of Law & Patents, **Dr. Alexander Moscho**, Head of Corporate Development, **Dr. Dirk Van Meirvenne**, Managing Director of Bayer Technology Services, **Dr. Wolfgang Grosse Entrup**, Head of Environment & Sustainability. Back row (from left): **Dr. Franz-Josef Placke**, Bayer CropScience, Head of Development, **Dr. Hartmut Klusik**, Bayer HealthCare, Head of Product Supply, **Daniel Hartert**, Chairman of the Executive Board of Bayer Business Services. Not pictured: **Dr. Horst-Uwe Groh**, Head of Corporate Human Resources & Organization, **Dr. Alexander Rosar**, Head of Investor Relations, **Michael Schade**, Head of Communications.

Sustainability management and organizational structure

As a strategic measure with long-term consequences, sustainability management is a task for the entire Bayer Group that can only be implemented together with the subgroups and service companies. Accordingly, a Group-level committee is at the core of the leadership structure: the Bayer Community Board for Sustainable Development (CB SD) headed by the member of the Board of Management responsible for Innovation, Technology and Environment. The board holds responsibility for the alignment and steering of our Group-wide sustainability strategy. This Group-level board defines objectives and initiatives, adopts corresponding Group regulations and monitors their implementation. Further members include one member of the board of management of each of the subgroups, the Executive Board Chairman of Bayer Business Services and the Managing Director of Bayer Technology Services, and the heads of seven Corporate Center departments.

At the specialist level, the Bayer Community Council for Sustainable Development supports the operational alignment of sustainability and coordinates the corporate processes and functions throughout the Bayer Group. It

processes interdisciplinary specialist issues and deploys expert committees and subcommittees when necessary. The sustainability officers from the subgroups and service companies steer the implementation of the strategy under the leadership of the Head of Environment & Sustainability. In addition to these Group-level bodies, the subgroups, regions and countries have also created organizational structures that focus on specifically relevant topics, objectives and measures.

The Bayer Sustainable Development Policy governs not only our actions, but also regulates cooperation with other bodies. It affects the subgroups' structures and thematically related bodies such as the Bayer Community Council for Innovation, the Bayer Community Council for Industrial Operations or the Bayer Community Council for Politics. We coordinate our sustainability alignment particularly closely with the Bayer Community Council for Health, Safety, Environment & Quality, a subordinated committee of the Community Board for Technology, Innovations & Environment. This body is supplemented by the newly created Bayer Safety Council (see page 63).

Guidelines provide an orientation framework

Responsible Care is a central objective for Bayer, as our activities in the 1970s and 1980s demonstrate. We have compiled an online overview of the [evolution of sustainability](#) at Bayer.

Today more than ever, Bayer as a globally operating company and its responsible Group

committees are judged according to whether the sustainability strategy is integrated into the company's structures through specific programs and measures.

We have firmly anchored the sustainability concept in our internal Group regulations.

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Supplier Code of Conduct

17 ONLINE REPORT
Integration of sustainability

18 ONLINE REPORT
Achievement of 2006+ objectives

These include, for example, the [Bayer Sustainable Development Policy](#), our [position on human rights and labor conditions](#), the [Corporate Compliance Policy](#), the [Directive on Integrity & Responsibility in Communications and Marketing](#) and our procurement directives.

On this basis we develop Group directives on issues such as HSEQ audits, donations, process and plant safety or supplier management ([Supplier Code of Conduct](#)). The aim here is to ensure that our sustainability strategy is consistently implemented in all parts of the company and along the entire value chain. These directives are supported primarily by efficient management

systems that are explained in further detail in the Ecology section on page 54ff.

After being successfully tested in 2009, the Bayer Sustainability Check is now being introduced systematically throughout the Bayer Group. This tool assesses the sustainability impact of our products and product groups. The tools with which we actively implement and anchor the issues of compliance and risk management (see page 28f.) and procurement management (see page 31f.) in our organization are presented in more detail in the Management and Corporate Governance section. We have made available online an overview of the [integration of sustainability](#) at all Group levels.

Program of objectives 2006–2010: objectives set and achieved

In 2005, we established for the first time ambitious and to a major extent measurable goals with the five-year program of objectives “2006+.” In the past years we have regularly reported on our progress and challenges in this area. The program was established following stakeholder analyses, benchmark studies and a stronger focus in the Bayer Group on the issue of sustainability.

- The program comprised a total of 45 objectives in five fields of activity: innovation (17), product stewardship (3), excellence in corporate management (7), social responsibility (10) and responsibility for the environment (8).
- By the end of 2010, we had fully or nearly attained 30 (67%) of these objectives, or designated them as ongoing (attainment level 4 and 5).
- 12 objectives (26%) could be partly achieved (attainment level 2 and 3).
- 3 objectives (7%) had not or had scarcely been achieved by the end of 2010. We were not successful in reducing the volume

of hazardous production waste to below 2.5% per metric ton of sales product or in complying with a maximum threshold of 20 metric tons for ODS emissions. We have included both objectives in our new Targets 2015 program.

The program of objectives has strengthened awareness in the company for its responsibility for sustainable development, raised internal acceptance and highlighted the business potential offered by sustainability. It has helped to make our sustainability management more transparent and measurable for stakeholders and enabled us to further develop the corresponding tools. Special mention should be made of our achievements in occupational health and safety, the reduction of greenhouse gas emissions, the implementation of our own Human Rights Position and the development of a sustainable procurement management system.

A more detailed overview of the [level of achievement of our 2006+ objectives](#) is available online.

Our sustainability targets for 2015

Governance through objectives and performance indicators is an essential component of sustainability management at Bayer. This enables us to generate transparency and ease of verification for our stakeholders, according to Dr. Wolfgang Grosse Entrup, Head of Environment & Sustainability in the Corporate Center. Following the completion of the 2006–2010 program, Bayer has now set ambitious new targets to be achieved by 2015. We have consistently aligned these to our value chain. They also include our ambitious long-term climate objectives regarding greenhouse gas reduction which we have once again tightened up. Our “Targets 2015,” which relate primarily to specifically measurable indicators, and our Sustainability Program with its objectives clearly illustrate the direction in which we want to go, namely toward an even stronger integration of sustainability into our business activities. In this way we aim to further improve our position as a responsible enterprise and drive forward more strategically our contribution to the sustainable development of society.

All the new targets for 2015 can be found inside the front cover of this report.

We have assigned them to the five fields of activity in this report: management & corporate governance, employees, innovation & products, ecology and social commitment. They can also be found at the beginning of each section.

Interview with Dr. Wolfgang Plischke

“Sustainable development is a key element of our corporate strategy”

Dr. Plischke, Bayer set itself ambitious targets with its “2006+” sustainability objectives. The program finished at the end of 2010. How did the company fare?

We worked hard to meet the objectives of our five-year “2006+” program and, for the most part, succeeded in doing so by last year. Two areas in which we have made particularly impressive progress in recent years are cutting greenhouse gas emissions and occupational health and safety. The demands relating to environmental protection and corporate governance as a whole are growing all the time though, so we cannot afford to rest on our laurels. An additional challenge is to successfully implement our sustainability strategy worldwide.

Where do we go from here?

The aim of the targets we have set for 2015 is to further integrate sustainability into our business activities along the entire value chain. To help us achieve this, our reporting focuses on five areas of activity in which these targets apply – management & corporate governance, employees, innovation & products, ecology and social commitment. For example, we have set ourselves the target of cutting specific greenhouse gas emissions by 35 percent throughout the Group between 2005 and 2020, and by as much as 40 percent at Bayer MaterialScience. As you can see, we are actively committed to protecting the climate.

What role does sustainable development play in your core business?

Sustainable development is a key element of our corporate strategy. From our main areas of focus – sustainable health care provision, high-quality nutrition for a growing global population and climate and resource conservation – you can see the extent to which our business is geared towards sustainable development. It is equally important to us to ensure sustainable everyday business practices in all areas. To take the example of procurement, our code of conduct that has been in place since 2009 requires all our suppliers to act sustainably. We carry out systematic checks – especially on suppliers in strategic areas and from countries that are considered to represent a risk – to ensure that our stringent requirements are being complied with. Sustainability also plays a key role in product

development. We aim to use our innovations to help ensure society’s sustainable development. Recent successes in this respect include our innovative anticoagulant Xarelto, new yield-boosting seed varieties such as InVigor and the development of new lightweight plastic components. What’s more, we never lose sight of the safety and environmental compatibility requirements applying to our products.

How important is dialogue with interest groups?

Without dialogue there is no transparency and without transparency there is no trust. As a global company, Bayer is in the public eye. We are frequently involved in discussions and debates with critics on topics such as animal testing and access to medicines in developing countries and emerging markets. Knowledge transfer and input from both sides are therefore vital to us. We want to be an accepted part of society and, in the long term, need our business activities to meet with approval. That, too, ensures our future viability.

How do you intend to gain society’s acceptance?

The starting point is to ensure a good relationship with all interest groups that have dealings with the company, including the local communities around our sites worldwide, our employees, our stockholders and the media. We aim to treat them all as equals and honor our responsibility towards them.

Bayer was one of the first signatories to the UN Global Compact LEAD, the new platform for corporate sustainability leadership.

Why is that so important to you?

This move is a logical step for us. 10 years after we became one of the first signatories to the UN Global Compact, we are now undertaking to develop and implement a challenging new action plan that is intended to help us overcome the global challenges of the future together. This is also in line with the objectives of our strategy.

Is Bayer setting new standards with this step?

I am certain that, with our targets for 2015 and the United Nations leadership initiative, we will continue to be a world leader when it comes to sustainable business practices. As a result, we are well placed for the future.



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



Pharmacist Lulu Amakelech (right) explains the use of a contraceptive to Tizita Getachew (left). In 2010, Bayer introduced an oral contraceptive at a reduced price in Ethiopia in collaboration with the U.S. Agency for International Development (USAID).

Active commitment to health

Our planet is home to almost seven billion people, and around two billion of these do not have adequate basic health care. Along with its international partners, Bayer is actively committed to improving this situation. The services of our core HealthCare business – high-quality drug products and therapies – are having an impact on health care in countless programs throughout the world thanks to our strategic commitment.

The constantly growing world population and demographic change are increasing the challenge to ensure adequate health care across the world. Developing and emerging countries in particular are home to increasing numbers of people who lack access to the necessary pharmaceutical products and medical treatment. Through alliances for sustainable health care, Bayer is actively involved where need exists and its own expertise is greatest. “We promote access to drugs worldwide and improve people’s knowledge about health,” says Dr. Ulrich-Dietmar Madeja, Head of Social Healthcare Programs at Bayer HealthCare.

Promotion of health care

To enable as many people as possible to benefit from the Group’s services, Bayer HealthCare has steadily developed its “Access to Medicine” (ATM) strategy over recent years. The goal is to make contributions by the company even more effective, assume social responsibility and safeguard business opportunities in a dynamic environment. These aspects are an equal part of the Bayer sustainability strategy that is implemented in concrete terms through the [Bayer Sustainability Program](#) and its lighthouse projects.

To facilitate sustainable health care, various societal groups need to work together. Many projects are only possible if they are performed in close collaboration.

Our lighthouse projects “Family Planning” and “Neglected Diseases,” which we are implementing in conjunction with state and non-governmental organizations, underline our commitment.

Family planning to fight poverty

The World Health Organization [WHO](#) estimates that of around 210 million pregnancies worldwide each year, approximately 38 percent are unplanned and 20 percent are terminated. Particularly in many developing and emerging countries with high mortality rates for mothers and children, women do not have any possibility of protecting themselves against unwanted pregnancies. There

is a shortage of contraceptives, and family planning is still frequently a taboo subject. As world market leader in contraceptives, Bayer has decades of experience in this area. With our “Family Planning” lighthouse project, we are supporting the Millennium Development Goal of the United Nations to cut mortality rates for children and mothers through 2015.

In 2010, Bayer HealthCare made available around 118 million units of different contraceptives in joint projects with the [United States Agency for International Development \(USAID\)](#) and non-governmental organizations such as the [United Nations Population Fund \(UNFPA\)](#). Examples include one- and three-month injections, implants, contraceptive coils (intrauterine systems) and the pill with 110 million monthly packs alone. With the help of these organizations, 80 percent of contraceptives went to sub-Saharan states. Around 16 million women were reached throughout the world in 2010.

“As well as logistical availability, the price of contraceptives is also an essential factor in patient access,” says Klaus Brill, Head of the Commercial Relations Department at Bayer HealthCare. In 2010, in conjunction with USAID, the company was able to launch the oral contraceptive

19 [www.usaid](#)

20 [www.unfpa](#)

21 [Bayer Web Sustainability Program](#)

22 [www.who](#)

Objectives of the Sustainability Program

Lighthouse project “Family Planning”:

- Introduce original contraception products at prices in line with the market in 11 African countries jointly with USAID by 2012
- Double current family planning activities in collaboration with our partners (e.g. USAID, UNFPA, IPPF) by 2012
- Increase annual provision of oral contraceptives to 110 million cycles jointly with partners (e.g. USAID)

Lighthouse project “Neglected Diseases”:

- Support the WHO in tackling Chagas and treating African sleeping sickness
- Conduct research into shortening duration of tuberculosis therapy together with the Global Alliance for TB Drug Development

Microgynon™Fe in Ethiopia at a reduced price, which means women on lower incomes can also afford this preparation. By the end of February 2011, over 26,000 packs of Microgynon™Fe had been sold to women in Ethiopia. The program will be extended to Uganda, Tanzania and eight other countries in Africa by 2013. USAID will be undertaking the communication activities in the next five years, such as information and advertising, while Bayer will provide the Microgynon™Fe and the sales channels.

Partnerships for sex education

Knowledge is also key to people planning their own families independently. Sex education is therefore a further key element in this lighthouse project. In tandem with the [German Foundation for World Population \(DSW\)](#), Bayer is actively involved in educational projects in developing countries to improve the sexual and reproductive health of young people. The prevention program jointly implemented in Uganda aims to provide sex education to young people aged between 10 and 14 to ensure they act responsibly and avoid health risks in their first sexual experiences.

The key component of the project “Improving the Sexual and Reproductive Health of Young Adolescents in Uganda” is a comprehensive, age-appropriate educational project in schools and communities that promotes personalized and integrated educational work by and for young people (peer education). The production of a method-based handbook ensures the sustainability of the concept and enables it to be applied to other regions and countries.

Support for patient access programs

Successful innovative therapies and drug products are already available for some of the diseases that

also occur in emerging countries. However, they are not available to all patients. With its global aid programs, Bayer HealthCare helps patients access innovative Bayer products that not everyone can afford. The range of recipient countries is extending beyond developing and emerging countries.

In the United States, Bayer HealthCare supports various patient access programs. By the end of 2010, more than 63,000 patients were able to access treatment as a result of the programs for the multiple sclerosis drug Betaferon™, the hemophilia drug Kogenate™ and the cancer drug Nexavar™ alone.

The number of countries served by patient access programs for Nexavar™ was expanded to a total of 12 in 2010. These include China, India, Pakistan, Thailand and Vietnam in Asia and also the likes of South Africa and Brazil. China is a particular focus for our commitment overall and Bayer is therefore represented there with three other aid programs. These provide patients in need with access to Kogenate™ and Ventavis™, which is used in treatments for pulmonary vascular diseases, and from 2011 also to Betaferon™.

The company also plays an active role in continuing education initiatives for physicians in China. The “Go West” program is intended to improve health care for the country’s rural population. From 2010, Bayer has made a total of €2.3 million available for this over a period of five years.

Fight against tropical diseases

Virtually half of the world’s population – particularly the poorest of the poor – are at risk from tropical diseases according to the WHO. “Accordingly, Bayer HealthCare has been providing support for the work of the WHO in controlling neglected tropical diseases for years,” says Michael Schöttler, Head of Global Health Policy & Public Affairs at Bayer HealthCare.

To control the life-threatening infectious diseases Chagas in Latin America and African sleeping sickness, Bayer HealthCare offers the drugs Lampit™ and Germanin™ via the WHO in a second lighthouse project. The active ingredients in both life-saving drugs have been placed on the Essential Drug List by the WHO.

The Bayer remedy Germanin™ (containing suramin) is available to treat African sleeping sickness in the early stages of the disease. Each year, Bayer also supplies the WHO with 400,000 Lampit™ tablets containing the active ingredient nifurtimox that, in combination with a further drug entity, enables a form of treatment that opens up opportunities for treating the disease at a later stage too.

In March 2011, the existing agreement with the WHO to treat Chagas disease was extended ahead of schedule until 2017. The annual donation of medicines is being doubled to one million Lampit™ tablets, and the financial support for logistics and distribution of US\$300,000 a year is being continued.

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China

Opinion

“Family planning is taboo in many countries”



“Family planning in Ethiopia continues to be a very important issue. Women who cannot readily access family planning are exposed to a large number of health hazards. The provision of MicrogynonFe through our partnership with Bayer therefore meets a particular need. Many women do not want to be dependent on third parties to ensure safe access to modern family planning but are also unable to pay the prices com-

mon in the Western World. The differential pricing approach we are pursuing with Bayer is therefore promising.”

Thomas Staal, Director of USAID in Ethiopia

At the signing of the new agreement, Dr. Jean Jannin, Coordinator of Communicable Disease Control, Prevention and Eradication at the WHO, said: "When tackling tropical and neglected diseases, public and state initiatives often soon reach their limits. We therefore appreciate it when pharmaceutical companies play their own part. Public-private partnerships offer a highly promising alternative. The combination of expertise from different areas often leads to unexpectedly innovative results and sustainable success."

With the "Bayer Fights Chagas" project, Bayer employees are breaking new ground in controlling tropical disease.

Nine million new cases of tuberculosis (TB) occur each year, according to WHO data. As a partner in the Global Alliance for TB Drug Development, Bayer HealthCare is involved in developing a treatment that has been shortened from six to four months and incorporates the Bayer active ingredient moxifloxacin. The drug is to be made available at reduced prices following approval, particularly in developing countries where the disease is more prevalent.

The Group is actively involved in the fight against infectious diseases above and beyond the activities of Bayer HealthCare. This is clearly illustrated by a series of projects covering malaria and dengue fever. The result of one of the projects, **Lifenet™**, centers on innovative mosquito nets in which an active ingredient against insects is already incorporated. Collaboration between Bayer CropScience and Bayer Technology Services has enabled development of an innovative, long-lasting polypropylene net. Read more about this and our research collaborations on neglected

Dialogue

Sexual self-determination is a human right



Focusing on the subject of developmental aid, Huzeifa Bodal from the German developmental aid organization GIZ has come to the conclusion that efforts to promote the sexual self-determination of women in developing countries have to be made "sexier" to bring the subject more into the

public eye. This demand was one of many suggestions the working groups came up with at the International Dialogue "Population and sustainable development" held in Berlin at the beginning of October. Here, experts from 17 countries discussed ideas on how to ensure that all people can exercise their right to reproductive health – i.e. the right to sexuality and access to family planning methods.

In discussion: (from left) Gill Greer (IPPF), Melinda Crane (Chairman), Helena Nygren-Krug (WHO) and Yasho V. Pradhan (Ministry of Health and Population, Nepal)

diseases, including with the Liverpool-based **Innovative Vector Control Consortium (IVCC)** and **SentiSearch**, on the Internet:

"Our Access to Medicine strategy allows us to link up our commercial interests with our social responsibility," says Andreas Fibig, Head of the division Pharmaceuticals Bayer HealthCare, commenting on future policy. "The beneficiaries of this are first and foremost those patients who need our products most urgently. We will therefore expand our commitment further in strategic terms to increase the scope of our programs and thus reach more patients."

25 ONLINE REPORT
[Bayer Fights Chagas](#)

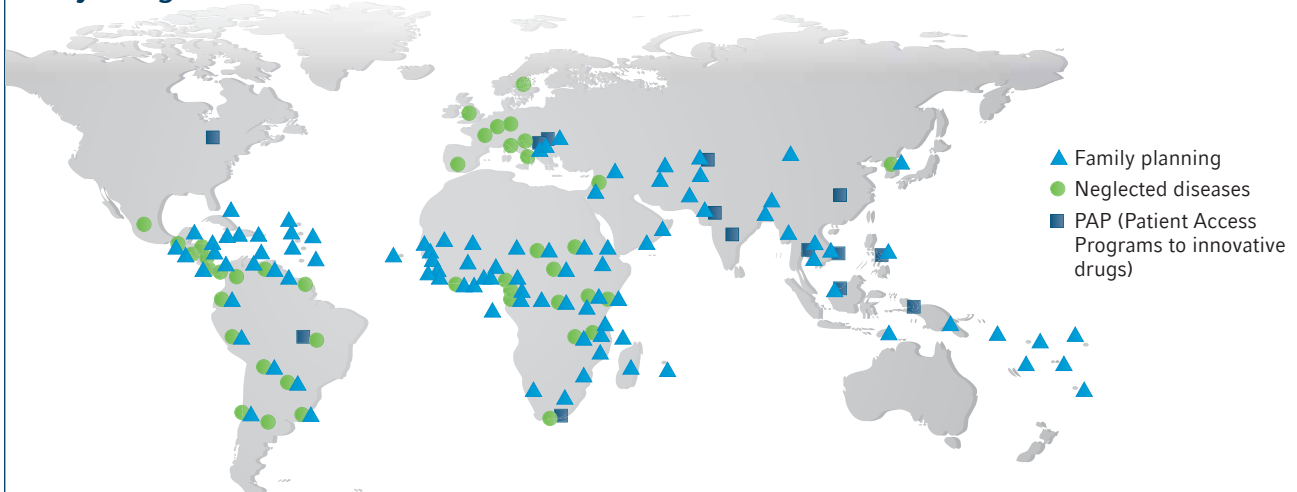
26 ONLINE REPORT
[IVCC](#)

27 ONLINE REPORT
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28 BAYER WEB
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Bayer's global commitment to health:



Our goal is to enable global access to health care for everyone. Our projects on family planning, neglected diseases and access programs for innovative drugs now cover the whole world.

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As a result of climate change, some countries face huge challenges in securing their food supply. Bayer and the Australian research organization CSIRO have therefore stepped up their collaboration. Richard Dickmann from Bayer CropScience and Vanessa Gillespie, research scientist at CSIRO, inspect a new variety of wheat that should bring better yields.

Focus on nutrition

Ensuring ample food supplies is one of the biggest challenges of our time. Bayer is developing solutions to this problem in its CropScience subgroup and has firmly established the topic of “high-quality food for all” as a central objective of its Sustainability Program. For the Group, the only way to achieve this goal is through sustainable agriculture.

The issue of how to feed their people will remain a major problem for many countries and regions in the future. Population numbers are growing exponentially. The United Nations estimates that, by 2050, the world population will be around 9.2 billion – three billion more than today. At the same time, experts predict that the amount of agricultural land available per capita will shrink significantly. Yield losses owing to extreme weather conditions as a result of climate change will further exacerbate this situation.

The agricultural sector faces the double challenge of increasing productivity on available cultivated land while at the same time further improving the quality of products. After all, demand for high-quality fruit and vegetables continues to grow unabated in industrial nations, developing countries and emerging markets.

Crops a strategic focal point

Bayer CropScience has placed the specific needs of large-scale farming at the heart of its global innovation strategy. As part of its “crop strategies,” Bayer CropScience is gearing its research and development activities to sustainable agricultural production. “As an innovation leader, we offer farmers a full range of services, including state-of-the-art crop protection, high-quality seeds, new solutions for crop cultivation, technical know-how and support services,” says Lykele van der Broek, member of the Board of Management of Bayer CropScience, whose areas of responsibility include sustainability.

Sustainable agriculture takes into account economic, ecological and social aspects to produce high-quality and safe agricultural products. It minimizes the environmental impact of farming and protects biological diversity as far as possible. The social and economic situation of the people living in the cultivation regions is also improved thanks to simpler cultivation methods and higher crop yields. “In the long run, we believe there is no real alternative to sustainable agriculture as an efficient and competitive way of ensuring we can feed the world,” says van der Broek.

As a global company operating in 120 countries, we have to meet a variety of geographical, socio-economic, historical, cultural and environmental criteria. Our customers range from small-scale farmers to large agricultural companies. And their expectations are correspondingly diverse in terms of what they want and need from our products and services. Our contribution to ensuring food supplies is best illustrated by our projects and activities involving small-scale farmers in emerging markets. “Small-scale farmers are often at a disadvantage because of a lack of key elements, such as agricultural expertise and advice, adequate agricultural infrastructure, means of transportation and communication and access to markets and financial services,” says Dr. Rüdiger Schaub, Head of Sustainable Development at Bayer CropScience. We cater to the particular needs of small-scale farmers by working closely with them and offering a comprehensive package of services – ranging from training measures and the transfer of know-how to expertise on employee management and market development.

When it comes to sustainable agriculture, there is no single recipe that can be applied

Objectives of the Sustainability Program

Lighthouse project “Food Chain Partnership Vegetables”:

- Work together with partners to jointly develop solutions for sustainable vegetable growing
- Help a total of 65,000 farmers grow vegetables on an area of 50,000 hectares in 125 individual projects by the end of 2011
- For the farmers, this means higher yields, better quality, larger-scale sales opportunities and an improved income

Lighthouse project “Direct Seeding of Rice”:

- Integrated 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
- Increase yields by around 10 percent
- Reduce water consumption and emissions of the greenhouse gas methane by around 30 percent

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equally to all regions of the world. Bayer has therefore developed a modular system of measures that can be adapted to the various needs of different countries. This led to the first “Sustainable Development Roadmaps” in 2010. In Germany, maintaining biodiversity is a principal objective of the action plan. In Australia, the development of crops resistant to the effects of climate change is a key focal issue. And in India, a primary aim of measures is to conserve water in agriculture.

Sustainable cultivation of rice

Rice is the primary food staple for half the world’s population. But rice production can already barely keep pace with consumption. Bayer CropScience is tackling this issue through one of the lighthouse projects that make up part of the Group’s [Sustainability Program](#). The core element of this project, which was launched in Indonesia in 2009, is the potential to increase crop yields and protect the climate by seeding rice directly. Bayer helps farmers switch from the resource-intensive process of planting rice to seeding pre-germinated rice directly. “This method allows us to factor in economic, ecological and social interests in equal measure,” says Bayer CropScience project manager Stephan Brunner. While water consumption falls, the rice yield increases by around 10 percent. At the same time, emissions of the greenhouse gas methane are cut by around 30 percent. Here, Bayer provides seeds and crop protection solutions and offers sowing machines and training programs. In 2010, this sustainable rice cultivation method was already being practiced by more than 8,600 small-scale farmers across an area totaling over 2,500 hectares.

Food Chain Partnerships a worldwide success

With the “[Food Chain Partnership](#)” concept, Bayer CropScience has developed a business model that enables emerging countries and

others to raise agricultural yields, increase the quality of food and improve the income situation of farmers. In doing so, Bayer brings together all players in the food chain – farmers, traders, importers, exporters and food retailers. “All partners and ultimately the consumer can benefit from this – as can Bayer in the long run,” says Dr. Birgitt Walz-Tylla, Head of Food Chain Management at Bayer CropScience.

The Food Chain Partnership projects involving vegetables in India – another lighthouse project in the Bayer Sustainability Program – are playing a pioneering role. The company has already launched projects for okra, chili, tomatoes, eggplant, potatoes and cucumber in India. Food Chain Partnership projects were implemented in approximately 100 vegetable cultivation regions over an area of more than 40,000 hectares in 2010. By the end of 2011, the project is to be expanded to 125 vegetable growing regions and the amount of cultivated land increased.

Experts from Bayer CropScience teach the farmers about sustainable cultivation in keeping with good agricultural practice. This includes the controlled, environmentally friendly use of crop protection agents. High-quality seed, improved treatment plans and consistent monitoring of pest infestation increase not only agricultural yields, but also quality. What is more, production becomes more transparent and traceable thanks to the documentation of crop treatment by farmers. As a result, farmers can work more profitably and benefit from new sales opportunities, thus boosting their net income. “I increased my harvest by more than 40 percent in two years,” says Ashishkumar Patel, a small-scale farmer who grows one of India’s favorite vegetables, okra, on his plot of around 2.4 hectares in the state of Gujarat.

Bayer is represented in roughly 240 Food Chain Partnership projects around the world. These activities center mainly on southern Europe, Africa, Latin America, India and China. In Kenya, for example, the company has joined forces with the German Society for International Cooperation (GIZ) to promote the cultivation of fruit and vegetables through the [Green World Project](#). The quality of the [Rocha pear](#) in Portugal, for instance, was also improved considerably thanks to far-reaching cooperation. An integral part of this tailor-made solution is the optimized use of crop protection agents and a new strategy to combat mold. Products from Bayer CropScience and the transfer of know-how to small-scale agricultural operations are helping raise both quality and yields in [vegetable production in Guatemala](#).

Standing shoulder to shoulder for sustainability

Bayer CropScience also puts its expertise to good use in other partnerships with organizations and companies that develop innovations for sustainable agriculture.

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Opinion

“Training producers is important”



“For us as vegetable exporters, the Food Chain Partnership with Bayer is very important. The support is very valuable especially regarding the training of producers in good agricultural practices and product stewardship. It has had a direct impact on their productivity and on the sustainability of their business as a whole. In addition, it helped keep the Global GAP certifications which are essential for exporting vegetables to Europe.”

Edgar Garcia, Production Manager of SIESA, a leading vegetable exporter in Guatemala

With a view to intensifying research into new varieties of rice, Bayer CropScience and the International Rice Research Institute (IRRI) in Los Baños, Philippines, decided at the end of 2009 to intensify their cooperation. Their aim was to make better use of the genetic diversity of rice plants and improve the management of crop diseases.

Further partnerships between Bayer CropScience and private companies also aim to increase crop yields in rice cultivation. The partners want to use plant biotechnology to develop hybrid rice seed that brings significant increases in yield compared with conventional hybrid rice.

Countries such as Australia also face a variety of challenges to ensure food supplies, particularly against the backdrop of rapidly changing weather conditions. Bayer CropScience and the Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia’s national research organization, are extending their cooperation to assess the sustainability of new crops. The two-year project will develop and apply models to assess the consequences of new cereal varieties for the ecosystem and food safety – including the impact on the carbon footprint of cereal production, i.e. the greenhouse gas balance. Read more about [Bayer’s activities in Australia](#) in our brochure.

The development pipeline is well filled

The Group’s commitments to sustainable agriculture are diverse. But true to its mission “Bayer: Science For A Better Life” special emphasis is

Dialogue

“Much More Rice”: higher yields, better quality



Bayer CropScience’s “Much More Rice” program is an example of how industry can partner farmers and state and public institutions in promoting sustainable agriculture. During a visit to Asia, Sandra E. Peterson, BCS CEO, met with local rice growers in the Mekong Delta in Vietnam to discuss various methods of cultivation with them. The aim of the program is to apply seed treatment products, fungicides and insecticides efficiently to improve rice yield and quality.

Sandra E. Peterson (4th from right) talking to rice growers in Vietnam

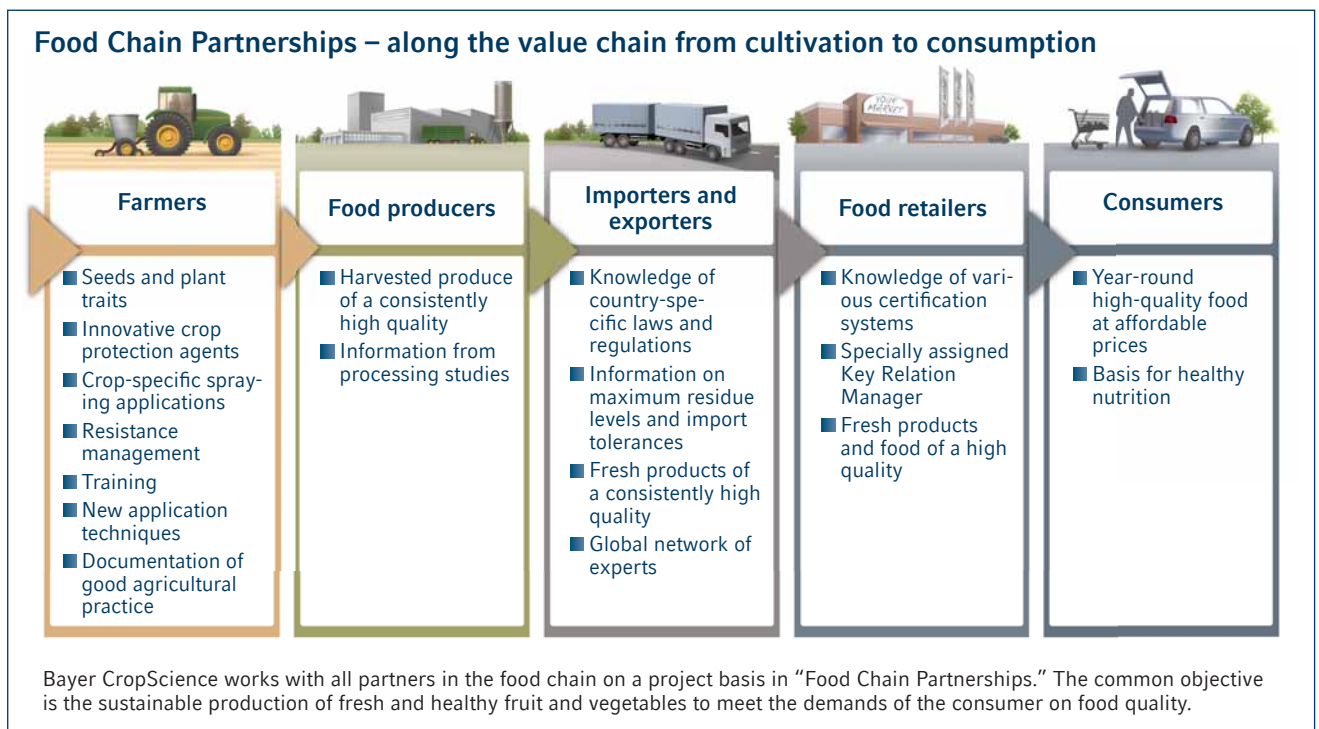
placed on innovation. “The development pipeline is well filled,” says Dr. Alexander Klausener, Head of Research at Bayer CropScience. “In addition to the four traditional core crops – cotton, canola, rice and vegetables – we also recently expanded our research activities to include wheat and soybeans.”

Given the challenges associated with climate change, the development of stress-resistant crops will continue to be a focal point of the company’s research. In this context, it will responsibly use a mixture of traditional techniques and modern cultivation methods. Bayer CropScience’s procedures draw on innovative tools, such as marker-assisted breeding and green genetic engineering.

35 [www.rrri](#)

36 [www.csiro](#)

37 [Bayer Web Brochure on Bayer’s activities in Australia](#)





Another EcoCommercial Building was recently completed in Greater Noida, India. Dr. Ram Sei Yelamanchili (left), Bayer MaterialScience Head Center of Excellence, India, and Krishna Kumar Mitra, Lloyd Insulations (India) Limited, with Makrolon™ sheet and insulating material, both of which were used in the installation.

Enhanced climate commitment

The impact of climate change on people's living conditions is substantial and poses challenges for all societal groups. Bayer helps protect the climate as part of its sustainability strategy through numerous enhancements in its own production operations and a host of corresponding products. The company has now raised its climate protection targets and is thus continuing its ambitious approach.

2010 was on average one of the warmest years on Earth since records began. The consequences of climate change are being reflected in ever more frequent extreme weather events. Protecting the climate and adapting to climate change are becoming increasingly relevant for business. "We aim to take on this global challenge and integrate it with our economic objectives in line with our sustainability strategy," says Dr. Wolfgang Grosse Entrup, Head of Environment & Sustainability. "Climate protection is the third central pillar of our [Sustainability Program](#) alongside health and nutrition."

Back in November 2007, Bayer positioned itself as a pioneer in climate protection with an ambitious [Climate Program](#). The company had invested around €1 billion in this area by 2010. These investments focused on targeted cuts in greenhouse gas emissions and increases in energy and resource efficiency both at Bayer itself and in its customers' facilities. Bayer is combating climate change with lighthouse projects and numerous other measures, ranging from new production processes and in-house energy management systems to the production of innovative materials. Research and development collaborations and partnerships form the crucial basis for developing climate-friendly solutions with a specific regional impact all over the world.

From megatrends to business

Developments that are increasing greenhouse gas emissions and speeding up climate change are visible throughout the world. These megatrends include increasing traffic volumes and rising urbanization. This is where Bayer MaterialScience, with its core products and technical know-how, can offer sustainable solutions in areas such as energy-efficient construction.

The subgroup's "[EcoCommercial Building \(ECB\) Program](#)," one of the lighthouse projects that make up the Bayer Sustainability Program, grew to more than 30 members in 2010. The interdisciplinary network of building product manufacturers, planners, engineers and service providers founded in 2009 under this offers decision-makers in

the construction industry service and material solutions for climate-friendly and energy-optimized buildings. Energy consumption in the construction sector currently accounts for around 40 percent of worldwide consumption, equating to approximately 30 percent of global CO₂ emissions. As the world market leader in polyurethanes, Bayer MaterialScience is developing innovative construction and [insulating materials](#) that help reduce these emissions.

The EcoCommercial Building network has already established itself in key markets. New collaborations such as the "China Greentech Initiative" and "econet China" open up interesting opportunities for the strategy, particularly in Asia. In the United States, Bayer MaterialScience contributes its expertise to the Greater Philadelphia Innovation Cluster (GPIC), a national initiative to harness know-how for sustainable construction. Initial ECB reference projects are in place at the Bayer sites in Pittsburgh, United States; Greater Noida, India; Diegem, Belgium; and Monheim, Germany. The program is also involved in developing and creating climate-neutral cities and districts such as Masdar City near Abu Dhabi and "Innovation City Ruhr" in Bottrop, Germany.

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Objectives of the Sustainability Program

Lighthouse project "EcoCommercial Building Program":

- Focus on new large-scale commercial and public building projects; alignment to international core and growth markets

Lighthouse project "Energy Efficiency":

- Oxygen depolarized cathode (ODC) technology based on common salt: use of ODC technology at Bayer MaterialScience for industrial-scale chlorine manufacture; operational maturity of technology by 2013; reduction in electricity requirement by up to 30 percent compared with membrane process and hence reduction in indirect CO₂ emissions; first sale of ODC technology to third parties by 2015
- Establish STRUCTese™ energy management system to achieve sustainable and systematic reduction of CO₂ emissions in energy-intensive plant

New lighthouse project "Solar Impulse":

- Develop innovative lightweight solutions for mobility concepts with materials from Bayer MaterialScience

Opinion

“Traveling around the world powered by innovation”

“Our solar-powered airplane, the HB-SIA, took off for the first time in July 2010. We’ll be making another significant reduction in the weight of the aircraft thanks to high-tech polymer materials and energy-saving lightweight materials from Bayer MaterialScience. That would be a huge step forward for the planned flight around the world, because every extra kilogram of weight increases the plane’s energy consumption.”

Bertrand Piccard, initiator and President of Solar Impulse

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Bayer Climate
Check

High-tech materials for the transportation of the future

At around 14 percent, transportation is also responsible for a significant proportion of global greenhouse gas emissions. “Innovative plastic solutions are called for, particularly in the automotive industry,” says Dr. Günter Hilken, Head of the Polycarbonates Business Unit at Bayer MaterialScience. “10 percent less weight means five percent less fuel consumption.” One example is the prototype for a polycarbonate tailgate, where the glazing, outer shell and all lighting element covers are made in a single mold. This makes the components 30 – 40 percent lighter and facilitates new vehicle concepts.

Less weight and more stability can also be achieved thanks to Baytubes™, special carbon nanotubes used in applications such as the *Solar Impulse* lightweight aircraft. This plane designed by Bertrand Piccard is set to fly around the world powered solely by solar energy. Initial test flights during the day and at night were successful. As an official partner, Bayer MaterialScience is working constantly on optimizing the aircraft. This is yet another of the lighthouse projects that make up the Bayer Sustainability Program.

Tackling climate stress in plants

As well as its commitment to climate protection, Bayer is also developing strategies to alleviate the effects of climate change that are already being felt. In agriculture, for example, water shortages, temperature fluctuations and extreme weather events have serious consequences for crop yields. To counter increasing crop failures and to meet rising demand for food as a result of the ever larger world population, Bayer CropScience and its partners are conducting research into new solutions for adapting to the effects of climate change.

The objective is to develop plants and chemical products that make crops more resistant to biotic and abiotic stress factors to safeguard and boost yields. Successes include innovative crop protection agents such as Confidor™ Stress Shield and high-yield Invigor™ (canola) seed. A further solution for climate protection in agriculture involves cutting

methane emissions in rice cultivation. More information on this is available on page 18 in the Focus Issue Nutrition.

Measures on energy and resource efficiency

A series of further projects and initiatives underlines the strict requirements of the Bayer Sustainability Program, particularly in terms of the company’s own production operations. The *Bayer Climate Check* was completed successfully in 2010 as announced last year. This analytical process for cutting emissions was developed by Bayer Technology Services (BTS) and implemented over three years in production facilities and buildings throughout the Group. “We identified potential savings of over 10 percent,” says Dr. Andreas Jupke, BTS project manager responsible for the Bayer Climate Check.

The Bayer Climate Check served as a precursor to the lighthouse project STRUCTese™, short for “Structured Efficiency System for Energy.” This measurement and management method certified to DIN 16001 was developed by Bayer. STRUCTese™ is due to be implemented in the 60 most energy-intensive production facilities worldwide by December 2012. The system had already been introduced at 30 plants by December 2010, leading to cuts in primary energy consumption of 550,000 megawatt hours and the avoidance of 135,000 metric tons of CO₂ emissions.

Bayer MaterialScience is looking to make energy savings of around 30 percent in chlorine production from common salt by focusing on developing innovative oxygen depolarized cathode technology. The world’s first industrial-scale facility is due to go on stream at Krefeld-Uerdingen as part of a further lighthouse project in 2011. It is designed to help cut greenhouse gas emissions by up to 250,000 metric tons per year by 2020. To specifically cut emissions of nitrous oxide, which is particularly harmful to the climate, Bayer MaterialScience further upgraded production facilities in Baytown, United States; Caojing, China; and Dormagen, Germany in 2010. You can find out more about the reductions already achieved on page 56.

The Group-wide approaches are augmented by specific measures from the subgroups and service companies. For example, Bayer HealthCare developed the new “Energy management systems” guideline in 2010 to continuously harness potential savings and respond more effectively to future political directives. With its “Efficiency Class A++” climate protection program, Currenta has also made pleasing progress so far. Existing measures are cutting emissions of the greenhouse gas CO₂ by over 152,000 metric tons per year.

Climate protection in day-to-day business operations

The Bayer Climate Program is underpinned by a number of *supporting measures*. The initiatives that Bayer spearheads include “Green IT” for more energy-efficient data centers, “Business Travel” to avoid unnecessary business trips through increased use of

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Supporting
measures

state-of-the-art telepresence and video conference technology, and sustainable fleet management. With its “EcoFleet” program the company aims to lower CO₂ emissions resulting from its company vehicles by 20 percent between 2007 and 2012. This had already resulted in 15 percent cuts in CO₂ emissions for newly registered vehicles by the end of 2010.

Future-oriented research collaborations

Bayer supports its goal of more energy-efficient and resource-friendly production with a series of collaborations and initiatives. One of these projects is the **INVITE** Future Factory at the Chempark Leverkusen site, through which Bayer Technology Services (BTS) and the Technical University of Dortmund (TU Dortmund) are looking to develop resource-friendly, flexible and efficient production concepts from 2011 onwards. Bayer is therefore also playing a key role in boosting the international competitiveness of North Rhine-Westphalia as a research location.

The future-oriented research collaborations “**Dream Production**” and **CO₂RRECT** focus on harnessing carbon dioxide as a raw material for the chemical industry. You can read more about these in the online report and on page 51 in the Innovation and Products section.

New climate target – 35 percent fewer emissions

With the implementation of its Climate Program and the ambitious individual targets set by the subgroups since 2007, Bayer has established itself as an industrial pioneer. By revising the program, the company is looking to become more ambitious and transparent: between 2005 and 2020, Bayer wants to cut greenhouse gas emissions throughout the Group by 35 percent per metric ton of products sold. The Bayer MaterialScience subgroup is playing

Dialogue

Climate protection with business opportunities



A wide variety of climate and sustainability topics were on the agenda of a workshop held at the Potsdam Institute for Climate Impact Research (PIK) in July 2010. The hosts were Professor F.-W. Gerstengarbe and Professor J. Schellnhuber, member of the Intergovernmental Panel on Climate Change and the founder of the

PIK. The workshop with PIK representatives and Bayer sustainability and climate experts revealed several areas which would be suitable for future collaboration between Bayer and the PIK. Putting scientific findings into practice is something both organizations are interested in doing. Issues covered during the discussion ranged from innovations in climate protection and climate-related risks for production sites to diseases brought on by climate change and new possibilities of simulation and climate calculation. Subsequent meetings have taken place involving an exchange between representatives of the Bayer subgroups and the relevant PIK experts.

The participants at the workshop discuss business opportunities.

a particularly significant role in this regard with its intention to cut its specific greenhouse gas emissions by 40 percent (previously 25 percent). Bayer HealthCare is looking to make absolute cuts in these emissions of 10 percent (previously 5 percent), while Bayer CropScience is continuing its 15 percent reduction. (see also page 56 in the Ecology section.)

Bayer has also revised its **policy on climate change** and will continue to intensify and expand its partnerships with public institutions, companies and research institutes. Supported by dialogue with stakeholders, it is also looking to respond to the future challenges of climate change with innovative solutions from its core business.

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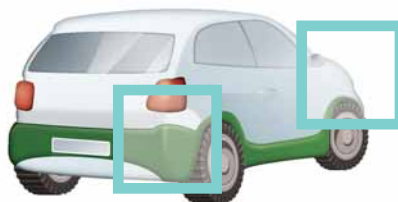
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Policy on
climate change

Plastics – versatile and environmentally friendly



Wind power

Bayer MaterialScience supports the generation of renewable energies with many products. In wind turbines, polyurethane spray foam ensures that the housings of the nacelles are manufactured efficiently and can withstand the effects of weathering. In addition, coatings protect the steel towers from corrosion, while polyurethane composites make the rotor blades stable and lightweight.



Cars

The proportion of plastic in cars is on average 15 percent and looks set to increase further. Plastics make cars lighter, thereby reducing fuel consumption and emissions of greenhouse gases. Bayer MaterialScience provides numerous components for car interiors and exteriors, such as polyurethane foam for bumpers and fenders.



The “green shoe”

Bayer MaterialScience has developed a unique “green shoe” concept. Up to 90 percent of the components in the prototype were manufactured by particularly environmentally friendly processes or using renewable raw materials. Parts of the shoe sole, for example, are made of polyurethane produced mainly with soybean oil. The polycarbonate mixture for the toe cap is also based on vegetable starch.

Management and Corporate Governance

Bayer is a global enterprise with **core competencies** in the fields of **health care, nutrition and high-tech materials**. At the same time, we want to create value through **innovation, growth and high earning power**. That is closely linked to responsible corporate governance.



Safeguarding the future through investment in emerging markets: with two-digit growth rates, Greater China has become one of Bayer's most important markets (see page 29). Since the beginning of 2011, a large new Bayer Cross has adorned the skyline of Shanghai.

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LIFE

Our corporate culture finds expression in our mission "Bayer: Science For A Better Life" and in our values. In 2010, we brought together our values in the term **LIFE**, which stands for Leadership, Integrity, Flexibility and Efficiency (see also the Employees section on page 34). Our values guide our business conduct.

One of the four elements of **LIFE** is Integrity, which we understand to mean complete compliance with all laws, directives and regulations and being an honest and reliable partner for our stakeholders. Clear corporate governance structures and transparent principles for worldwide compliance are the foundations that underpin the long-term success of the Bayer Group. Wide-ranging risk management helps us identify and counter possible risks as early as possible. Bayer also contributes to the positive development of the economy and society in the regions in which it operates.

Value-oriented corporate governance is put into practice through Group-wide regulations and policies, for example on sustainable

development and the integration of sustainability into supplier management and our global policy on human rights and working conditions. Responsible corporate governance is the basis for sustainable growth and business success.

2010: Group targets achieved

In 2010, we grew sales 12.6 percent (8.0 percent on a currency- and portfolio-adjusted basis) to a new record of €35.1 billion. Earnings before interest, taxes, depreciation and amortization (EBITDA) and before special items improved 9.7 percent to €7.1 billion. The operating result (EBIT) declined 9.2 percent to €2,730 million despite the positive business trend at MaterialScience. Earnings were held back by special items totaling €1,722 million. In fiscal 2010, these comprised impairment losses of €957 million, €703 million for litigation and €62 million for restructuring (see also key data inside the front cover).

Bayer stock is a sustainable investment

Investors are showing an increasing interest in how companies integrate ecological and social aspects into their strategies and business activities. That is particularly true of long-term institutional investors such as pension funds. According to surveys by the European Sustainable Investment Forum (Eurosif), the Social Investment Forum (US) and the Responsible Investment Association Australasia, institutional investors are a significant force in the global market for sustainable investment, which grew to €7.6 trillion in 2009.

Bayer stock is included in many sustainability indices and funds. We have been included in the Dow Jones Sustainability Index (DJSI) World without interruption since the 5

Targets 2015

Supplier management

- Inform all suppliers with purchase-order-relevant volumes about the Bayer Supplier Code of Conduct
- Assess the sustainability performance of suppliers that represent $\geq 75\%$ of the total procurement volume and $\geq 75\%$ of the procurement volume from risk areas
- Annually audit the sustainability performance of at least 10% of the suppliers from risk areas or at least 15 suppliers

Compliance

- Extend compliance training to 100% of all Bayer managers

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establishment of this index in 1999 and regained a place in the DJSI Europe Index in 2010 after a break of two years. Bayer has also been listed in the FTSE4Good sustainability index since its establishment in 2001. Storebrand, a Norwegian financial services provider focusing on sustainable investment, classifies Bayer as a best-in-class company in the pharmaceutical sector. The **Carbon Disclosure Project (CDP)** has once again included Bayer in the Carbon Disclosure Leadership Index (CDLI) as the best company in the health care sector. In the newly created Carbon Performance Leadership Index (CPLI), Bayer is listed with a top rating of "A," confirming our leading position in climate protection.

The table provides an overview of the **sustainability indices and funds** in which Bayer is included. **Table 1**

Corporate governance

Bayer has always placed great importance on responsible **corporate governance**. In 2010, the company issued a declaration that it complied with the recommendations of the **German Corporate Governance Code**, with one temporary exception. In December 2010, the shareholder service provider IVOX ranked Bayer's corporate governance top among all DAX companies. Further information can be found in the Corporate Governance Report on page 88ff. of the Annual Report 2010, which provides extensive information on how the Board of Management works and on its control mechanisms.

Compensation of corporate officers is based on corporate governance principles

The role of the 20-member Supervisory Board 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.

Even in the past, compensation of Bayer's Board of Management was aligned to sustainability, and complied with the recommendations of the German Corporate Governance Code and German legislation on the appropriateness of the compensation of members of management boards (Vorstag). To ensure that the Bayer Group continues to comply with these criteria, the Supervisory Board made a number of adjustments to the compensation of the Board of Management in December 2009. These were implemented in 2010.



Transparent compensation systems are a key element in good corporate governance. In 2010, the compensation of the Board of Management basically comprised five components: a fixed annual salary, a short-term incentive award on a yearly basis in relation to a target amount, a long-term incentive award for a four-year period in relation to a target amount, a further long-term compensation component introduced in 2010 involving a grant of virtual Bayer shares subject to a three-year retention period, and a company pension plan conferring pension entitlements that increase with years of service. Compensation in kind and other benefits are also provided, such as the use of a company car for private purposes or reimbursement of the cost of health screening examinations.

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1_Our performance in relevant sustainability indices and sustainability funds

Index/Fund	Bayer's listing		
	2008	2009	2010
 DJSI World	✓	✓	✓
	-	-	✓
 FTSE4Good	✓	✓	✓
	✓	✓	-
 ASPI Eurozone	✓	✓	✓
	✓	✓	✓
 Storebrand SRI Funds	✓	✓	✓
	✓	✓	✓
 CARBON DISCLOSURE PROJECT	✓	✓	✓
	✓		✓
 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 2009

Targets 2015

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The remuneration of the Supervisory Board is based on the relevant provisions of the Articles of Incorporation, which were last amended by a resolution of the Annual Stockholders' Meeting on April 29, 2005. Further information can be found in the compensation report on page 95ff. of the Annual Report 2010.

Compliance at Bayer

Bayer expects the conduct of every employee to be determined by integrity at all times. The company does not tolerate any violation of applicable laws, codes of conduct or internal regulations.

In the [Corporate Compliance Policy](#), 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, 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. Other requirements are protecting the company's intellectual property and the legally recognized rights of others, keeping corporate and personal interests separate and cooperating with the authorities. These principles include responsible marketing. Information on our policy guidelines on the marketing of medicines can be found on page 42 in the Innovation and Products section.

Every operating company in the Bayer Group has a Compliance Officer who reports to the Chief Subgroup Compliance Officer. The Chief Subgroup Compliance Officers in turn report to the Group Compliance Officer, who is appointed by the Group Management Board. 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. In 2010, we introduced a global database where all compliance violations are entered. 67 compliance officers received training at three central Compliance Officer Workshops in 2010. These workshops also serve as a platform for sharing experience and creating a "compliance community."

We provide continuous compliance information and training for our employees, and the brochure on our Corporate Compliance Policy is available in 42 languages. To ensure that employees are constantly aware of the importance of this issue, we have developed a

web-based [training \(Target, p. 26\)](#) module entitled "Corporate Compliance Basics," which was introduced in 2010. Around 19,800 managers worldwide successfully completed this module in 2010 (this corresponds to around 61 percent of all managerial employees and around 18 percent of the total workforce).

By virtue of their positions, our managers have a special obligation to set an example for their employees, spread the compliance message within their companies and take organizational measures to implement it. Senior managers can be required to repay variable compensation components for up to five years if systematic violation of the applicable legislation with financial damage to Bayer has occurred in their sphere of responsibility and could have been prevented if they had taken appropriate action. A fixed compliance target has been included in the performance evaluation of members of the Group Leadership Circle for 2010.

Every employee is required to report any infringement of the Corporate Compliance Policy without delay. Hotlines allowing anonymous reporting have been set up worldwide. The only exception is in France, where this reporting obligation does not apply due to the nature of national law there. In 2010, our global compliance hotline and e-mail address registered 29 reports, five from Germany and 24 from other countries. 27 reports were received by e-mail (14 of them anonymously) and two by phone (one anonymously).

Corporate Auditing reviews the effectiveness of the Corporate Compliance Policy regularly on behalf of the Group Compliance Committee.

Risk management

Business operations necessarily involve opportunities and risks. Effective management of opportunities and risks is therefore a key factor in sustainably safeguarding a company's value.

Managing opportunities and risks is an integral part of the corporate governance system in place throughout the Bayer Group, not the task of one particular organizational unit. Sustainability aspects are included in risk management at Bayer 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. We expect the same from our suppliers (see page 31ff.).

Key elements of the opportunity and risk management system are the planning and controlling process, internal Group regulations

News

Investing in the growth market of China

Bayer intends to significantly expand its capacities for the production of high-performance materials in China by 2016. Investment totaling some €1 billion is planned at our Shanghai site. This means Bayer will focus even more intensively on the Asia/Pacific region, where it expects consistent growth in its customer industries. Capacities for the polyurethane raw material MDI are to be more than doubled to one million metric tons per year and for high-performance polycarbonate to 500,000 metric tons per year. The company also plans to considerably expand its research and development activities there. The aim is to ensure even greater proximity to Asia's booming market for polycarbonate plastics.



Bayer employee Gary Xi at the production plant in Shanghai for high-performance polycarbonate

and the reporting system. At regular conferences held to discuss business performance, the opportunities and risks that are evaluated both qualitatively and quantitatively in determining the strategies of the strategic business entities and the regions are updated, and targets and necessary actions are agreed upon.

The principles of the Bayer Group's risk management system are set forth in a directive published on the Group-wide intranet. This directive contains fundamental principles in accordance with the requirements of the German law on control and transparency in business (KonTraG) and includes the principles for the early identification, communication and addressing of risks.

In the Bayer Group, risks are systematically and continuously identified, analyzed and documented in a database. Risks are defined as events and possible developments within or outside of the company that could jeopardize a sustained increase in corporate value. Risk-relevant information is compiled regularly and on an ad hoc basis. The documentation contains a description of the risk, an assessment of the extent of possible damage and the probability of occurrence, along with measures to monitor and counteract the risk. The criteria are set out in a special procedure (BayRisk Instruction). Risk management at Group level is assigned to the Chief Financial Officer. Clear responsibilities within the organizational units ensure the efficiency of the risk management system. More information on [risk management in the subgroups](#) can be found in our online report.

Corporate Auditing is responsible for coordinating Group-wide identification and documentation of risk factors and for ongoing development of the risk management system. The effectiveness of the risk management system is reviewed by internal auditors at regular intervals. In addition, the external auditor assesses the early warning system as part of the annual financial statements audit and informs

the Group Management Board and the Supervisory Board of its findings.

Bayer has production facilities in more than 100 countries. Some of them can be affected by natural disasters such as floods and cyclones. An emergency response system (Bayer Emergency Response System, BayERS) to protect employees, the local community, the environment and production facilities is therefore an obligatory element in the integrated HSEQ (health, safety, environmental protection and quality) management systems at our production sites. The basis for this is set forth in a procedure on crisis management in the Bayer Group. An extensive opportunity and risk report can be found on page 122ff. of the Annual Report 2010.

Legal risks

We are exposed to numerous legal risks from legal disputes or proceedings to which we are currently a party or which could arise in the future, particularly in the areas of product liability, competition and antitrust law, patent disputes, tax assessments and environmental matters. The outcome of any current or future proceedings cannot be predicted. It is therefore possible that legal or regulatory judgments 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.

Legal proceedings currently considered to involve material risks are described on page 241ff. of the Annual Report 2010.

Open and transparent lobbying

Politics and legislation play a key role in shaping the conditions in which we operate. As a global company, we want to actively contribute our expertise and participate in the political decision-making process. We see lobbying as an important and legitimate way of doing this. We have set clear rules for these activities through our [Code of Conduct for Responsible](#)

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Risk management in
the subgroups

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Code of Conduct for
Responsible Lobbying

News

CO pipeline exceeds safety standards

Bayer has constructed a 67 kilometer pipeline to transport carbon monoxide between the sites of Dormagen and Krefeld-Uerdingen in Germany. Carbon monoxide is one of the most important chemical building blocks and is required for the manufacture of high-tech plastics. The start-up of the pipeline has been delayed so far because of sub judice claims brought against the project and statutory requirements. The Landtag (State Parliament) of North Rhine-Westphalia (NRW) has determined on several occasions that the project benefits the people and economy of the state. In Bayer's view too, the pipeline comprises an important infrastructure project that will strengthen NRW as an economic location and benefit the labor market. With its safety concept for the pipeline, which runs as far as possible along existing infrastructure routes on the right bank of the Rhine, Bayer exceeds the standards that apply to date and goes beyond the legal requirements. Pipelines are the safest and most environmentally friendly way to transport most liquid and gaseous substances. All over the world, carbon monoxide is transported safely through pipelines. You can find more on the [CO pipeline](#) on the Bayer website.

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CO pipeline

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Policy Letter

61 WWW
Federal Election
Commission

62 ONLINE REPORT
Focus of political
lobbying

63 WWW
European
Commission's lobby
register

Lobbying, which reflects the principles set in the Green Paper on the E.U.'s European Transparency Initiative. The principles include making sure that it is clear whose interests are being represented. Within Bayer, the Community Council for Politics is responsible for the focus and prioritization of the Group's political work. This includes both Group-wide tasks such as the publication of the [Bayer Policy Letter](#) or the entry in the lobby register and dealing with subgroup-specific political matters. In 2011, Bayer's [political lobbying is focusing](#) on the acceptance of products and technologies, fostering and recognizing innovation, sustainable health care systems, chemicals management, and energy policy and climate protection. Key interfaces are our liaison offices in Berlin, Germany; Brussels, Belgium; Washington, United States; and Beijing, China.

To enhance transparency, Bayer was one of the first companies in the chemical and pharmaceutical sector to be entered in the [European Commission's lobby register](#) and discloses the relevant costs of its lobby work at E.U. level (€1.85 million in 2010). We are expecting a similar initiative in Germany and would enter the company in a German register if one were to be introduced. In 2010, we spent €1.2 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 official databases that calculate costs on various bases.

In keeping with the above directives, Bayer does not make any direct donations to political parties, related institutions, politicians or candidates for political office. However, associations to which we belong make donations on their own initiative, in compliance with the relevant statutory regulations, especially laws on party political activity. In the United States, individual employees utilize the opportunity to support candidates for parliamentary office by making private donations

via the Bayer Corporation Political Action Committee (BayPac). Political action committees in the United States are state-regulated, legally independent associations of employees established to collect and distribute private donations to political organizations and candidates for political office. Consequently, such donations are not donations made by the company. The BayPac contributions are regularly reported to the U.S. [Federal Election Commission](#). Full details can be viewed on the Commission's website.

In October 2010, the Climate Action Network made allegations that in the campaign for election to the Senate Bayer had systematically supported U.S. politicians who question climate change and block action to protect the climate. That allegation is incorrect since Bayer as a company cannot influence the distribution of private funds. Bayer is committed to climate protection and initiated its own ambitious Climate Program in 2007.

Regional commitment

As an international company, Bayer supports economic and social development in many parts of the world. We regard ourselves as a regional employer and aim to create jobs locally. At our sites we make a contribution to securing social structures and also strengthen regional purchasing power. In 2010, our personnel expenses and expenses for pension plans and pension obligations amounted to €25,798 million. In addition, regional tax payments benefit the communities in which we have a presence. [Table 2](#)

We also invest in local research, a fact evidenced by a large number of alliances with regional scientific institutes. For example, VHC is strengthening its research efforts with a new U.S. innovation center in San Francisco, VCS supports research in the Department of Plant and Soil Science at the Texas Tech University,

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and BMS opened a research center for functional films in Singapore in 2010.

Bayer invests in its sites around the world. This includes environmental investment that goes beyond statutory requirements. We perform a voluntary ecological assessment for all investment projects exceeding €10 million.

In China, Bayer will continue to expand its capacities. More information is found in the news item on page 29. The further development of the German sites through the arrival of new companies is an essential task of Currenta, the manager and operator of Chempark. A cooperation has been entered with the Nanjing Chemical Industry Park in China to share experience and for joint training initiatives and an exchange of employees for a limited period.

Bayer CropScience 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 the [Model Village Project](#). We intend as our first step to introduce systematic droplet irrigation in seed production. We shall implement further suitable measures as the project progresses, such as facilitating direct market access to farmers or offering education and training options to children. Pforzheim University from Germany is our partner in the development of further concepts.

Our procurement volumes are also a significant factor in the development of many regions. In 2010, Bayer sourced goods and services totaling some €14 billion from around 94,000 suppliers in more than 110 countries. In the OECD countries, the most important countries for procurement, apart from Germany, were the United States and, some way behind, Japan. These countries account for around 70 percent of our procurement spending. In non-OECD countries, Asian

countries head the league. China, India, Thailand and Singapore occupy four of the top five places. Brazil, which ranks second, is the only non-Asian country among the top five. [Table 3](#)

In addition to business relations with employees and suppliers, Bayer plays a role in the communities around its sites worldwide. Further information is given on page 65ff. in the Social Commitment section.

Our supplier management – setting standards for good relations

Procurement of products and services in widely differing markets and locations presents special challenges to our procurement organization.

To ensure that quality, environmental protection and social standards are observed at all stages in the supply chain, we take our responsibility seriously in our day-to-day dealings with currently around 94,000 suppliers. The Group-wide [policy guidelines](#) issued by the [Procurement Community](#) set out the principles of our procurement policy, which clearly reflect our values and leadership principles. Procurement has established a wide range of initiatives to support our sustainability objectives, for example, as part of our Climate Program (see page 22f.).

Clear requirements for suppliers

At the end of 2009, we introduced a [Supplier Code of Conduct](#) based on the principles of the [UN Global Compact](#). This code of conduct covers ethics, employee relations, management systems and health, safety, environmental protection and quality (HSEQ). The issues addressed include a ban on corruption and child labor, the observation of human rights, the assurance of product safety and health and safety in the workplace, and the responsible use of

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[Model Village Project](#)

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[Procurement Community policy guidelines](#)

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[Supplier Code of Conduct](#)

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[UN Global Compact](#)

2_Personnel expenses and pension obligations* (worldwide, € million)

	2006**	2007	2008	2009	2010
Personnel expenses	6,630	7,571	7,491	7,776	8,099
- of which pension and social security contributions	1,414	1,611	1,513	1,490	1,623
Pension obligations***	16,708	15,022	14,910	15,931	17,699

* Figures for 2006 to 2009 as last reported

** The 2006 figures only contain Schering from June 23, 2006.

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

3_Suppliers and procurement expenses according to economic region

	Suppliers (percent)	Spending (percent)
Non-OECD countries (approx. 70 % of all countries)	28	16
OECD countries (approx. 30 % of all countries)	72	84
Total	100	100

Dialogue

Global Supplier Days focus on sustainability

In 2010, we provided information on our understanding of sustainability to more than 400 of our most important suppliers. Through this global dialogue we aim to show suppliers the demands we make on sustainable procurement and how they can meet requirements in their own companies. Bayer MaterialScience organized a first Supplier Day in China in March 2010. This was very successful and 90 representatives from 54 companies in Asia took up the invitation to this event. Further Supplier Days were held in 2010, for example in Germany, Spain, the United Kingdom and India. To give our partners an incentive for sustainable conduct, Bayer CropScience, the largest local Bayer procurement organization in India, awards a sustainability prize for its suppliers.

Supplier Days are designed to help suppliers implement sustainability in their own companies. The first Supplier Day took place in China in 2010.

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Corruption Perception
Index

natural resources. Bayer expects its suppliers to accept the sustainability principles set out in this code of conduct, which forms an integral part of our supplier selection and evaluation process. In 2010, it was integrated into our Group-wide electronic ordering system and contracts.

Training our procurement staff

We use a web-based training program to familiarize our procurement staff with present and future challenges relating to our code of conduct. The three training modules are mandatory and cover the principles of sustainability, the content of the code of conduct and instructions on selecting and evaluating suppliers that specify a four-step procedure to implement the code of conduct. The content of these modules is continuously updated and adapted to the needs of the target group. In addition to strategic procurement staff, a further 200 employees with procurement functions were included in the training program in 2010.

Reviewing suppliers' observance of our sustainability principles

Supplier self-assessments and audits are used to check whether the demands made by the Bayer Supplier Code of Conduct are being implemented and complied with along the supply chain.

The suppliers to be checked are selected using a country-based risk approach based on our country index for sustainability risks derived from the risk assessments of various international indices such as the [Corruption Perception Index](#) published by Transparency International.

On the basis of this risk approach, we used standard questionnaires in 2010 to evaluate 147 suppliers, mainly from China but also from India, Thailand, the Philippines and Guatemala. Together with the evaluations performed in 2009, based on procurement spending we have already covered 50 percent of suppliers in the risk category and will continue to increase this percentage. In addition, 124 suppliers from non-risk countries were evaluated in 2010. They were selected by the subgroups using business-related criteria. These checks were supplemented by country-specific projects, for example an evaluation of more than 200 suppliers in India.

Together with an independent external auditor we had pilot sustainability studies carried out on suppliers in China in 2010. In the future, we intend to carry out random audits on the data provided by suppliers in self-assessment questionnaires and check up on the agreed development activities.

The data compiled from the supplier questionnaires and audits are used to determine whether specific suppliers meet Bayer's requirements or whether we need to define further development measures and goals in collaboration with them. Action plans were drawn up with several suppliers in 2010. These are documented centrally and their implementation is tracked. So far, we have not identified any infringements that were so serious that they resulted in exclusion or termination of contracts with suppliers.

Continuous improvement

Almost one year after introduction of the Bayer Supplier Code of Conduct, we reviewed our processes together with an external consultancy. The recommendations made on the basis of this review have already been integrated into our targets for 2011:

- Expand the present country-based risk approach: additional reviews of strategic and key suppliers from non-risk countries
- Step up the number of sustainability-specific supplier audits by independent, external auditors
- Improve central reporting and monitoring through stepwise integration of sustainability assessments into a Group-wide supplier management system.

Our process is also subject to continual evaluation and we have set ourselves ambitious [targets \(Target, p.26\)](#) up to 2015. We also

Targets 2015

Supplier management,
p.26

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regularly review and, if necessary, revise all modules, for example our sustainability standards, supplier questionnaire and the supplier development process.

Human rights as a benchmark

Bayer pays special attention to respect for human rights. Our Supplier Code of Conduct is based on the principles of the UN Global Compact and also takes up the sustainability principles and our Human Rights Position. The purpose of this code of conduct is to strengthen the common understanding by Bayer and its suppliers of how sustainability is implemented in our day-to-day business. Special attention is paid to the protection of employees and to ensuring that they are treated fairly and respectfully. Another key focus is on checking that the ban on child labor is enforced.

Unfortunately, child labor is still widespread in many countries. In a number of countries in which we are present and maintain business operations, children are still used for activities such as field work to contribute to the subsistence of families. In keeping with our Human Rights Position, we require suppliers along our entire supply chain to refrain from using child labor.

For many years, Bayer CropScience has taken resolute and systematic action against child labor in our cotton seed supply chain in India and helps assert children’s rights through the [Bayer CropScience Child Care Program](#). The prime aim of this program is to alter attitudes to child labor. Farming can be pursued profitably even if children are not part of the workforce. Education plays a key role in securing a lasting improvement in children’s living situation.

Our “[Learning for Life](#)” initiative, which comprises projects established in conjunction with local non-governmental organizations and educational institutions as part of our Child Care Program, helps provide better education opportunities. Schools and training centers offer children a wide range of opportunities, from reintegration into the regular school system to vocational training. More than 2,400 children and young people benefited from these offers between 2005 and 2010. The focus of the program is currently on vocational training. Further information

and more detailed figures can be found on the Internet.

These educational activities are supplemented by contractual agreements with seed producers. In addition, the fields used for cotton seed production are checked at least six times each season. Moreover, we pay a bonus to suppliers who strictly enforce the ban on child labor, and run training sessions to enhance agricultural efficiency. Graduated sanctions are applied for non-compliance. These range from oral warnings to termination of the contract in the case of repeated non-compliance. Once a year, corporate auditors Ernst & Young, India, conducts an unannounced on-site inspection of farms selected on a random basis.

Two indicators are used to measure the success of this extensive range of activities. The table shows the development since the “Kharif” season of 2005/2006. [Table 4](#)

In 2010, we started to present our [Child Care Program](#) in the cotton seed sector to interested stakeholders and step up dialogue with them. Systematic field monitoring in the vegetable farming sector was continued in 2010. As announced, we also started to roll out the program to the production of seeds for hybrid rice.

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Child Care Program](#)

[71 BAYER WEB
Bayer CropScience
Child Care Program](#)

[69 ONLINE REPORT
Learning for Life](#)

4_Results of field monitoring: production of cotton seed in the “Kharif” season in India

	2005/2006	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011
Child labor incidence rate per acre* monitored	0.57	0.15	0.014	0.01	0.002	0.001
Child labor cases as per total workforce in %	13.9	2.8	0.31	0.24	0.06	0.03

* 1 acre = 4,046.86 m²

Employees

The objective of our **innovative and responsible human resources policy** is to foster and strengthen our employees' **performance** and their enormous **commitment**, because these essentially form the basis for our **corporate success**.



Leadership, Integrity, Flexibility and Efficiency are Bayer's newly formulated values. The initial letters of these four words can be simply expressed in one word: LIFE. These values are now to be presented to all Bayer employees in a global communications cascade.

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LIFE

73 WWW
UN Global Compact

74 BAYER WEB
Human Rights
Position

A responsible, long-term human resources policy plays a central role in the management of the Bayer Group. This is highlighted by **LIFE**, our new system of values. **LIFE** stands for Leadership – at all levels in the company – Integrity, Flexibility and Efficiency. Our goal for the future is to implement these values systematically in our day-to-day work to enhance employee satisfaction and benefit everyone who works for Bayer.

The Bayer Group had 111,400 employees worldwide on December 31, 2010, which is 400 more than in 2009. [Table 5](#)

Most of the Group-wide job cuts announced in November 2010 will be implemented so as to minimize social hardship. A large proportion of our 36,200 employees in Germany are protected against dismissals for operational reasons under an agreement with the Works Council that runs until the end of 2012.

Group-wide, the staff fluctuation rate increased from 7 to around 9 percent. As in previous years, the fluctuation

rate varied by region. While it was between 10 and 13 percent in North America, Asia/Pacific, Latin America, Africa and the Middle East, it remained constant at 7 percent in Europe, which accounts for over half of our employees. The fluctuation rate includes employer- and employee-driven terminations, retirement and deaths. In Germany, contract terminations by employees accounted for just 0.4 percent. Personnel expenses increased from around €7.8 billion in 2009 to around €8.1 billion in 2010, principally due to currency effects and regular pay raises.

Respecting employee rights worldwide

We respect the United Nations' Declaration of Human Rights. Moreover, as a founding member of the [UN Global Compact](#) we respect its 10 principles. The most important principles for respecting employee rights at Bayer are set out in our [Human Rights Position](#). Key elements in our commitment are compliance with strict standards to provide a safe and healthy working environment, a strict ban on child labor and forced or compulsory labor and all forms of discrimination, as well as a clear commitment to freedom of association and our corporate responsibility to maintain fair and competitive working conditions. In addition, our Group-wide **LIFE** values, the [Bayer Sustainable Development Policy](#) and our [Corporate Compliance Policy](#) require all employees worldwide to treat colleagues, business partners and customers with respect.

In 2008, we launched an information campaign on human rights in German-speaking countries. By the start of 2011, this had been rolled out to all countries in which the Group operates. A brochure and a training presentation are used to familiarize employees throughout the Group with the objectives and content of our Human Rights Position and train them to respect these principles in their daily work. There is also an obligatory module on human rights in "Discovering Bayer," the mandatory e-learning tool for new employees, and we run training courses and seminars on this issue throughout the world. Our companies in China have decided to introduce a special online training program for their employees on respecting human rights.

Targets 2015

Diversity

> Increase the proportion of female managerial staff to approaching 30%

Occupational safety

> Reduce the number of occupational injuries with lost days by 25% to 0.3 LTRIR \pm 1.5 MAQ

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Sustainable Development
Policy

76 BAYER WEB
Corporate Compliance
Policy

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Responsible conduct and collaboration

Employee representation is part of Bayer's commitment to responsible conduct and collaboration. The working conditions of more than half of our employees are governed by collective or company agreements. For example, staff working for Bayer Group companies in China already have elected union representation at six sites, with three more to follow shortly. [Table 6](#)

In the United States, there is a Bayer ombudsman instead of collective agreements. The ombudsman is independent and handles information objectively and confidentially. He is personally responsible for assuring open communication and a culture of trust, and helps implement our high standards of integrity and ethical corporate governance.

A modern corporate culture

Central elements of our human resources policy are systematically motivating employees and steadily developing their abilities. Last year, we gained an important insight into this

through our first ever global employee survey. Around 70 percent of employees took part in this anonymous survey, so we received feedback from more than 68,000 employees worldwide.

Our employees were asked 60 questions on aspects ranging from current morale and corporate culture to development perspectives and decision-making processes. They were also requested to give their opinion on their workload, compensation and general satisfaction. The findings were discussed on several occasions by the Group Management Board.

The outcome shows, for example, that 87 percent of employees identify strongly with Bayer and regard it as an attractive employer. 81 percent of employees are highly motivated: their commitment to the company and its performance is above-average. We also received a number of [awards](#) worldwide in 2010 that confirm these views and our attractiveness as an employer.

Our employees' understanding of our corporate strategy and the ratings received for strategic leadership were below the top scores at other companies. In fact,

[77 ONLINE REPORT Awards](#)

5_Employees* by region and function

	2006**	2007**	2008**	2009	2010
Europe	57,800	56,200	55,500	54,600	54,300
North America	17,200	16,800	17,000	16,600	16,400
Latin America/Africa/Middle East	13,700	14,300	15,300	16,800	16,100
Asia/Pacific	17,300	18,900	20,800	23,000	24,600
Production	47,800	48,800	49,100	48,400	47,200
Sales	37,400	36,900	38,000	40,200	41,100
Research and development	12,300	11,600	12,300	12,800	13,200
Administration	8,500	8,900	9,200	9,600	9,900
Total	106,000	106,200	108,600	111,000	111,400

* The number of employees on either permanent or fixed-term contracts is stated in full-time equivalents, with part-time employees included on a pro-rata basis in line with their contractual working hours.

** The figures for 2006 – 2008 included employees on temporary contracts rather than trainees.

6_Percentage of collective agreements in 2010 by region

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	8	46	20	55.4
Percentage of full-time employees with contractually agreed working weeks of max. 48 hours**	100	100	100	100	100

* Collective or company agreement

** Standard employment contracts, excluding exempt employees

leadership is one of our new LIFE values, with the “L” naturally standing for leadership (see page 34).

The second area where we need to take action is the communication of our strategies and objectives. The holding company and subgroups have set up a joint task force to examine how understanding among the workforce in this area can be improved. It is expected to present its initial results shortly.

Transparent and efficient employee communication

Providing regular and timely information for employees is very important to us. Printed

during the event. These are then answered directly.

Bayer provides employees with regular internal information on current developments, both within the Group and outside, together with background information. Full and timely information is issued on significant operational changes in compliance with the relevant national and international requirements. Far-reaching changes are communicated to employees through a wide range of carefully coordinated media. Special information meetings held by the management are another important communication channel.

Our social responsibility for our employees

Social responsibility is an important element in our corporate policy. Nearly all of our employees either have statutory health insurance or can obtain health insurance through the company. Around three-quarters of Group employees also have access to some form of company pension plan. The directive on occupational pension provision in the Bayer Group in place since July 2010 confirms the enormous significance of company-financed pension plans, both in positioning Bayer as a preferred employer and as part of our responsibility to our employees. In 2010, we therefore introduced nationwide pension plans for our Group companies in Russia and Turkey for the first time. [Table 7](#)

Employee compensation and benefits

Through a uniform compensation system for employees around the world, Bayer creates transparency and ensures performance-based remuneration and incentivization of employees. We are able to offer our employees basic compensation that takes account of their tasks and level of responsibility, at the same time analyzing the compensation offered by our competitors. This is supplemented by attractive performance and profit-related components and extensive additional benefits. For 2010, Bayer allocated more than €500 million to provisions for payments to eligible employees under its short-term incentive (STI) program alone. In addition, employees can purchase shares in the company on special conditions under a variety of [employee stock programs](#). In many countries, these are part of the regular fringe benefits and offer employees a further opportunity to participate in the company's business performance.

Members of the senior and middle management also benefit from the “Aspire” program, a uniform, Group-wide stock-based compensation program introduced in 2005. It is based on ambitious earnings targets and – in the case of Group Leadership Circle

Dialogue

Employees ask the CEO

Since December 2010, employee communication at Bayer has included a new “Ask the CEO” option. Group employees can submit questions personally to Dr. Marijn Dekkers, Chairman of the Board of Management of Bayer AG: any employee can post a question in the intranet via the Bayer News Channel. All employees worldwide then vote on what they consider to be the most interesting questions. Out of these, the most frequently asked questions are submitted to Dr. Dekkers. This new communication format underscores Bayer's pledge to engage in open and direct dialogue with all employees. The topics are chosen by members of the workforce. Within a very short time, more than 300 proposals were submitted, ranging from questions on the Group's strategic focus to the advancement of talented employees in the subgroups. Examples from the “Ask the CEO” initiative can be viewed on the intranet.



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[Ask the CEO](#)

publications still play a significant role in this throughout the Group. Alongside Group-wide publications, our subgroups and service companies regularly publish their own employee magazines.

Some changes were made to our online corporate media last year. The global employee portal HR//direct online was redesigned in December 2010 and offers employees a new and improved range of services. Bayer CropScience is to continue the live online broadcasts launched in 2010 of its Management Information Forum, a regular information event for managerial staff. With the aid of an electronic live-talk system employees can ask questions online

79 BAYER WEB
[Employee stock programs](#)

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members – requires an appropriate personal investment in Bayer stock (see also page 224ff. of the Annual Report 2010).

Accepting and fostering diversity

As a global enterprise, Bayer aims to have a diverse and international workforce. For example, a total of 21 nations are represented in the Group Leadership Circle, the company's most senior management level. More than two-thirds of these executives are native to the countries in which they work. We intend to further increase the proportion of local managers in the coming years, especially in fast-growing emerging markets. [Table 8](#)

Our employees have a wide variety of talents, lifestyles and social and ethnic backgrounds. Accepting and fostering this diversity is a keystone of Bayer's future business success.

The [Declaration on Diversity at Bayer](#) adopted in 2007 underscores this conviction. It has two main objectives: our workforce should reflect the diversity of society, and employees throughout the Group should be able to contribute their abilities without discrimination or prejudice based on gender, race, religion or sexual orientation. Selection of personnel to fill vacancies throughout the Group is based exclusively on specialist expertise, development potential and individual performance.

As in 2009, this principle is supported by a range of networks, especially in the United States. These give like-minded employees a platform for discussion and to represent their interests within the Group. The latest of these is the ProMoms Employee Networking Group at Bayer HealthCare in the United States, which provides a discussion and support forum for working mothers. It has also set itself the objective of fostering the professional development of mothers within the company. In the past, "Angle-B," a network of gay and lesbian employees, played a key role in improving Bayer's directives on anti-discrimination and equal opportunities in the United States. An overview of [employee networks](#) is available online.

More women in management

Increasing the proportion of women working for the company and especially the percentage of female managers is another key aspect of our medium-term endeavors to increase diversity. Group-wide, the proportion of women in our workforce was around 35 percent in 2010. Women accounted for around 37 percent of skilled employees and nearly 31 percent of trainees.

Bayer aims to raise the [proportion of women](#) ([Target, p. 34](#)) in the top five contract levels across the Group to approaching 30 percent by 2015. At present, women only account for around 21 percent of the Group's worldwide management team. At the most junior management level, in other words the entry level

81 ONLINE REPORT
[Employee networks](#)

80 BAYER WEB
[Declaration on Diversity at Bayer](#)

Targets 2015

Diversity, p. 34

7_Health insurance and pension plans for employees in 2010 by region (percent)

Region/Area	Europe	North America	Latin America/Africa/Middle East	Asia/Pacific	Bayer Group (total)
Percentage of employees with health insurance*	97	90	93	90	94
Percentage of employees eligible to take part in a company or company-financed pension plan**	85	92	25	70	74

* State or employer/employee-funded

** Including programs to supplement statutory pension plans

8_Bayer Group workforce structure

	Women	Men	Total 2010
Senior management (incl. Group Leadership Circle)	200	1,200	1,400
Management	10,000	20,900	30,900
Skilled employees	29,100	50,000	79,100
Trainees	800	1,800	2,600

News

Discrimination of women: Bayer rejects claims in the United States

In March 2010, a lawsuit was filed against Bayer in the United States. The allegation was that Bayer HealthCare Pharmaceuticals had discriminated against certain female employees because of their gender. The company denies the allegation of gender discrimination and will defend itself vigorously against it. The Bayer Group is committed to the non-discrimination and equal treatment of all employees and has issued clear directives which have to be complied with by all companies and their workforces. Employees have various options open to them for obtaining support for their concerns. There are also various initiatives for promoting diversity and the equal treatment of employees in the company. Bayer has been honored on numerous occasions for these activities.

for young academics, around 35 percent of employees are female. That is a pleasing proportion and makes us optimistic that we will see far more talented women at higher management levels in a few years. At the most senior management level, the Group Leadership Circle, the proportion of women Group-wide was 6.5 percent, 1 percent more than in 2009. We also aim to raise the proportion of women on the Supervisory Board to at least 20 percent in the medium term.

Bayer HealthCare, the subgroup with the highest proportion of female employees, namely around 45 percent, also has the largest number of employees overall. This subgroup has particularly wide-ranging **programs to foster the development of female employees.**

The remuneration of men and women is a central aspect of equality of opportunity. At Bayer, equality naturally applies to the remuneration of employees. Individual salaries are based on each employee's personal and professional abilities and the level of responsibility assigned to them. At all managerial levels, 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 to the remuneration of trainees in the Bayer Group.

Flexible working hours

Flexible worktime arrangements often play a key role in helping employees balance work with personal or family life. In many countries, Bayer offers its employees a wide range of opportunities to vary their working hours. These range from flexible worktime models and part-time employment through teleworking to additional leave and the provision of child care for employees with children. For example, at our main companies in Germany almost 73 percent of non-managerial employees are able to shape their working hours flexibly to meet their personal needs. In Germany, we also offer around 410 places for employees' children in child care facilities.

Addressing the effects of demographic change

We use a wide range of measures to address the challenges posed by demographic change, especially in many industrialized countries. **Table 9**

Since 2007, the Bayer Group has conducted extensive analyses of the age structure of the workforce as the basis for predicting its development up to 2020. This systematic procedure shows that we have recognized the

82 ONLINE REPORT
Programs to foster the development of women at BHC

9 Age structure of workforce in 2010

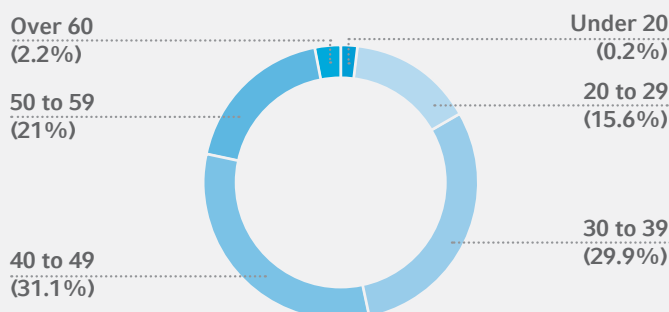



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trend, take its repercussions seriously and are planning appropriate measures. Although we do not face an acute shortage of skilled staff at present as we still have a large number of trainees and are regarded as a very attractive employer by external specialists, retaining the often valuable experience of older employees in the company and ensuring that it is passed on to the up-and-coming generation are very important to us. Moreover, it will become even more fundamental in the future in the face of demographic change. Passing on knowledge from the older to the younger generation is one of the aims of the Bayer Senior Experts Network, known as [BaySEN](#) for short.

These measures to address the challenges of demographic change are supplemented by the ongoing expansion of occupational health management. You can read more about this in “Contemporary health management” on page 41.

Integration and support for disabled employees

Integrating and supporting disabled employees is another significant issue for Bayer worldwide. We employ people with disabilities in many countries. Most of them work for our companies in Germany, where they make up 4.4 percent of the workforce. This high proportion is due to the particularly widespread integration of people with disabilities in Germany. At most of our German companies, there is a special advisor to support disabled employees and represent their interests.

Traditionally, advocacy of people with disabilities has 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. In 2010, Greg Babe, President of Bayer Corporation, who initiated the program, received the Justice for All Award from the American Association of People with Disabilities for his long-standing efforts on behalf of the disabled.

Vocational and ongoing training

Bayer hired around 4,000 university graduates for specialist and managerial positions in 2010. More than 750 university graduates were recruited in India, around 700 in Germany and over 350 in the United States. These figures show that university graduates around the world rate Bayer as an attractive employer. That was confirmed by various surveys and a range of awards, for example for the [Bayer careers portal](#). Diversity, a modern working environment, international career prospects and social commitment are just some of the factors that make Bayer an attractive employer.

[Vocational training](#) of young men and women is one of the most important ways of countering a possible shortage of skilled workers as a result of demographic change. Worldwide, we had more than 2,600 trainees in 2010. In Germany alone, we again took on more than 900 young people on courses leading to more than 20 vocational qualifications. Group-wide, we had about 100 fewer trainees than in 2009. Reasons included the reorganization of vocational training at our subsidiary Bayer Bitterfeld. Since May 2010, trainees on certain courses at Bayer have been given an opportunity to broaden their horizons through exchange programs that give them an insight into work at other sites. More information on the [perspectives](#) of trainee pharmaceutical technicians, animal caretakers and safety & security specialists can be found online. [Table 10](#)

To alert high school graduates and students to career opportunities at Bayer at an early stage, we expanded our already extensive university recruiting activities in 2010 by placing corporate presentations on social networking sites. In addition, we once again offered more than 2,700 interesting internships to students from a variety of disciplines in 2010.

Ongoing training and personnel development

The ongoing training of our employees plays a key role in our human resources strategy. Our goal is to foster the development of employees' potential as effectively as possible and to align their vocational skills and knowledge to the changing demands of our business. The central focus is on acquiring, extending and maintaining professional knowledge. In 2010, we invested more than €130 million in the initial and ongoing training of Bayer Group employees. That was 4.1 percent more than in 2009. However, training costs as a percentage of personnel expenses decreased slightly to 1.8 percent because personnel expenses were higher than in 2009. [Table 11](#)

Our [training programs](#) are broadly based, reflecting the widely varying training and development needs of our employees.

Occupational health and safety

Avoiding accidents and protecting the health of our employees in the workplace are two of our prime objectives. That includes identifying and assessing potential hazards, extensive risk management and ensuring a healthy working environment. Our health, safety, environmental protection and quality (HSEQ)

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Responsible Care
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Special programs,
measures and training
for occupational safety

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Health promotion
activities and programs

Targets 2015
Occupational safety, p. 34

activities support the [Responsible Care Global Charter](#), a voluntary global initiative of the chemical industry. Our objectives are to minimize the risks to people, the environment and the company and to integrate HSEQ management into our business strategies and processes.

Worldwide, our endeavors center on making working at Bayer even safer. 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.

Further reduction in occupational injuries

One pleasing improvement in 2010 was a further reduction in Bayer’s lost time injury frequency rate. The steady downward trend seen in recent years continued. The table shows the lost time injury frequency rate in past years in terms of the MAQ, which indicates the number of occupational injuries per million hours worked. The ratio of 1.7 is well within our target, which was to achieve a level of less than 2.0. Action taken by the subgroups and service companies made a considerable contribution to this good performance. [Table 12](#)

We also track injuries to Bayer employees requiring medical treatment. This indicator shows both injuries resulting in lost worktime and those that do not lead to this. In 2010, this overall measure of all reportable injuries, which is also based on injuries per million hours worked (MAQ), was unchanged from the previous year at 3.1. Our objective is to reduce our [occupational injury rate \(Target, p. 34\)](#) to 1.5 MAQ (± 0.3 LTRIR) by 2015. More information on the reporting of occupational injuries can be found on page 68.

An analysis showed that most accidents happened while employees were walking, running, climbing stairs or engaged in

manual work. As in previous years, incidents involving chemical exposure were the exception. Our goal is to reduce injuries further through a wide range of [special programs, measures and training](#) so we can offer our employees a safe and healthy workplace.

Sadly, there were four fatal accidents involving Bayer employees in 2010. Two employees died in traffic accidents in India and Poland. One employee fell off a stationary trailer in China and sustained fatal head injuries, and one person died in a fire at our production facilities in Ankleshwar, India. It is our policy to investigate every accident thoroughly so we can define measures to prevent a similar accident occurring in the future.

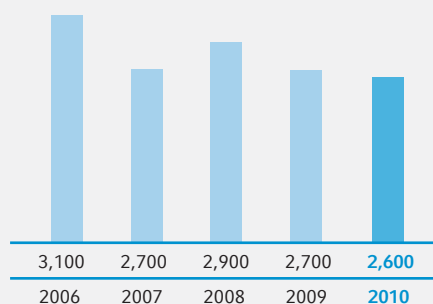
Contemporary health management

One significant and steadily growing aspect of human resources policy at Bayer is preventive health care and health-related advice for employees. We offer a wide range of programs to foster and enhance the health and working ability of our employees, especially as in the future employees in many parts of the world will have to work until they are older.

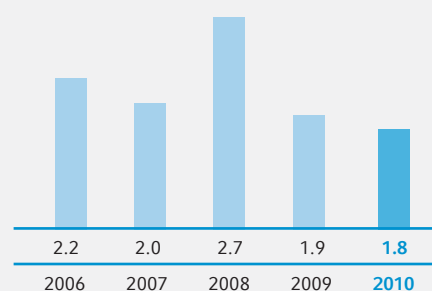
Bayer’s offering includes a broad array of [health promotion activities and programs](#) for employees in more than 30 countries. The focus and scope of these programs depends on the specific needs of the local workforce. The spectrum ranges from free vaccinations and regular check-ups, through in-house and external sports programs and health-related advice to the provision of in-house physicians and medically supported reintegration of employees after a prolonged period of illness.

In 2010, Bayer signed a collective agreement on life worktime and demographic change in Germany. Under this program, the company offers non-managerial employees an extensive medical check-up. The

10_Trainees



11_Vocational and ongoing training expenses
as a percentage of personnel expenses



News

Bayer launches new health promotion program

In January 2011, Bayer sent out the first personal letters inviting just under 2,000 employees in Germany to take part in the company's new health promotion initiative. Employees who take up this offer will receive an extensive medical check-up to give them a sound insight into their health situation and personal risk factors, together with advice on preventive care. The health care offering is part of the collective agreement on life worktime and demographic change that was entered into at the end of 2010 for 21,000 payscale employees and managerial staff.

agreement also significantly reduces the individual workload on specific employee groups in the years prior to retirement.

Employees at the Pittsburgh site in the United States were offered the "Wellness Works" program during its test phase. This program, which aims to identify health risks and promote a healthier lifestyle, was rolled out nationwide at the end of 2010. Moreover, special WorkLife programs are offered in the United States to help employees achieve a balance between family and private life and the demands of their work.

Alongside these initiatives to maintain and enhance the health of our employees, we offer supplementary private health insurance to our employees, especially in countries where

there are shortfalls in the public health care offering. The scope of such programs is regularly reviewed and extended. For example, the supplementary insurance programs offered to employees and their families in Central America, Thailand and Vietnam have been upgraded as a result of a review.

The health of members of the workforce is extremely important for a global company like Bayer. We therefore keep our employees informed about current health risks in other parts of the world and provide advice on how they can protect their health. The Group has a dedicated directive which defines the action to be taken in the event of pandemics since these tend to bring new and unforeseen health risks.

12_Occupational injuries affecting Bayer employees

	2006	2007	2008	2009	2010	Target 2010
Occupational injuries to Bayer employees resulting in days lost (MAQ**)	2.8	2.4	2.2	2.0	1.7	< 2.0 ✓
Reportable occupational injuries to Bayer employees (MAQ**)	4.3	3.7	3.6	3.1	3.1	
Fatal accidents (total)	9	4	2	4	4	
– of which Bayer employees	5	4	2	4	4	
– of which contractor employees***	4	0	0	0	0	

* LTRIR = lost time reportable incident rate, 0.3 LTRIR \triangleq 1.5 MAQ, see page 68

** MAQ = million working hour quota (injuries per million hours worked)

*** Employees working for third parties

Target 2015

0.3 (LTRIR)*

Innovation and Products

Research and innovation play a key part in **overcoming global challenges** in the areas of climate, nutrition and health care. They are also driving forward the **sustainable development** and **future growth** of Bayer. At the same time, our **top priorities** are **environmental protection and the health and safety** of everyone who handles our products.



Innovations in health care: Dr. Georg Grötzbach and Dr. Andreas Sachse (from left) conduct research on VEGF Trap-Eye. The preparation blocks the natural growth factor VEGF and is currently being tested in various indications for eye diseases, e.g. wet age-related macular degeneration.

For Bayer, innovative capability means demonstrating to the global market that we have a competitive edge through our research and technology excellence and through innovative products. Being closely aligned to market needs, our research and development activities are subject to a continuous process of adaptation. We work to steadily expand our product portfolio and optimize our production processes. Of the utmost importance to us in this connection are the safety and compatibility of our products for people and animals and the protection of the environment. Product innovations are aligned closely to the businesses in the subgroups – supported by Bayer Technology Services as a technological center of expertise for processes and plants.

Research and development

Research and development (R&D) expenses at Bayer

reached an all-time high in 2010, namely more than €3 billion. This is equivalent to 8.7 percent of the Bayer Group's sales. Some 13,200 people were employed in R&D in 2010. The pharmaceutical developmental pipeline of Bayer HealthCare is well stocked, with 46 innovative projects currently in Phases I to III of clinical testing. Bayer CropScience too is focusing on growth through innovation. Six new products are scheduled to be launched by 2012. And Bayer MaterialScience in 2010 generated more than 20 percent of its sales with products introduced to the market within the past five years. [Table 13](#)

More ideas through networked thinking

Excellence and internationalization are of outstanding importance as a basis for all innovations. The company's research activities are therefore supplemented by an international network of collaborations with leading universities, public-sector research institutes and partner companies. An increasingly important role is being played at Bayer by research projects realized through this "open innovation" approach. Projects are undertaken in collaboration with a range of partners from all stages in the value chain. Such research collaborations are partly supported through public funding. This makes it easier for the company to decide in favor of future-oriented, high-risk trends. Overall, Bayer was involved in around 100 projects in Europe in 2010, for which it received total public funding of around €16 million. This corresponds to about 0.5 percent of the company's research and development expenses. An overview of Bayer's global research activities can be found on page 101ff. of our Annual Report 2010.

Innovation management at Bayer also involves promoting the company's internal culture of innovation. The "Expert Club" – which is headed up by the member of the Board of Management responsible for Research – promotes the exchange of best practices between scientific experts from all the subgroups. The "Expert Career" initiative offers leading R&D employees more career development opportunities. The global "Triple-i" employee initiative is aimed at motivating the company's workforce to make an active contribution to innovation at Bayer.

Targets 2015

Research & development

- > Maintain or increase R&D spending in relation to sales

Product stewardship

- > Roll out Global Product Strategy in another 10 countries with different languages

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Expert Career

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Triple-i

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Patents: protecting intellectual property worldwide

As an inventor company, Bayer is dependent on reliable global protection of its intellectual property. Without patent protection, it would not be possible to cover the considerable costs incurred in the search for new solutions and to come up with funding for further innovations in the long term. Patented products and technologies account for around 40 percent of the sales generated by each of our three subgroups. We are therefore actively committed to promoting patent protection around the world in general and to protecting our own intellectual property specifically.

From the end of 2008 to the end of 2010, Bayer was in conflict with the Indian drug registration agency Drug Controller General of India. Despite existing patent protection, this agency processed an application by an Indian company for the registration of a generic copy of our cancer drug Nexavar™ and ultimately granted marketing authorization for this in March 2010. At the end of 2010, Bayer's final appeal to the Supreme Court of India was rejected on the grounds that the legal issue raised by Bayer was invalid owing to marketing authorization having already been granted. The question of the legitimacy of the Indian agency's action thus remains unresolved for the time being. To prevent the marketing of the generic copy of Nexavar™, Bayer filed a patent infringement case in March 2010. Notwithstanding this, the generic copy has been marketed since April 2010. The reason for this is that in contrast to Europe and the United States, there is no protection for the documentation required for approval procedures in India so that generic manufacturers can use this directly. Bayer must therefore take out a court injunction against every single distributor to prevent the marketing of imitation products approved before the expiration of a patent. This is enormously time-consuming and costly, and shows that there is still room for improvement between existing patent protection and its enforceability in India.

Bayer supports the development of industrial property rights and trademark rights in China by funding a professorship for industrial property rights (IPR Chair) at Tongji University in Shanghai and an annual IPR forum on current issues surrounding the protection of intellectual property.

Biotechnology and nanotechnology as innovation engines

Biotechnology and nanotechnology are regarded as key technologies of the 21st century, harboring tremendous innovation potential for a variety of economic sectors and user industries.

Future-oriented research and production in the area of pharmaceuticals and plant technology would be unthinkable today without the use of biotechnology. Plant biotechnology can help to improve the yield and stress resistance of plants – and thus to increase harvest yields – through both genetic engineering and non-genetic engineering methods of precision breeding. Biotechnology has become increasingly important in recent years in pharmaceutical research and production as well.

Two of our best-selling products – the multiple sclerosis drug Betaferon™/Betaseron™ and the hemophilia treatment Kogenate™ – are manufactured in biotechnological processes. The applied process technologies are bacterial fermentation, yeast fermentation and mammal cell cultures. A further biotechnological process can generate potential drugs derived from the use of plants – known as “plant-made pharmaceuticals.” Our development candidate VEGF Trap-Eye for the treatment of wet age-related macular degeneration is also produced in a biotechnological process. The expansion of our biologicals research underscores the company's willingness to invest in this area: in December 2010, ground was broken in Wuppertal on a new pilot plant. The total capital expenditure volume for this project is €35 million.

13_Research and development expenses* (€ million)

	2006	2007	2008	2009	2010
Total	2,297	2,578	2,653	2,746	3,053
of which Bayer HealthCare	1,426	1,700	1,742	1,847	2,066
of which Bayer CropScience	614	637	649	653	722
of which Bayer MaterialScience**	227	209	221	207	231
of which reconciliation***	30	32	41	39	34

* Figures for 2006–2009 as last reported

** Excluding R&D in collaboration with customers

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

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Position on the
Responsible Use
of Gene Technology

94 BAYER WEB
Bayer's Position on
Nanotechnology

Safety is our top priority in the use of biotechnology. Bayer addresses consumers' concerns about genetically modified organisms and respects their right to information and freedom of choice when purchasing products. Beyond the observance of all relevant legal provisions, we have developed our own [Position on the Responsible Use of Gene Technology](#) and specific regulations in the subgroups and service companies. Before any product reaches market maturity, it is subjected to a stringent approval process to determine whether it is safe for people, animals and the environment. In 2010,

product solutions in many areas of Bayer. It enables us to develop materials and components for many applications that offer improved properties, functions and levels of performance. As nanotechnology is a relatively new technology, a sound, scientific risk analysis of the manufactured nanomaterials is particularly important to protect health and the environment. We have summarized our principles for the handling of nanotechnology in [Bayer's Position on Nanotechnology](#). This position applies throughout the Bayer Group, including for the handling of nanoparticles at Bayer HealthCare. Areas of application for nanotechnology at Bayer MaterialScience are presented from page 52 onwards.

Dialogue

"Fewer animal studies through new testing methods"

Active ingredients and chemicals are often tested in animal studies. At Bayer AG's invitation, toxicologist Professor Thomas Hartung traveled to Leverkusen for a discussion with experts from Bayer. Hartung heads up the Center for Alternatives to Animal Testing at John Hopkins University in Baltimore, Maryland, which is one of the leading research institutes in the United States. "In recent years, it has been possible to completely replace some animal studies," says Professor Hartung, explaining the aim of his center. "We work intensively to develop alternative methods. Here we focus above all on systematically combining processes." The scientist believes that new technologies will further reduce the number of animal studies in the future. For example, activities using human cell cultures and computer simulations could replace certain components of animal studies.



Professor Thomas Hartung, John Hopkins University, Baltimore, United States

Bayer takes animal welfare seriously

As a research-based company, we investigate the effects of our products on people, nature and the environment. In this connection, animal studies are scientifically essential and statutorily prescribed. In the research of new active pharmaceutical ingredients as well, animal studies are only replaceable to a certain extent. All studies carried out by Bayer adhere to three basic principles: first, animal studies should be replaced by alternative methods wherever possible. Second, only as many animals are used as are needed to achieve scientifically meaningful results based on statutory requirements. And third, animal studies must be carried out as humanely as possible. Thus we adhere to the so-called 3R (replace, reduce, refine) principles. Here, we also include in this commitment 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 on [animal welfare and animal studies](#) can be found on our dedicated Internet site.

In 2010, we established a Global Animal Welfare Committee to monitor the observance of our "Bayer principles on animal welfare and animal studies" within the Bayer Group and in external studies. Among the members of the committee are the animal welfare officers at our research sites and further Bayer experts. We are also active in initiatives such as the [European Partnership for Alternative Approaches to Animal Testing \(EPAA\)](#). Furthermore, we support the [Foundation for the Promotion of Alternate and Complementary Methods to Reduce Animal Testing \(SET\)](#).

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Animal welfare and
animal studies

95 WWW
Biotechnology industry
association

97 WWW
EPAA

98 WWW
SET

Bayer CropScience continued its activities in the context of the "Excellence Through Stewardship" program, a voluntary initiative by industry to implement product stewardship and quality management processes in connection with plant biotechnology. As a member of the [German biotechnology industry association BIO Deutschland](#), Bayer CropScience works – in accordance with that organization's product launch policy – to minimize the risk of trade disruptions that could result from the commercial cultivation of biotechnological plant products. The Bayer HealthCare subgroup has established strict production safety measures in its Directive on Biological Safety and its "Requirements for the safe handling of biological agents" procedure.

Nanotechnology has relevance throughout the company and can contribute to sustainable

Product stewardship at Bayer

Bayer believes that product stewardship involves the comprehensive assessment of health and environmental risks along the

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entire value chain – from product research and development through production, product marketing and application to disposal. Here, we also take into account the [precautionary principle](#) as defined by the United Nations and the European Commission.

Since 1994, we have participated in the voluntary [Responsible Care®](#) initiative of the chemical industry and its revised Responsible Care Global Charter. Bayer’s new Management Board Chairman, Dr. Marijn Dekkers, reiterated this commitment in 2010. The [Global Product Strategy \(GPS\)](#) is an important part of this charter. An initiative of the International Council of Chemical Associations (ICCA), this is designed to improve knowledge about chemical products, particularly in emerging and developing countries. Bayer plans to roll out the [Global Product Strategy \(Target, p. 42\)](#) in another 10 countries.

All major elements of the Responsible Care Global Charter are addressed by our HSEQ management systems and activities. In this context, our products are continuously assessed with regard to new findings, their hazard potential and possible risks, and a suitable risk management policy is implemented that includes communication of risks. We evaluate individual products with the help of the Bayer Sustainability Check.

Our activities as regards process, plant, occupational and transport safety are described in the Employees (page 34ff.) and Ecology (page 54ff.) sections.

We are also involved internationally in associations and political initiatives for the further development of scientific risk assessment. We have compiled an online overview of our [international commitment to product safety](#).

Data compilation and labeling

The safe handling and use of our products lie at the focus of our activities, which include in particular transparent communication and distribution of our product safety information. All subgroups compile product information enabling them to meet the respective product safety and information obligations for raw materials, intermediates or end products. This data compilation is updated accordingly whenever new legal requirements are established.

Bayer HealthCare further expanded its substance databases worldwide in 2010 to further improve the accessibility of data for the assessment of possible environmental and health hazards.

Bayer CropScience uses the “E-Label Server” to record data for all products marketed in Europe and parts of Asia, South America and Africa. In 2010, the global roll-out focused on Vietnam, Thailand, Indonesia,

Malaysia and the Philippines. Furthermore, the External Adverse Incident Guideline governs the internal reporting channels worldwide for incidents involving products of Bayer CropScience.

Bayer MaterialScience also maintains a global product safety database. Bayer MaterialScience is prepared to deal with potential incidents involving its products thanks to regulations covering product surveillance and recall management.

Since 2007, we have operated in accordance with the European chemicals regulation [REACH \(Registration, Evaluation, Authorization and Restriction of Chemicals\)](#). This regulation revises chemicals legislation within the E.U. REACH affects all activities by Bayer as a manufacturer, importer and user. In 2010, we met the statutory deadline by registering 125 substances that we produce or import in volumes of more than 1,000 metric tons annually or that are particularly hazardous. Currenta’s Analytics Business Unit and the Toxicology and Process and Plant Safety departments play a key role in helping us to register and test these substances. Group-wide and subgroup-specific directives provide assistance in all areas in coping with the volume and complexity of the REACH policy requirements. As we also use products from other manufacturers, we require our suppliers to confirm compliance with REACH for these products. REACH also involves an authorization procedure with a substitution obligation that will lead to the replacement or prohibition of hazardous substances. The first official list of substances requiring authorization and the substances earmarked for the second list were published on February 17, 2011. The authorization process will thus be applied this year for the first time. According to the current state of knowledge, Bayer does not need to apply for any authorizations.

The [Globally Harmonized System of Classification and Labeling of Chemicals \(GHS\)](#) came into effect in Europe in 2009 and in China and several other countries in 2010. Implementation of the GHS is coordinated at Bayer by a Group-wide working group. By the deadline of November 30, 2010, we had registered with the European Chemicals Agency (ECHA) all substances marketed by us in the European Union that require classification according to the GHS. Having notified the agency of more than 1,000 substances, we will inform the agency of all GHS-relevant mixtures by May 31, 2015.

Protection against counterfeit products

Bayer is active in the fight against illegally marketed or counterfeit pharmaceuticals and crop protection products. Such products can present considerable dangers to people and

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[Precautionary principle](#)

100 BAYER WEB
[Responsible Care](#)

101 WWW
GPS

102 BAYER WEB
GPS

103 WWW
REACH

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Product stewardship, p.42

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[International commitment to product safety](#)

105 WWW
GHS

the environment due to properties such as their uncontrolled composition. Bayer actively proceeds against product counterfeiting so as to minimize negative effects on the health and lives of unsuspecting patients, customers or users.

In the campaign against counterfeiting, Bayer HealthCare cooperates closely with the responsible authorities and is actively committed to the development of a system to combat product piracy. Through the Internet campaign “Beware of Counterfeits” we systematically inform patients about the risks of pharmaceutical counterfeiting to protect them against the acquisition and use of pirated products. Among the information users will find here are important details on how to distinguish original products from counterfeits. The rate of counterfeit products in the crop protection market lies between 5 and 7 percent. Bayer CropScience (BCS) therefore supports the fight against illegal crop protection products both with its Product Defense Network and through the support of regional and global association committees such as the [Anti Counterfeiting Expert Group of the European Crop Protection Association \(ECPA\)](#) and the [Anti Counterfeiting Steering Committee of CropLife International \(CLI\)](#). Our Product Defense Team cooperates intensively with national and international authorities, which led to numerous confiscations of counterfeit products and the prosecution of the counterfeiters in a number of countries in 2010. In connection with CLI’s “Know Your Customer” campaign, BCS launched an initiative aimed at preventing the transport of counterfeit products by more closely inspecting freight and customers in collaboration

with shipping companies, among other measures.

Bayer CropScience also works not only to strengthen existing legislation, but also to expand laws and provisions dealing with the identification and confiscation of illegal crop protection products.

Here, the company supports initiatives of the ECPA and CLI aimed at providing information and training for dealers, farmers and governmental agencies through anti-counterfeiting training materials (manuals, workshops).

In 2010, BCS’s Packaging Technology Department presented a new packaging design intended to transform generic industrial packaging into Bayer-specific, counterfeit-proof packaging. Furthermore, communication of the potential risks and dangers of illegal crop protection products in the media was significantly intensified in the reporting period.

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, Diabetes Care and Animal Health. These four areas account for two thirds of Bayer’s R&D expenses. Three current examples can be found in the table below.

Our research follows a long-term strategy of developing therapeutic options for currently unmet medical needs. To achieve this, we undertake to use innovative technologies responsibly. This also applies to the development of drug products to treat diseases that are both

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[Beware of Counterfeits](#)

107 WWW
[ECPA](#)

108 WWW
[CropLife](#)

Sustainable innovations at Bayer HealthCare

The anticoagulant Xarelto™

The orally administered anticoagulant Xarelto™ (containing rivaroxaban) targets the blood clotting process and inhibits the activity of the Factor Xa enzyme, which plays a key role in the formation of a thrombosis. The product is already the most thoroughly investigated Factor Xa inhibitor in clinical development, and the study program is planned to include more than 65,000 patients overall.

Fighting tumors with Alpharadin

Scientists at Bayer HealthCare are now testing a new active ingredient that is designed to more accurately target bone metastasis in advanced prostate cancer: alpharadin, an alpha radiation substance, can be easily administered intravenously and finds its way into the skeleton within 10 minutes owing to its similarity to calcium.

Riociguat for pulmonary hypertension

Riociguat is an innovative, orally administered substance currently being investigated in Phase III trials as a potential new treatment approach for pulmonary arterial hypertension (PAH) and chronic thromboembolic pulmonary hypertension (CTEPH), two life-threatening forms of pulmonary hypertension. Riociguat is the first member of a novel class of medicines that stimulate the enzyme soluble guanylate cyclase (sGC).

News

Orphan Drug Designation for Bayer medicines

The U.S. Food and Drug Administration (FDA) classified Bayer Health Care's development candidate regorafenib as an "orphan drug" (drug for rare diseases) in February 2011. The drug for treating patients with gastrointestinal stromal tumors (GIST) is currently undergoing Phase III clinical testing. The FDA classification "orphan drug" is designed to promote the development of drugs for diagnosing, preventing and treating rare diseases that affect less than 200,000 people in the United States. The classification as an orphan drug guarantees the drug exclusive access to the U.S. market for a period of seven years. In March 2010, the FDA also classified the ciprofloxacin dry powder inhaler for the treatment of chronic lung infections with *Pseudomonas aeruginosa* in cystic fibrosis patients as an orphan drug. This is currently in Phase II of development. More information on our [clinical trials](#) can be found on the Internet.

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Clinical trials

severe and very rare – also known as "orphan diseases." Among these are the hereditary disease cystic fibrosis, which we treat with an innovative development from Bayer called the ciprofloxacin inhaler. This preparation was classified by the [Food and Drug Administration \(FDA\)](#) as an orphan drug.

Advances in the field of biomedical research are opening up completely new possibilities for us, but at the same time they raise questions about the responsible use of new technologies and the findings they enable. This applies, for example, to pharmacogenetics, stem cell research and regenerative medicine. We address concerns and suggestions, and undertake to act ethically. Stem cells provide a beacon of hope in medicine, as they can be transformed into various cell and tissue types. Bayer HealthCare is not currently conducting research projects with embryonic stem cells and has not done so in the past. However, we are convinced that research – particularly with adult stem cells – in the field of regenerative medicine should be promoted. Scientific discoveries in this area could lead to new therapeutic solutions for serious and life-threatening diseases.

We strengthen our own research infrastructure with a global network of external partners from science and industry, thus safeguarding the long-term success of our product pipeline.

Stringent drug safety requirements

Clear and binding requirements apply not just to the research of new pharmaceuticals, but also to their manufacture and commercialization.

We continuously evaluate the benefit-risk profile of our pharmaceutical and medical products from their development until their registration and throughout their life cycles. Within the framework of the safety risk management process at Bayer HealthCare, experts from various disciplines form so-called Safety Management Teams (SMTs). These teams jointly evaluate the available data and

other information on a product so as to identify possible safety risks at an early stage, build up a base of data and undertake measures to reduce these risks.

Examples of such measures include the revision of pack inserts, targeted information programs and training measures for physicians and patients. The comprehensive risk management plans are among the core tasks of the SMTs. Should further risks become known following the regulatory approval of a product, we immediately take steps to minimize them. In this connection, we employ the same process and update each respective risk management plan.

The Global Pharmacovigilance unit of Bayer HealthCare pools all safety-relevant information on our prescription medicines. This information is continuously updated and evaluated by experts. Bayer works closely with the responsible regulatory and oversight authorities at an international, national and regional level. These include the U.S. Food and Drug Administration (FDA), the [European Medicines Agency \(EMA\)](#) and the [German Federal Institute for Drugs and Medical Devices \(BfArM\)](#).

The Bayer HealthCare Compliance Management System also plays a key role in added safety. It describes measures aimed at permanently and continuously satisfying regulatory requirements for quality assurance in human and veterinary medicine. The observation of technical compliance standards is verified through systematic internal inspection both for all functions summarized as "global clinical development" and for production. These audits also cover contracted institutes and suppliers. Risks are systematically identified and assessed with the help of a risk management system. If process deviations, violations of the rules or quality deficiencies are established, these are analyzed on a case-by-case basis, and preventive or corrective measures undertaken. Countries and regions continuously receive support in observing pharmaceutical compliance.

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EMA

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BfArM

The results of our risk management process and the activities derived from it help to ensure the safety of our patients and the correct use of our products, thus ensuring an optimal medical benefit-risk ratio.

Particular challenges posed by possible product risks

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.

As of April 16, 2011, there were about 8,000 lawsuits pending in the United States involving Bayer's oral contraceptives Yasmin™ and YAZ™. The lawsuits claim that Yasmin™ and/or YAZ™ – or Ocella™ and/or Gianvi™, generic versions of Yasmin™ and YAZ™ marketed in the United States by Barr Laboratories, Inc. – had caused harm to the health of users, and in isolated cases even death. Pursuant to agreements in 2008 and 2010, Bayer manages product liability litigation for Ocella™ and Gianvi™, Bayer retains product liability for Ocella™ product supplied by Bayer with certain exceptions, and the parties have allocated potential future product liability relating to Gianvi™ product supplied by Bayer. Plaintiffs seek compensatory and punitive damages, claiming, in particular, that Bayer knew, or should have known, of these risks and should be held liable for having failed to disclose them or adequately warn users of Yasmin™ and/or YAZ™. Bayer has also been served with three putative class actions claiming economic loss, one of them also claiming personal injuries. One of these class actions, brought in federal court on behalf of all private health insurers in the United States, was dismissed with prejudice. All cases pending in U.S. federal courts have been consolidated in a multidistrict litigation (MDL) proceeding for common pre-trial management. In addition, 13 Canadian class actions have been served upon Bayer as of February 1, 2011. Additional lawsuits are anticipated. Bayer believes that it has meritorious defenses and intends to defend itself vigorously. Based on the information currently available, Bayer has taken accounting measures for anticipated defense costs.

Further examples of particular challenges in this context, such as Trasylol™, are given on page 241ff. of our Annual Report 2010.

Analysis of pharmaceuticals in the environment

Within the scope of its product stewardship, Bayer HealthCare aims to pursue an adequate, risk-based and responsible approach to the issue of "pharmaceuticals in

the environment." Following the use of pharmaceuticals by patients, trace amounts of these pharmaceuticals or degradation products are excreted and in many cases 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 conducts tests on ecotoxicity and on the dispersal and degradation behavior of our pharmaceuticals so as to keep trace elements in the soil and groundwater as low as possible and enable risks to be closely monitored.

Bayer also participates in important research projects. One activity being undertaken with various cooperation partners, including from the water resources industry, is the European PILLS (Pharmaceutical Input and Elimination from Local Sources) project, which is scheduled to run from 2007 to 2011. The PILLS partnership focuses on wastewater treatment. As it seems efficient to undertake measures at point sources where there is a high concentration of residues in wastewater, the collaboration focuses on the development of local treatment facilities for hospitals and nursing homes. Bayer HealthCare is represented on the scientific advisory committee of PILLS. The company contributes its expertise in the assessment of the ecological risks of pharmaceutical trace amounts and in the treatment of wastewater resulting from the company's own production activities.

Bayer sets standards in quality for veterinary pharmaceuticals

Bayer HealthCare has marketed products for livestock and companion animals for more than 100 years. The company today offers over 100 different products for animal health and parasite control. These products minimize the risk of transmission of possible pathogens to humans.

At Animal Health, safety and quality standards apply that are comparable to those in human medicine. Here, we focus particularly on the environmental compatibility of our products.

Through training measures and information materials, we provide veterinarians and private consumers with targeted details on the responsible use of our products. In this context, we support the initiative of EPRUMA, the European Platform for the Responsible Use of Medicines in Animals, and provide assistance in minimizing the risk of infectious disease among animals and thus reducing the consumption of antibiotics.

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PILLS

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EPRUMA

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Assuming responsibility in the marketing of medicines

We also observe stringent guidelines in the marketing of our pharmaceutical products. As a member of the [International Federation of Pharmaceutical Manufacturers & Associations \(IFPMA\)](#) and the [European Federation of Pharmaceutical Industries and Associations \(EFPIA\)](#), Bayer HealthCare undertakes to observe the relevant codes. Also valid are the company’s own Corporate Compliance Policy and national ethical standards that are usually established in local industry codes such as that of the “[Voluntary Self-Monitoring by the Pharmaceutical Industry](#)” (FSA) in Germany. In the event of discrepancies, we apply the more stringent code in each case.

Innovation in many fields – Bayer CropScience

With its global research activities, Bayer CropScience plays an important role in the development of innovative solutions for crop protection, seed treatment and non-agricultural pest control. One example in this context is the development of innovative products to tackle fungal infection in cereals. Such products, for example, prevent fungal toxins from entering the food chain.

Between 2000 and 2010, 23 new active ingredients reached market maturity. The company will continue to rely on its innovation potential in the future: by 2012, CropScience aims to introduce six new crop protection active ingredients to the market. The BioScience Business Unit is researching improved plant traits and innovative seed in a total of 60 projects. In this connection, Bayer CropScience also maintains research partnerships and collaborations that served as the basis of the new developments last year. Three examples of such developments are listed below.

The safety of our products is very important to us. This applies to both crop protection and to pest, weed and disease control in non-agricultural applications or plant biotechnology. A special task force ensures already at the research stage that activities at Bayer CropScience comply with our sustainability strategy. As the products are further developed, they are subjected to stringent and extensive testing that in turn is regulated by governmental agencies. Our toxicologists evaluate the toxicological properties of the active ingredient and its formulation, while our residue analysts determine how much product remains on the plants following proper application and how these amounts are reduced through washing or handling. Numerous further safety inspections must be completed by experts before a product is ultimately introduced to the market.

Emphasis on product safety

Bayer CropScience observes the International Code of Conduct on the Distribution and Use of Pesticides of the [United Nations Food and Agriculture Organization \(FAO\)](#). The principles of this code cover the entire life cycle of a product, from its discovery through its development to its application and beyond. Our business activities worldwide include programs and training courses to ensure that the greatest possible care is taken in the handling of crop protection agents. These programs are designed to ensure that the products of Bayer CropScience (BCS) are applied in a way that is safe for users, the environment and consumers. Bayer CropScience implements all major aspects of responsible product handling in its [Product Stewardship Program](#), which is based on the principles of the company’s own Product Stewardship Policy, which is contained in a dedicated [brochure](#).

Even beyond its core business, Bayer CropScience participates in projects targeted at added product stewardship. One current

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BCS stewardship
brochure

Sustainable innovations at Bayer CropScience

Routine™: effective against fungal infestation

Bayer has jointly introduced to the market the new fungicide Routine™ with Japanese company Sumitomo Chemicals to combat rice blast, the most damaging fungal disease in rice plants worldwide.

Votivo™ for higher yields

The biological product [Votivo™](#) (*Bacillus firmus*) is used for seed treatment. In combination with established seed dressings, it limits damage from nematodes and helps to significantly increase harvest yields.

New varieties of InVigor™ in Canada

Two new varieties of the canola seed brand [InVigor™](#) were developed for the Canadian market. The varieties have achieved yield increases of up to 146 percent in trials and possess excellent resistances to plant diseases.

News

Termination of the marketing of aldicarb

Bayer CropScience is to terminate global marketing of the insecticide aldicarb (Temik™) by 2012 at the latest. Production of this product, which is used in particular in the United States but also in some South American countries and in South Africa, was suspended in 2010. This decision by the company was in response to a new assessment of the active ingredient by the U.S. Environmental Protection Agency (EPA) and legal uncertainty in connection with the reconstruction of the production unit at our site in Institute, West Virginia, and corresponds with Bayer CropScience's global strategy of successively substituting WHO Class I products with new products. Although the company does not agree with all aspects of the new EPA risk assessment, Bayer CropScience respects the organization's authority and acted accordingly.

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Sustainable sugarcane
cultivation

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E.U.-wide
requirements

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Health of bees

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Integrated weed
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Product to combat
varroa mites

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Varroa mites

example is being implemented in Brazil, where the company has joined an initiative for sustainable sugarcane cultivation.

Responsible use of crop protection agents

A central aspect of product safety at Bayer CropScience is the assistance we provide to our customers and partners – such as farmers, dealers and medical personnel – in the proper, safe and targeted use of our products.

The participants receive training worldwide primarily in the area of user safety. They learn about the proper use of Bayer products, the correct way to wear protective clothing and how to practice sustainable waste disposal. In 2010, for example, such training courses were held in more than 22,000 villages in India. In Colombia, around 16,000 farmers once again received training through the AgroVida program in South America. Initiatives for enhanced safety awareness have been implemented there since the 1990s.

We are also active in the development and application of technical solutions: in Europe, we have optimized application equipment (including sowing machines) to provide better protection for users and the environment. The company's range of educational programs for product stewardship is rounded out by internal employee training measures.

Bayer CropScience also provides information about dealing with herbicide resistances through [integrated weed management](#). This approach includes important tools and strategies for farmers such as crop rotation, crop practices and field hygiene and the use of herbicides with varying principles of action.

Gradual replacement of WHO Class I pesticides

In streamlining its portfolio, Bayer CropScience continuously launches onto the market product solutions with better environmental properties – for example by introducing new active

ingredients, products, application technologies and types of packaging. We discontinued the sale of products containing endosulfan worldwide at the end of 2010. Marketing activities for aldicarb will be ceased worldwide by 2012 at the latest. Bayer CropScience will rigorously continue to successively reduce WHO Class I products. Further information on [E.U.-wide requirements](#) for crop protection agents can be found online.

Bee safety and crop protection

Bees are a vital part of the ecosystem. That is why maintaining and promoting the [health of bees](#) is an important task for beekeepers, farmers, politicians, industry and society. Operating in the agricultural sector, both we and our customers – the farmers – are reliant on honey bees for the pollination of many crop plants. Therefore, even though the bee population worldwide is growing in the long term, we are very concerned about the decline of bee populations in some parts of the world, such as in Europe and the United States.

Bayer takes the huge danger that pathogens pose for bees very seriously, which is why Bayer Animal Health has been researching bee health for over 25 years. We intend to intensify our R&D activities in the years ahead to provide beekeepers with safe and effective methods for protecting their bees. With this in mind, the company recently acquired a new [product to combat Varroa mites](#), underscoring our commitment in this area. We also work internationally with research institutes on matters of bee health.

To ensure outstanding dressing quality for our seed products, a multi-stage quality program for seed dressing has been developed at the Seed Treatment Application Center in Monheim, Germany. Furthermore, in close cooperation with sowing machine manufacturers and in coordination with the responsible regulatory and inspection agencies, a technical retrofitting concept for sowing machines has been developed that is designed to

considerably limit the spread of abrasive dust during the sowing of treated seed through a ground-level waste air duct.

These drift minimization processes developed by Bayer CropScience in collaboration with the agricultural machinery industry are setting the standard across Europe. Other regulatory authorities, such as those in Austria, Switzerland, the Netherlands and also France, are already using the corresponding concepts as a guide in approval procedures. Implemented across the board, the developed measures can sustainably minimize the unwanted spread of dust during sowing and thus reduce the burden on the environment. They are being taught to employees around the world in multi-day training courses.

Genetically modified rice

In the United States, Bayer is party to multiple lawsuits in connection with genetically modified rice. The plaintiffs allege that they have suffered economic losses after traces of genetically modified rice were identified in samples of conventional long-grain rice grown in the United States. As of April 18, 2011, Bayer was aware of a total of approximately 425 lawsuits, involving about 11,800 plaintiffs, pending in U.S. courts in this connection. In the development of this rice, field testing was conducted in the United States in cooperation with third parties from 1998 to 2001. The rice was never commercialized. The U.S. authorities have stated that the genetically modified rice does not present a health risk and is safe for use in food and feed and for the environment. Since December 2009, Bayer has tried several cases in front of U.S. juries. In some cases the company was required to pay compensatory damages; in others the litigation was settled. Bayer disagrees with the verdicts against the company and will appeal the

adverse findings to the extent it has not already done so. More detailed information can be found in the Annual Report 2010.

Innovation layer by layer – Bayer MaterialScience

Bayer MaterialScience (BMS) works closely with customers and external partners to develop new products and applications, as well as energy-efficient technologies and production processes for polymer materials.

For example, the waste product and climate gas carbon dioxide (CO₂) could be used as an alternative raw material for high-tech materials in the future, thus replacing a proportion of the conventional fossil-based raw materials used to date. In the “Dream Production” project, BMS and Bayer Technology Services are working with RWTH Aachen University and other partners to realize the catalytic conversion of CO₂ on a pilot plant scale for the first time.

We are also working intensively to further develop the production of energy from renewable sources through our materials. The current product spectrum ranges from polyurethane sheathing for solar modules with integrated assembly systems to a sandwich composite of polycarbonate sheets with solar cells. Furthermore, Bayer materials also help to substantially reduce energy consumption and thus the emission of carbon dioxide in applications such as automotive engineering or thermal insulation in buildings and refrigerated appliances.

Bayer MaterialScience is also a technological leader in the field of electroactive polymers for the consumer electronics industry. These high-tech materials are used in the development, design and manufacture

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[Dream Production](#)

Sustainable innovations at Bayer MaterialScience

Polyurethanes: “green shoe” concept study

The “green shoe” consists up to 90 percent of components manufactured by particularly environmentally friendly processes or using renewable raw materials. Parts of the shoe sole, for example, are made of polyurethane produced mainly with soybean oil.

Polycarbonates: for efficient lighting technology

Polycarbonates are being increasingly used for efficient and energy-saving lighting technology. Among the developments are films for OLED lamps that are approximately 60 percent brighter and LED lenses for car headlamps that are considerably more lightweight.

Polyurethanes: raw materials for cosmetics

The new Baycusan™ product line comprises a range of high-purity polyurethanes that do not contain any co-solvents and are free of preservatives. The new production unit reliably prevents any entry of germs.

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Position on
Nanotechnology

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of actuators and sensing components, offering unique opportunities: they provide touchscreen panels with “awareness through touch” by creating tactile feedback when the display is touched.

Through its research and applications development, Bayer MaterialScience converts scientific findings into customer-oriented business. The Innovation Community Council (ICC) was established to steer the global innovation activities of Bayer MaterialScience.

Bayer MaterialScience invested €231 million in innovation in the reporting year. The areas of application range from lighting technology through traffic engineering to the plastics production of tomorrow.

Responsibility for the entire product life cycle

Within the scope of its product stewardship and with the aim of implementing the international Global Product Strategy, Bayer MaterialScience assesses and takes steps to reduce risks for the environment and human health. This applies to the entire life cycle of chemicals used at Bayer – from production through logistics to their use, recycling and disposal.

The Product Safety Assessment compiled is based on parameters with which product safety can be determined. The assessment takes place in four steps: product prioritization, risk characterization, risk management and risk communication. The product prioritization steps are aimed at ensuring that the relevant chemicals for the characterization of the risks are identified. Depending on the scope of the identified risk potential, suitable steps are implemented to manage the risk. Such steps can include proposals for technical measures, the use of personal protective clothing or marketing restrictions. The final step involves the statutorily prescribed safety data sheets, technical information sheets and labeling.

A central role is also played by the BayCare platform. A detailed and transparent description of the product safety assessment steps can be found on the “BayCare Worldwide” Internet site. Here, Bayer informs customers and other stakeholders about its measures. BayCare is being expanded step by step to include new countries and languages, with regional sites for China and Brazil going online in 2010.

Nanotechnology – an investment in the future

Bayer MaterialScience also handles nanomaterials with a high sense of responsibility.

Regarding the safe handling of innovative carbon nanotubes, we have initiated a comprehensive Product Stewardship Program. 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 have summarized our principles for the handling of nanotechnology in the [Bayer Position on Nanotechnology](#). We support the carbon nanotube safety projects promoted by the [German Ministry of Education and Research \(BMBF\)](#). We also work intensively on the international harmonization of terminology and characterization at the ISO level and on the drafting of toxicological test guidelines at OECD level. Furthermore, we foster a close stakeholder dialogue with committees, associations, industry partners, customers, authorities, universities and the public.

Bayer MaterialScience now also markets its multi-wall carbon nanotubes Baytubes™ in the United States, as the U.S. Environmental Protection Agency (EPA) has granted marketing authorization for this purpose. The EPA approval represents an important milestone for the company in its endeavors to open up new areas of application together with customers. This significantly reinforces Bayer MaterialScience’s role as the world’s leading manufacturer of carbon nanotubes.

Baytubes™ can be added to polymer matrices or metal systems to improve their mechanical strength and antistatic properties. The product’s applications include rotor blades for wind turbines, battery systems, and sports equipment such as skis, hockey sticks, baseball bats and surfboards. Nanotubes are also used to modify light metals such as aluminum or magnesium and thus considerably improve their properties.

At the Chempark Leverkusen site, BMS operates a pilot plant and laboratory facility for the product and process development of carbon nanotubes. Around €22 million was invested in its planning, construction and development. The global market for carbon nanotubes is currently predicted to grow by 25 percent per year. Experts estimate that annual sales of these products will reach US\$2 billion within about 10 years.

Bayer regularly seeks dialogue with its stakeholders in order to ensure the greatest possible transparency with regard to nanotechnology.

Substances in direct contact with food

Bayer is very attentively following the scientific discussion about the chemical bisphenol A (BPA), a feedstock for various plastics. As documented by numerous extensive, scientifically

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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 other countries. The European Food Safety Authority reiterated in September 2010 that BPA-based products can be safely used by consumers. And an independent group of experts convened by the World Health Organization also currently sees no cause to undertake specific measures to protect health in connection with BPA.

The moratoriums on the production and sale of BPA-based polycarbonate baby bottles that took effect in March and June 2011, respectively, take into account neither the scientific data nor the prevailing views of competent authorities worldwide. In addition, in response to market developments the BPA-based polycarbonate is now hardly used as a material for baby bottles in Europe anyway.

Innovation service providers – the Bayer service companies

The three service companies Bayer Technology Services, Bayer Business Services and Currenta – which together employ more than 13,000 people – also contribute to new, innovative solutions with specialized services.

Bayer Business Services concentrates on IT-based services, particularly in the areas of human resources, finance and accounting. Bayer Technology Services specializes in processes and in the planning, construction and further development of facilities. The service company Currenta – a joint venture between Bayer and Lanxess – provides services in the areas of utilities, waste management, infrastructure, safety & security, analytics and vocational training. All three companies aim to design processes and technologies in a more efficient and environmentally friendly manner in keeping with our sustainability strategy. This is documented by the innovation examples listed below.

Sustainable innovations at the Bayer service companies

Sustainable learning (Bayer Business Services)

Thanks to new methods, continuous training rather than classroom instruction sustainably improves learning success and increases the motivation to shore up acquired knowledge. New methods for better learning effects include submitting questions by e-mail following a training course, access to training platforms for Web 2.0 applications and to the Continuous Learning Improvement Program (CLIP), and supplementary, multimedia-enhanced training courses.

LifeNet™ (Bayer Technology Services in cooperation with Bayer CropScience)

Technology for incorporating the Bayer insecticide deltamethrin into mosquito nets made of polypropylene fibers (LifeNet™) to protect against malaria-transmitting mosquitoes. The technology is scheduled to be introduced to the market in 2011. The improved mosquito nets are made of very thin polypropylene fibers into which the WHO-recommended active ingredient has already been incorporated. This makes the nets stable, tear-resistant, user-friendly and longer-lasting.

Nitrification protection for wastewater treatment plants (Currenta)

The Environment and Analytics business units have jointly developed an automated test procedure to protect the functional capability of the Bayer wastewater treatment facility in Dormagen, Germany. This enables the early identification of any damaging effect that the wastewater has on the bacteria for nitrification (oxidation of ammonia). This in turn increases the operational reliability of the wastewater treatment plant and thus ensures the reliability of waste management at Bayer. The patent for this technology is being submitted.

Ecology

Bayer places great importance on **protecting the environment and using natural resources responsibly**. We use our **expertise and experience** both to develop innovative products that help protect the environment, nature and the climate and to optimize technologies and processes.



Modern technology to generate clean water: Simone Schnell (left) and Jürgen Schiefers from Currenta examine a water sample at the wastewater treatment plant, which was prepared with the help of innovative cascade biology.

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Responsible Care
initiative

The fact that we committed to the **Responsible Care® initiative** of the chemical industry at an early stage underlines our intention to continually improve product lines and production processes. In doing this, we rely on our efficient HSE management systems, which control the implementation of our environmental protection measures. We have reported in detail on the impact that our company's activities have on the environment for over 30 years. The **Bayer Sustainable Development Policy** also sets out the framework for our environmental action.

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Bayer Sustainable
Development Policy

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Renewable raw
materials

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Renewable raw
materials

Use of materials and energy

In view of rising raw material and energy prices, material and energy efficiency, together with innovation in processes and products, are crucial factors in competition. Bayer applies new strategies throughout the Group to optimize the efficient use of resources, reduce emissions and avoid waste.

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Sustainability Program

Production-specific procurement and production are organized on a decentralized basis in the subgroups in light of the diverse nature of Bayer's business activities. Detailed information on the use of raw materials, auxiliaries and supplies for the respective subgroup can be found on page 53f. of the Annual Report 2010. If it makes sense from a technical, economic and ecological viewpoint, we favor the use of **renewable raw materials**, although this still does not play a major part in terms of our total raw material consumption.

In order to analyze the use of resources such as energy, water and raw materials in its entirety and identify measures to minimize consumption, Bayer has launched another lighthouse project under its **Sustainability Program** in the form of the Resource Efficiency Check. This tool enables us to identify possibilities for process-oriented optimization to increase yields and in recycling, the utilization of by-products and wastewater or waste air treatment. The Resource Efficiency Check was performed in pilot projects at Bayer MaterialScience and Bayer CropScience in 2010.

The use of materials and energy and the level of emissions are determined to a great extent by the manufactured sales volume. This is a reference figure which we use to measure the efficiency of energy and resources.

In 2010, Bayer increased the manufactured sales volume by around 20 percent compared with the previous year, partly thanks to the global economic recovery. **Table 14**

The Group's energy consumption rose by only 10.8 percent year-on-year to 85.7 petajoules. This can be explained to a great extent by better utilization of capacity at the plants. To calculate energy use for the Group as a whole, we record consumption figures at our production sites. Sites used purely for administrative purposes account for only about 1 percent of the Group's energy use.

Targets

Climate protection (target 2020)

- > Reduce specific greenhouse gas emissions in the Group by 35% (direct and indirect emissions in relation to manufactured sales volume in metric tons) between 2005 and 2020

Process and plant safety (target 2015)

- > Implement the Bayer-wide initiative to increase process and plant safety; dedicated process and plant safety training for 40,000 employees worldwide by the end of 2012

Emissions (target 2015)

- > Reduce other relevant emissions (ozone-depleting substances -70%, volatile organic compounds -50%)

Waste (target 2015)

- > Reduce specific hazardous waste from production to 2.5% in relation to manufactured sales volume

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The chart indicating energy use at the Bayer Group shows the use of primary energy such as natural gas, coal and other energy sources as the starting point for our own energy generation. Primary energy conversion amounts to 51,632 terajoules. Additional steam from waste heat and procured electricity and steam add up to a total energy volume of 86,305 terajoules. After deduction of refrigeration energy sold to third parties, this results in total energy consumption of 85,710 terajoules (85.7 petajoules) for Bayer in 2010. [Table 15](#)

Air emissions

We report greenhouse gas emissions in accordance with the Greenhouse Gas Protocol (GHG Protocol). This involves presenting emissions over prior years in a portfolio-adjusted format in accordance with the financial control approach of the GHG Protocol. Direct emissions increased by about 5 percent year-on-year, compared with an approximately 20 percent increase in production. This disconnection from the production volume was achieved through improvements to technical processes and higher utilization of capacity at the plants.

Our own power plants are responsible for a large proportion of the direct greenhouse gas emissions. As we also supply energy to third parties, a reduction in energy use at Bayer’s production plants does not necessarily lead to a proportional drop in our direct greenhouse gas emissions. [Table 16](#)

The total of direct and indirect greenhouse gases rose by only 4.9 percent year-on-year

in 2010, while the manufactured sales volume grew by around 20 percent. [Table 17](#)

Bayer MaterialScience was able to cut CO₂ equivalents at a nitric acid plant in Caojing, China, by more than 50 percent through the catalytic reduction of the nitrous oxide emissions generated there.

Another example is an innovative, climate-friendly chlorine production process developed by Bayer together with its partners. This process – oxygen depolarized cathode technology based on sodium chloride, a lighthouse project under the Bayer Sustainability Program – will in the future allow energy consumption in chlorine production to be reduced by 30 percent. In 2011, Bayer plans to bring a plant on stream in Germany that will use this process and have an initial capacity of 20,000 metric tons per year. Emissions of CO₂ equivalents are expected to decrease by 250,000 metric tons by 2020 as a result of this process.

Currenta is cutting its CO₂ emissions as part of its climate program “Energy Efficiency Class A++” – for example achieving reductions of 30,000 metric tons each year through the modernization of the Chempark Dormagen site’s central thermal waste air incineration plant, which was completed in March.

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GHG Protocol

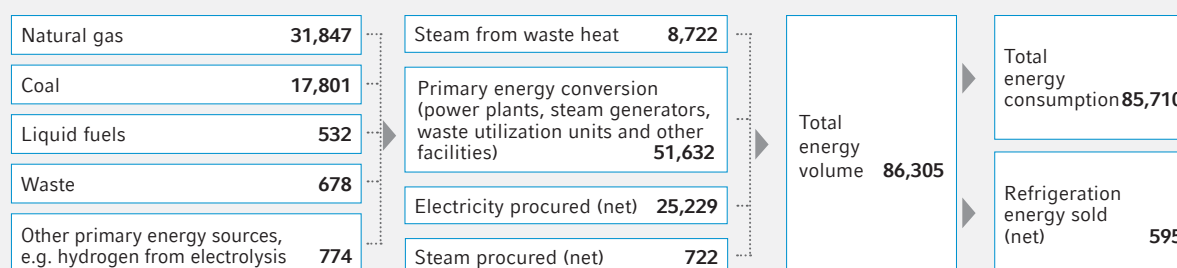
Emissions trading

Bayer is currently involved in emissions trading throughout the E.U. with 11 plants and approximately 2.5 million metric tons of CO₂. In the first trading period (2005–2007), Bayer was able to operate its own power plants under the emission rights allocated, without having to purchase large numbers of additional allowances.

14_Energy consumption and manufactured sales volume

	2006	2007	2008	2009	2010
Absolute energy consumption (petajoules)	80.5	85.3	82.8	77.3	85.7
Manufactured sales volume (million metric tons)	10.1	10.6	10.0	8.7	10.4

15_Energy use at the Bayer Group (terajoules p.a.)



News

Nitrous oxide emissions significantly reduced

Nitrous oxide is particularly harmful to the climate: its impact in terms of global warming is over 300 times that of carbon dioxide. In the Bayer Group, this greenhouse gas is generated in the manufacture of nitric acid, an important chemical raw material. Modernization of facilities at the three production sites is significantly reducing emissions of nitrous oxide. Thanks to a new process, Bayer can reduce nitrous oxide emissions at the Dormagen site by up to 99 percent, thus preventing a further 220,000 metric tons of CO₂ equivalents per year – approximately the same amount as emitted by 100,000 cars covering a distance of 15,000 kilometers per year. Through the installation of a secondary catalyst at the Caojing site in China, nitrous oxide emissions could be reduced there by around 50 percent. Nitrous oxide emissions should also be significantly lowered in the nitric acid plant in Baytown, United States, through a secondary catalyst installed in the second half of 2010.

Emissions trading has remained an important issue for Bayer during the second trading period from 2008 to 2012: the allocation rules that are currently in force take into account the environmentally friendly energy generation at our combined heat and power plants. However, the new E.U. emissions trading directive stipulates that from 2013 the industry

will also have to purchase allowances for electricity generation. For chemical plants, the allocation of allowances will be based on stringent benchmarks. Although the burden is set to be reduced significantly through the regulations planned by the European Commission for so-called at-risk sectors, we must expect further cost increases from 2013.

16_Greenhouse gas emissions* (million metric tons of CO₂ equivalents)

	2006	2007	2008	2009	2010	Target 2020
Direct greenhouse gas emissions**	5.71	5.59	5.09	4.57	4.80	
Indirect greenhouse gas emissions***	3.67	3.71	3.57	3.53	3.70	
Total greenhouse gas emissions	9.38	9.30	8.66	8.10	8.50	
Specific greenhouse gas emissions (metric tons of CO ₂ equivalents per metric ton of product)						0.79**** -35%

* Portfolio-adjusted in accordance with the GHG Protocol

** In 2010, 82.0 percent of greenhouse gas emissions were CO₂ emissions, 17.6 percent were N₂O emissions, approx. 0.3 percent were partially fluorinated hydrocarbons and 0.1 percent was methane.

*** Typically, CO₂ in incineration processes accounts for over 99 percent of all greenhouse gas emissions. Therefore, when determining indirect emissions, our calculations are limited to CO₂.

**** 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, and at BMS 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.

17_Greenhouse gas emissions for subgroups and service companies

(total direct and indirect emissions in million metric tons of CO₂ equivalents)

	2006	2007	2008	2009	2010	Target 2020*
Bayer MaterialScience	5.94	5.55	5.06	4.83	5.24	
Bayer HealthCare	0.58	0.57	0.56	0.55	0.54	0.53 -10%
Bayer CropScience	1.15	1.18	1.20	1.09	1.09	1.03 -15%
Others**	0.02	0.02	0.02	0.02	0.02	
Currenta***	1.69	1.98	1.82	1.62	1.62	
Specific greenhouse gas emissions for Bayer MaterialScience (metric tons of CO ₂ equivalents per metric ton of product)****	1.14	1.01	0.99	1.09	0.96	0.70 -40%

* Portfolio-adjusted, based on 2005 figures

** Total greenhouse gas emissions for Bayer Technology Services and Bayer Business Services

*** 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 BMS have revealed that in 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 BMS product volumes calculated.

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Further emissions

Emissions of ozone-depleting substances (ODS emissions) increased by around 19 percent to 20.8 metric tons in 2010. For the first time in many years we were unable in 2010 to achieve our target of keeping volumes of ozone-depleting substances to below 20.0 metric tons. Two individual incidents at two major production sites were mainly responsible for this. A temporary leak in the cooling circulation system at the Bayer MaterialScience site in Baytown, United States, led to the liberation of cooling gases with ODS potential. And at the Bayer CropScience site in Dormagen, Germany, ozone-damaging substances were emitted into the atmosphere also owing to a temporary leak. However, 73 percent of our total ODS emissions occur at the Bayer CropScience site in Vapi, India. Through the optimization of processes and additional technical measures in waste air treatment, we aim to reduce our ODS emissions there in particular in the future. In our new program of targets we have declared it our goal to reduce ODS emissions by 70 percent through 2015. [Table 18](#)

The volume of volatile organic compounds (VOC) fell by about 2 percent compared with the previous year. Over 70 percent of the Group's VOC emissions are generated at the Bayer CropScience site in Vapi, India. A project for the construction of waste air treatment plants is in the planning phase. By 2015, we hope to significantly reduce VOC emissions with this measure. The VCS production plant in Roussillon, France, recorded a significant reduction thanks to the installation of a new

waste air incineration plant. Production processes were changed at the Bayer HealthCare site in Orizaba, Mexico, which led to a 38 percent reduction in VOC emissions at the site. The specific VOC emissions for the Group as a whole were reduced to 0.2436 kg per metric ton of sales product. We have thus met the objective set in the 2006+ program. [Table 19](#)

Compared to the previous year, other important emissions such as carbon monoxide and sulfur oxides fell slightly in 2010, namely by 77 and 855 metric tons respectively, despite an increase in production volumes. We saw a rise in the volume of nitrogen oxides, caused by increased production activities at our major production sites. The volume of particulate matter in 2010 was around 203 metric tons worldwide, 17 metric tons less than in the previous year (220 metric tons). [Table 20](#)

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Use of water and emissions into water

Water is essential for sustaining life. By developing and supporting solutions for the efficient and economical use of water, Bayer is helping to conserve this important resource. This applies both to the company's own production activities and to the development of products, for example for agriculture (see page 18 of the Focus Issue Nutrition).

Responsible water usage

Since the end of 2008, Bayer has supported the [CEO Water Mandate](#), an initiative of the

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18_Emissions of ozone-depleting substances*

	2006	2007	2008	2009	2010	Target 2010
ODS in metric tons p.a.	13.1	14.7	17.1	17.5	20.8	20.0

Target 2015**
6.2 -70%

* In CFC-11 equivalents

** Target to be achieved by 2015 based on 2010 figures

19_VOC emissions

	2006	2007	2008	2009	2010	Target 2010
VOC in 1,000 metric tons p.a.	2.86	2.87	3.16	2.59	2.54	
VOC in kg per metric ton of sales product	0.2832	0.2708	0.3160	0.2979	0.2436	0.25 ✓

Target 2015*
0.1218 -50%

* Target to be achieved by 2015 based on 2010 figures

20_Other important air emissions (1,000 metric tons p.a.)

	2006	2007	2008	2009	2010
CO	2.2	2.0	1.7	1.4	1.4
NOx	4.0	4.0	3.9	3.5	3.7
SOx	3.8	3.6	3.2	2.8	2.7
Particulates	0.2	0.2	0.2	0.2	0.2

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CDP Water Disclosure

UN Global Compact. A list of examples of efficient use of water attests to our systematic commitment to sustainable water usage in the 2010 reporting year. In addition, we took part in the [Water Disclosure Project](#) carried out for the first time in 2010 by the Carbon Disclosure Project. 137 institutional investors asked 302 of the world’s biggest companies to disclose details of their water management along with opportunities and risks identified in connection with the use of water.

All three Bayer subgroups have implemented systems and standards that meet their specific challenges with regard to water usage. In its Water Protection Directive, Bayer HealthCare commits itself to using water responsibly. Bayer CropScience has also committed itself to conserving water and to sustainable use, while Bayer MaterialScience regulates, among other aspects, the efficient use of water in its HSEQ policy.

Water consumption

Consumption of water rose year-on-year by 16.5 percent. In relation to the growth in production volume of around 20 percent, specific water consumption has fallen slightly, however. The absolute rise is largely due to an increase in the volume of once-through cooling water owing to increased production at the BMS sites in Brunsbüttel and Leverkusen (both

Germany) and Antwerp, Belgium. In addition, a temporary leak in the cooling water system at the BCS site in Institute, United States, had an impact on the rise in the volume of water used. [Table 21](#)

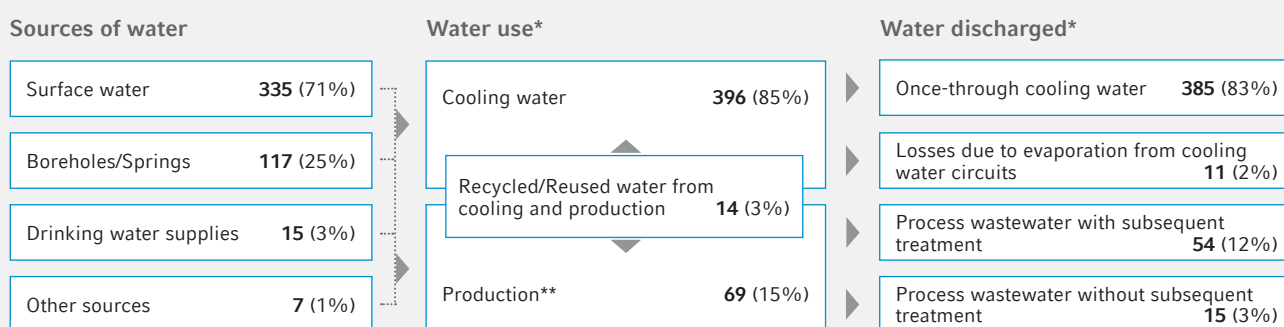
Usage of water

85 percent of the water used by Bayer is cooling water (this figure includes losses due to evaporation). This water is only heated and does not come into contact with products. It is therefore possible to return this water to the water cycle without any further treatment in accordance with the official permit specifications. In our production activities, we aim to use water several times and to recycle it. Water is already recycled and reused at 35 sites, e.g. in closed cooling cycles, through the reuse of treated wastewater or the recirculation of steam condensates as process water. A total of 14 million cubic meters of water were reused in the year under review. [Table 22](#)

Discharge of water

Following an increase in the volume of wastewater in the previous year, this was reduced by approximately 9 percent in the period under review. Of the 69 million cubic meters generated, 54 million were treated as wastewater in wastewater treatment plants. We were thus able

21_Water consumption in the Bayer Group (million m³)



* The differences between volumes of water consumed and water discharged can be explained, for example, by unquantified losses due to evaporation, leaks, quantities of water used as raw materials in products and volumes of condensate generated through the use of steam as a source of energy.
 ** Sum from production processes, sanitary wastewater and rinsing and cleaning processes in production

22_Net water intake by source

	2006	2007	2008	2009	2010
Water consumption (million m ³ per year)	442	447	439	407	474
– Proportion from surface water (percent)	53	57	58	58	71
– Proportion from boreholes/springs (percent)	35	32	32	32	25
– Proportion from public drinking water supplies (percent)	2	2	1	1	3
– Proportion from other sources, generally rainwater (percent)	9	9	9	9	1*

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

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for the Group as a whole to increase the proportion of wastewater purified in a wastewater treatment plant from 67 percent in the previous year to over 78 percent. Wastewater that is not treated is also subject to strict monitoring and assessment before it is discharged into disposal channels. [Tables 23 and 24](#)

Emissions into water

Bayer aims to keep its emissions into water as low as possible. Through process optimization in the production of Makrolon™ in Baytown, United States, we were able to completely avoid phosphorus emissions in the form of phosphate in 2010. This equates to a reduction of 88 percent across the Group. At the site in Berkeley, United States, the closure of one area of production significantly reduced the volume of phosphoric acid required there for the neutralization of wastewater.

Nitrogen emissions fell by around 23 percent year-on-year. Given the increase in the volume of sales product produced, the specific nitrogen volume improved to 0.0474 kg per metric ton of the volume of sales product produced, which was well below the target for 2010 of 0.0536 kg per metric ton. A considerable volume of nitrogen is released in the production of an insecticide at the site in Institute, United States. As these production activities were suspended for six months, there was a corresponding drop in volumes in 2010. The figure for the Leverkusen site was reduced as the method for determining the nitrogen pre-load of the volume of water used was improved.

Dialogue

Bayer supports Pittsburgh at the UN Environment Day



On the basis of its longstanding global partnership with the United Nations Environment Programme (UNEP), Bayer supported the city of Pittsburgh in its successful organization of the World Environment Day in North America in June 2010. The Group was involved in the planning and coordination of the individual events to which politicians, environmental experts, top managers, organizations and citizens from all over the world were invited.

“Pittsburgh really does demonstrate what cities around the world can do and how important it is in our own backyard to take steps to make the environment and where

you live into a place that’s healthy,” said Amy Fraenkel from UNEP. UNEP also praised Bayer’s support and willingness to assume corporate social responsibility, citing it as proof that the collaboration between the two organizations can move the environmental agenda forward.

Joining Greg Babe, CEO of Bayer Corporation, at the UN’s World Environment Day were Elisabeth Guilbaud-Cox, Deputy Director of UNEP North America, Dan Onorato, Chief Executive of Allegheny County, and Luke Ravenstahl, Mayor of Pittsburgh (from left).

The figures for emissions of total organic carbon (TOC) rose year-on-year by around 5.2 percent in the period under review. Owing to the increase in the volume of sales product produced, the specific volume of TOC dropped to 0.136 kg per metric ton of sales product.

23_Volume of wastewater

	2006	2007	2008	2009	2010
Volume of wastewater in million m ³	78	80	68	76	69

24_Emissions into water (absolute)

	2006	2007	2008	2009	2010	Target 2010
Phosphorus (1,000 metric tons p.a.)	0.81	0.99	0.78	0.74	0.09	
Nitrogen (1,000 metric tons p.a.)	0.73	0.68	0.67	0.64	0.49	
Nitrogen (kg per metric ton of sales product)	0.0723	0.0642	0.0669	0.0737	0.0474	0.0536 ✓
TOC* (1,000 metric tons p.a. of organically bound carbon)	1.49	1.77	1.59	1.35	1.42	
TOC (kg per metric ton of sales product)	0.147	0.167	0.159	0.155	0.136	0.138 ✓
Heavy metals (metric tons p.a.)	8.0	8.9	10.4	9.0	11.4	
Inorganic salts (1,000 metric tons p.a.)	843	825	812	726	866	
COD** – chemical oxygen demand (1,000 metric tons p.a.)	4.47	5.31	4.77	4.05	4.26	

* Total organic carbon

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

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The objective for 2010 has thus been met in full. The reason for the increase in TOC is the growth in production at the BMS sites in Dormagen, Germany; Caojing, China; and New Martinsville, United States. However, factors that were not linked to the economy, such as structural demolition work at individual sites, also had an impact on the increased figure for TOC.

Heavy metal emissions rose to 11.4 metric tons compared with the previous year. This increase is mainly due to the growth in production at the BMS sites in Brunsbüttel and Leverkusen, Germany. We also developed our monitoring and reporting, so that it is now also possible to record heavy metal levels in the central wastewater treatment plant at the Krefeld-Uerdingen site and heavy metal levels in wastewater that does not have to be treated. Work on components containing zinc led to additional zinc emissions in the wastewater discharged at the Brunsbüttel site.

The increase of 19.3 percent in emissions of inorganic salts was primarily due to increasing production activities, particularly at the BMS site in Caojing, China.

One specific example of our wastewater management is the modernization of the treatment plant in Leverkusen-Bürrig by our service company Currenta. Following a six-year period of modernization, the €18 million project was completed on schedule in mid-November 2010. The communal wastewater treatment

plant is now one of the most modern industrial treatment plants in Germany. The breakdown of nitrogen in the wastewater is improved by more than 40 percent and more efficient wastewater treatment is possible.

Waste and recycling

In order to minimize the consumption of materials and the volume of waste, Bayer attempts to reuse materials or to transfer them to other processes where this is technically feasible and makes good economic sense, in addition to reducing waste.

Waste generation and disposal

The total volume of waste generated fell by around 12 percent in 2010. Less demolition work and the completion of renovation projects meant that the volume of hazardous construction waste was substantially reduced in 2010, which is reflected in the reduction in the generation of hazardous waste. In contrast, the volume of hazardous waste from production, which represents a portion of the hazardous waste generated, increased as a result of growth in production activities. [Table 25](#)

However, the specific volume of hazardous waste from production fell significantly. Nevertheless, we were unable to meet our Group target of a specific value of 2.5 percent of waste per metric ton of sales product. Since 2007 it

25_Waste generated*

	2006	2007	2008	2009	2010	Target 2010	Target 2015
Total waste generated (1,000 metric tons p.a.)	649	928	1,077	914	807		
– Hazardous waste generated** (1,000 metric tons p.a.)	336	342	365	375	354		
– of which hazardous waste from production (1,000 metric tons p.a.)	234	275	305	302	325		
Specific volume of hazardous production waste (percent)	2.32	2.59	3.05	3.47	3.12	2.5	2.5

* Only waste generated by Bayer

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

26_Waste disposed of according to means of disposal

	2006	2007	2008	2009	2010
Total volume of waste disposed of* (1,000 metric tons p.a.)	654	931	1,061	918	809
– Proportion removed to landfill (percent)	44	48	45	40	32
– Proportion incinerated (percent)	32	26	24	28	36
– Proportion recycled (percent)	22	23	28	31	31
Waste that cannot definitively be categorized according to one of the above disposal methods (percent)	3	3	3	1	1

* 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.

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has not been possible to achieve this specific value. With the acquisition of Schering at that time, active ingredient production expanded considerably. This generates volumes of waste that are relatively high in relation to the production volume. We have included this reduction target in our new Targets 2015 program. [Table 25](#)

The total volume of waste disposed of fell further in 2010. This also applies to the volume of waste removed to landfill. Within the various means of disposal, there was a further shift towards the incineration and recycling of waste, in line with the previous year's trend. [Table 26](#).

The proportion of hazardous and non-hazardous waste removed to landfill dropped to 32 percent in 2010. [Table 27](#)

Recycling at Bayer

Throughout the Group, we encourage extensive recycling. However, this is not possible for a large proportion of our end products, owing to legal requirements, particularly for pharmaceuticals and crop protection agents. In the year under review, we continued to look for new opportunities for recycling, within the framework of legal regulations.

Bayer MaterialScience (BMS) also collaborates with other industry representatives to develop recycling solutions, taking on the role of mediator between customers and specialist recycling companies. The system for taking back transportation bags from customers in Thailand has been improved: after use, the bags are cleaned of the chemicals that have been transported in them in a special process and are then reused. In this way, 77,123 new transportation bags have been saved since 2007. The Global Sideline Business Department at BMS is working to recycle a range of facilities and tools that are no longer needed but that are still in working order, instead of disposing of them. BMS has sold a total of 66 tangible assets, such as polyurethane dosing systems, to third parties worldwide. In addition, 7,156 metric tons of scrap metal have been returned to the system. A further example of eco-efficiency is a new technology for coloring synthetic resin granules, which BMS uses as a raw material in the manufacture of

plastic products. This makes it possible to reduce the amount of waste granules generated by up to a quarter.

Currenta has applied for a patent for a new pretreatment process for electronic scrap. The special thermal pretreatment system allows up to 99 percent of precious metals such as gold, silver and copper to be recovered from old computer circuit boards or mobile phones.

Protection of biodiversity

The United Nations declared 2010 to be the Year of Biodiversity. Bayer is explicitly committed to the goals of the [Convention on Biological Diversity \(CBD\)](#), which was adopted as an international standard at the UN Earth Summit in Rio de Janeiro in 1992.

For Bayer CropScience, protecting biodiversity and conserving natural ecosystems form the basis for sustainable agriculture. Bayer CropScience's strategy encompasses research and development activities, solutions for improving plant health, assistance in tackling invasive species and measures to promote integrated crop management. Our own [position on biodiversity](#) governs our obligation to maintain and increase the diversity of species [obligation to maintain and increase the diversity of species](#). We have published details of the biodiversity projects of Bayer CropScience and other specific examples of our [commitment to the protection of species](#) on the Internet.

As a member of the [German Association of Research-Based Pharmaceutical Companies \(VFA\)](#), Bayer HealthCare also supports the Association's position on the UN Convention on Biological Diversity. In its search for potential active ingredients, Bayer HealthCare concentrates on the chemical synthesis of substances using state-of-the-art technologies in medicinal, combinatorial and computational chemistry. All work that could enable global access to natural substance sources is scrupulously reviewed in advance by Bayer in accordance with the Rio Convention. Bayer HealthCare is not specifically working on research into drug products derived from natural substances at present. While the drug we

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[Commitment to the protection of species](#)

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VFA

27_Hazardous waste* disposed of according to means of disposal

	2006	2007	2008	2009	2010
Total volume of hazardous waste disposed of (1,000 metric tons p.a.)	336	342	365	375	354
– Volume landfilled (1,000 metric tons p.a.)	134	101	81	89	56
– Volume incinerated/recycled (1,000 metric tons p.a.)	202	241	284	286	298

* Only waste generated by Bayer

market as Glucobay is obtained from the soil bacterium Actinoplanes by a biotechnological process, it is not considered a scarce natural substance, as it is present universally in the soil.

By comparing our global Site Register with nature reserves of international relevance (Asean Heritage, Barcelona Convention, UNESCO-MAB Biosphere Reserve, Wetlands of International Importance – Ramsar List and World Heritage Convention), we have ascertained that none of our production sites are adjacent to a nature reserve. Through an internal approval procedure, we also exclude the possibility that new production sites are set up in areas that are protected by statutory requirements of the countries concerned with respect to natural characteristics, biodiversity or similar factors. In every case, the stipulated minimum distances to protected areas are complied with. In order to limit the total area of land use at our production sites, we are committed to land recycling, for example by renaturizing unused sites in the Chempark locations.

Management systems for the implementation of our HSEQ targets

Bayer’s objective is to achieve an appropriate and uniform standard of HSEQ (health, safety, environmental protection and quality) throughout the Bayer Group and to steadily improve it. To meet this goal, the company has established HSEQ management systems in all subgroups and service companies that are based on recognized international standards and are regularly reviewed and updated. In 2010, more than 90 percent of all Bayer production sites had an internal HSE management system, i.e. one that is audited by Bayer.

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. The Bayer Group also regularly conducts internal observer audits at the subgroups.

International standards and certifications

In the year under review, we amended the audit of the extent to which our business activities are covered by HSE management systems and adjusted the presentation of results to the customary convention in the industry. We will no longer present the coverage purely in relation to the number of externally certified sites, but will instead use the scope of our activities as a reference figure, which is essentially reflected in the production volume and energy consumption.

According to this, over 60 percent of our activities (in terms of production volumes and/or energy consumption) takes place at sites that are certified or validated externally in accordance with internationally recognized regulations, such as the environmental management standard ISO 14001, the European environmental management regulation EMAS or the occupational safety standard OHSAS 18001. As part of our adopted certification concept, we are planning to increase our coverage with internationally certified HSE management systems to over 80 percent in the next few years. [Table 28](#)

All subgroups and service companies have industry-specific international quality management systems such as to ISO 9001 or GMP (Good Manufacturing Practice). The subgroups have additional systems and standards that address product-specific requirements. More information on [certifications](#) can be found on the Internet.

Initiative for plant and process safety

In 2010, Bayer launched a Group-wide [process and plant safety](#) ([Target, p.54](#)) initiative to sharpen the focus of our commitment to safety. The aim of the measures is to

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Certifications

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Process and plant safety,
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28_Certifications

Certifications to internationally recognized regulations and internal Bayer audits 2010	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 production volume and/or energy consumption) at certified or validated Bayer sites	62	38	9	92

* RCMS (Responsible Care Management System) in the United States or Industria Limpia (clean industry) in Mexico

News

New Bayer Safety Council boosts safety

The Bayer Safety Council set up by the Bayer Board of Management has met for the first time. “The purpose of the new council is to further boost the high safety standard at our company,” said Bayer CEO Dr. Marijn Dekkers, who was a guest at the first meeting. The council is made up of representatives from the subgroups and service companies on the Community Board for Technology, Innovation and Environment under the chairmanship of Dr. Wolfgang Plischke, the member of the Bayer Board of Management responsible for Innovation, Technology and Environment. Key topics addressed by the Safety Council include occupational safety, process and plant safety, and transport safety. “Safety is the top priority at Bayer,” said Plischke. He explained that the Group has achieved significant improvements in occupational safety over the past five years and has exceeded the targets it set itself. Plischke also revealed that Bayer had set even more ambitious targets for the entire Group for the period to 2015 and was launching a new project to further improve the already excellent level of transport safety.

The initiatives and programs introduced have proved justified and will be continued with renewed vigor. The focal points for 2011 are process and plant safety and the first Group-wide Bayer Global Safety Day, which will take place on September 13.

develop the culture of safety and safety standards at the plants and in the laboratories and to drive forward the status of safety technology.

The most important principles and related organizational structures were set forth in the Group Directive on Process and Plant Safety. Adjustments to the organization were made in 2010 and the first measures, including special training programs, were implemented. By 2012, around 40,000 employees worldwide are to receive targeted training in process and plant safety. The first Process and Plant Safety Symposium was held in October 2010 and was attended by 100 Bayer experts from 14 countries. The idea was to promote collaboration across all subgroups and countries in process and plant safety.

Environmental incidents and transport accidents

Unfortunately, even our extensive safety precautions and training procedures cannot entirely prevent environmental or transport

incidents from occurring. In accordance with our internal voluntary commitment, we report any leakage of substances with a high hazard potential from a quantity of 100 kilograms. For reasons of clarity, we have consolidated the classification system of “Level 1” and “Level 2” incidents that we used in previous years into a joint category. The minimum trigger level for reporting obligations has been maintained.

Bayer uses the term “environmental incidents” to cover incidents at plants operated by Bayer resulting 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 residents. Under “transport accidents,” we record incidents involving our own chemical transport services and those commissioned and paid for by us, in accordance with stipulated criteria. These include leakage of the load, graded according to the volume and dangerous goods class, personal injury and blocked transport routes.

29_Environmental incidents
(number p.a.)

2006	2007	2008	2009	2010
8	3	9	13	7

30_Transport accidents according to means of transport
(number p.a.)

	2006	2007	2008	2009	2010
Road	6	9	8	8	6
Rail	3	1	1	2	1
Inland waterways	0	0	0	0	1
Sea	0	0	1	0	0
Air	0	0	0	0	0
Pipeline	0	0	0	0	0
Total	9	10	10	10	8

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Transport safety issues**145 ONLINE REPORT**
Incidents that were observed by stakeholders

In 2010, we recorded seven environmental incidents that were reportable in accordance with Group specifications and eight transport accidents. One incident was assigned to both categories in accordance with our criteria. All incidents were analyzed and appropriate measures initiated. [Tables 29 and 30](#)

We have also listed and commented on other [incidents that were observed and reported by stakeholders](#) on the Internet.

Table 30 shows the development of figures for transport accidents, broken down according to means of transport. In total, around

one million transport movements took place in 2010.

Safety is the utmost priority for us. That also applies to the transport of goods, particularly in the case of hazardous materials. This includes [safety issues](#) along the entire value chain, from the selection of transport systems and logistics service providers to loading, the actual [transport](#) and unloading. Details are set out in a directive on transport safety. Individual examples of how subgroups use their initiatives to tackle specific safety issues in a targeted way have been compiled on the Internet.

Environmental incidents and transport accidents in 2010

	Personal injuries
Environmental incidents in 2010	
Currenta , Leverkusen, Germany, January 7, 2010: In the storage area, a large number of containers caught fire over an area of approx. 300 m ² . Very large volume of smoke produced.	no
Bayer MaterialScience , Dormagen, Germany, August 30, 2010: Brief release of vapors containing phosgene triggered an ammonia vapor wall for safety reasons. Approximately 700 kg of ammonia was released.	no
Bayer CropScience , Institute, United States, October 12, 2010: Hydrochloric acid vapors escaped during cleaning work on a tank. Approximately 1.3 metric tons of the gas was released into the atmosphere.	no
Bayer CropScience , Institute, United States, October 20, 2010: Wastewater from treatment (5.5 metric tons of a process wastewater solution containing 20 percent sodium hydroxide solution) with a high pH from the manufacture of crop protection agents was accidentally discharged into the cooling water system during cleaning work on a tank and from there entered the Kanawha River.	no
Bayer MaterialScience , Baytown, United States, November 8, 2010 : TDA leak from a discharge port on a goods wagon. A large quantity of toluene diamine leaked out, which was disposed of correctly. 5 kg of the substance entered the soil.	no
Bayer HealthCare , La Trinidad, Venezuela, November 22, 2010: An electrical short circuit caused materials stored in a basement to ignite. Fire with smoke.	no
Environmental incidents in 2010 that were also transport accidents	
Bayer CropScience , Kansas City, United States, June 7, 2010: Traffic accident during transportation of dangerous goods by a carrier commissioned by Bayer. The freight (2,000 kg of flubendiamide) was destroyed by the fire that followed.	no
Transport accidents in 2010	
Bayer MaterialScience , Pickering, Canada, March 30, 2010: Derailment of a rail tank truck loaded with a BMS product (MDI). No personal injuries or environmental damage resulted.	no
Bayer MaterialScience , Brunsbüttel, Germany, June 23, 2010: Traffic accident during transportation of dangerous goods by a carrier commissioned by Bayer. No damage or leakage of product.	no
Bayer CropScience , Rome, Italy, July 20, 2010: A passenger car caused a traffic accident involving a heavy goods vehicle commissioned by Bayer, which resulted in the death of the driver of the car. No leakage of product.	yes
Bayer MaterialScience , Leverkusen, Germany, August 20, 2010: The driver of a dangerous goods vehicle suffered a heart attack and survived. The collision caused one injury and a small amount of resin solution leaked out.	yes
Bayer MaterialScience , Kaohsiung, Taiwan, August 27, 2010: Leak during transportation of a container with discharge of 420 kg of a polyalcohol.	no
Bayer MaterialScience , Brunsbüttel, Germany, September 29, 2010: Gradual discharge of a total of around 600 kg of sulfuric acid at a ship loading/unloading station over a long period. Cause: a leak in the pipework.	no
Bayer MaterialScience , Durban, South Africa, November 17, 2010: A passenger car collided with a dangerous goods vehicle. No leakage of product.	no

Social Commitment

Social commitment forms an integral part of Bayer's **sustainability strategy**. We regard the **promotion of educational and social issues** as a contribution to **safeguarding the future viability of our society** – and thus as a **long-term investment** in positive framework conditions for our business.



The "Humboldt Bayermobile" is a project from the Bayer Science & Education Foundation designed to arouse interest in research. It is a truck 14 meters long that contains a fully fitted-out school laboratory that travels to schools in Berlin. This way, science comes to children.

Bayer has a very long tradition of social commitment. In 1923, chemist Dr. Carl Duisberg – one of the founding fathers of our company – established the first programs to promote science, education and social issues. In so doing he made an important contribution to society, while at the same time supporting educational opportunities for talented young people. And the company still assumes responsibility for social concerns today. Bayer wants to make a systematic and lasting commitment to the future viability of society – in the interests of both the common welfare and our company.

The selection criteria for our support activities are innovation capability, sustainable effectiveness and efficient project implementation. The focus is on issues of particular social relevance in countries in which Bayer is represented. We also concentrate on areas that are of relevance to our company, because it is there that we can offer not just the involvement of our employees, but also our technical and economic expertise. In the future, relevance to Bayer's business will become an increasingly important criterion, particularly when selecting activities in the communities near our sites.

All charitable donations are subject to the provisions of a Group-wide directive that establishes a framework for the alignment in terms of content and strategy and for the proper handling of our funds. The Foundation & Donations Management Department within the Corporate Office of Bayer AG coordinates the strategic alignment of the activities and thus the related monitoring and reporting.

In 2010, Bayer made available three percent of net income – or €56.8 million – for its **social commitment** worldwide. This total also includes the funding allocated to the company's three **foundations**: the Bayer Science &

Education Foundation, the Bayer Cares Foundation and the Bayer USA Foundation. About half of all expenditures worldwide come from budgets that are directly managed in the company's headquarters. The other half of spending is financed from the budgets of the Bayer subgroups and country companies around the world. Depending on the project requirement, the support vehicles range from projects initiated by Bayer (often in cooperation with local partners) through volunteering programs and donations to initiatives run by the Bayer foundations and Bayer clubs. [Table 31](#)

Education and research

Innovation is a central condition for our company's success. That's why we traditionally place great emphasis on support for science and education. Here we not only focus on our own activities, but also promote scientific education in general: we support educational opportunities, talented young scientists and leading researchers through specific programs organized by the Bayer Science & Education Foundation and through targeted initiatives.

In December 2009, the German President presented researchers from Bayer with the German Future Award for technology and innovation. They donated the prize money of €250,000 to a fund for the Bayer foundation's newly established Thrombosis Award. The company matched this amount, enabling the foundation to set up a special endowment of €500,000 for the new scientific prize. The €30,000 Thrombosis Award

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Social commitment –
2010 expenditures

146 BAYER WEB
Bayer foundations

Targets 2015

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

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153 ONLINE REPORT Bayer Hemophilia Awards Program, Go West, Bayer Fights Chagas
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155 BAYER WEB Aspirin Social Award
156 WWW Humboldt Bayermobile
157 ONLINE REPORT AMAJA
158 BAYER WEB Making Science Make Sense

funded through this endowment will be presented in the future every two years to young scientists who conduct research into vascular diseases.

The Bayer foundation also presents the €75,000 [Hansen Family Award](#) for medical research and the [Early Excellence in Science Award](#) for particularly talented young researchers in the fields of biology, chemistry and materials research.

Our activities also focus on good scientific school education. In this connection we concentrate on three pillars: the school programs funded by the Science & Education Foundation, the “[Baylabs](#)” laboratories for schoolchildren and competitions for schoolchildren (*Ugend forscht*, International Chemistry Olympiad, International Biology Olympiad). In Germany, the Bayer Science & Education Foundation supports schools in the communities near Bayer’s sites. In Berlin and Brandenburg, for example, the foundation joined with Humboldt University to sponsor the “[Humboldt Bayermobile](#).” The mobile laboratory offers school classes the opportunity to experiment and conduct research just like genuine scientists. The aim is to awaken young people’s enthusiasm for science and technology at an early stage. Bayer helps children worldwide. In Belford Roxo, Brazil, for example, the company joined with the organization [AMAJA](#) to arrange tutoring in various disciplines for 76 children from socially disadvantaged families.

Information on our successful educational initiative “[Making Science Make Sense](#)” is also available on the Internet.

Health and social needs

Bayer demonstrates an active commitment to improving health services and social conditions in many regions of the world. In this way we contribute to a stable environment at our sites and help to solve global challenges.

We assume global responsibility in the area of health care through international partnerships with institutions such as the [World Health Organization \(WHO\)](#), the [German Foundation for World Population \(DSW\)](#) and the

[United States Agency for International Development \(USAID\)](#) (see also page 14f. in the Focus Issue Health). In China we cooperate with the Chinese Health Ministry in the “[Go West](#)” project to provide continuing education to physicians. We also initiate our own projects such as the [Bayer Hemophilia Awards Program](#) in the United States or the employee project “[Bayer Fights Chagas](#)” in South America. You can find more on these examples online.

With its Volunteering Program, the Bayer Cares Foundation supports current and former Bayer employees, as well as residents of the communities near the company’s sites, who are actively involved in social projects on a voluntary basis. In 2010, for example, the foundation provided total funding of more than €140,000 to 54 volunteer projects

Since 2010, the foundation has also presented the annual [Aspirin Social Award](#) – worth a total of €35,000 – for innovative aid and consultancy programs in the area of health care.

Another important area is aid for victims of natural disasters. Bayer donates medicines, materials and money to help people in desperate need. The Bayer Cares Foundation supports long-term reconstruction projects. For example, the foundation joined with Caritas International in funding a health center that can provide medical care to 30,000 victims of the earthquake in Haiti. This was made possible by Bayer employees in 35 countries, who donated a total of €250,000 in response to the company’s global appeal. Bayer contributed a further €100,000 to this amount, bringing the total to €350,000. In the immediate aftermath of the earthquake, the company donated emergency relief in the form of medicines worth over €650,000, bringing the total value of Bayer’s aid to Haiti to more than €1 million. We assisted victims of the flood in Pakistan with monetary and medical donations totaling €60,000. In addition to these major efforts, the company also provided support following smaller natural disasters. Bayer’s total expenditures for natural disaster aid in the reporting period totaled €1.751 million.

The company will provide emergency aid worth over €1 million for the victims of the

31_Social commitment in 2010

	in €1,000	Share of total in percent
Total	56,775	100
Education and research	6,639	12
Health and social needs	26,090	46
Environment and nature	2,909	5
Sports and culture	21,137	37

News

Bayer renews partnership with UNEP

The global youth and environment partnership between the United Nations Environment Programme (UNEP) and Bayer has been extended through the end of 2013. Millions of young people have benefited from the partnership's numerous projects since it was launched in 2004. The aim of this collaboration is to further strengthen awareness among children and young people around the world for ecological relationships, promote the exchange of experiences and help to build networks. Bayer was the first company in the world to enter into a long-term, global partnership with UNEP in the field of youth and the environment. Bayer supports the joint activities to the tune of €1.2 million annually. The partnership projects range from tree-planting campaigns through the provision of instructional materials and creative competitions to the organization of major youth and children's conferences and the integration of young people into global events. This collaboration is now regarded by both partners as an exemplary public-private partnership.

earthquake and tsunami in Japan. In addition to the planned donation to the Japanese Red Cross of more than €880,000, the company will supply urgently needed medicines with a total value of around €120,000. Moreover, the Bayer Cares Foundation issued a worldwide call to its employees for donations. The funds collected, which the company will double up to an amount of €250,000, will be used to finance a long-term reconstruction project in the affected region. Bayer is making available more than €85,000 in 2011 for immediate aid for the victims of the flooding in Queensland, Australia.

The Bayer Science & Education Foundation also supports climate protection projects. Every two years since 2008, the foundation has presented the [Bayer Climate Award](#), which carries with it a purse of €50,000. For more information on climate protection at Bayer, see page 22 in the Focus Issue Climate. In addition, we present a further educational program for young people, the Bayer foundation's "Bayer Climate Fellowship/[International Sustainability Camp](#)" program, on the Internet.

159 BAYER WEB
[Bayer Climate Award](#)

160 ONLINE REPORT
[International Sustainability Camp](#)

Environment and nature

As an industrial enterprise, we believe that the careful use of natural resources and sensitization to environmental issues should be key elements of our social commitment. We want to strengthen environmental awareness, particularly among young people.

Together with our global partner, the [United Nations Environment Programme \(UNEP\)](#), we once again implemented a dozen projects for young people and children in 2010. The focal point of these activities was the International Children's Conference on Biodiversity in Nagoya, Japan, which was attended by more than 220 participants from 40 countries. And thanks to particularly strong interest from China, the annual children's painting competition run jointly by Bayer and UNEP received 3.2 million entries from 95 countries, another all-time high. As part of the Bayer Young Environmental Envoy Program, we invited young people from Africa, Asia and Latin America on a week-long study trip to Germany in 2010.

At the site in Belford Roxo, Brazil, Bayer initiated the "Escola Verde Project." With the help of this environmental education program, teachers and students from a total of 120 schools learned more about recycling, waste disposal and urban greening in 2010.

Sports and culture

Support for clubs and ensembles at Bayer is closely linked with the company's history, and we have been active in the areas of sports and cultural affairs for more than 100 years. Our goal here is to promote health and creativity while creating meaningful leisure time options.

Our support for sports is based on three pillars: recreational, youth and disabled sports. This expressly does not include our promotion of competitive sports – with professional soccer at the center of these activities – which is part of the company's image advertising.

A new Bayer initiative within the scope of our social commitment goes by the name of "Simply Soccer" and is aimed at supporting schoolchildren with mental and learning disabilities. Together with the German Soccer Federation (DFB), Bayer organizes and supports partnerships between special schools and soccer clubs. In this way, we enable young people with disabilities to participate in club soccer. At the same time, the participants' contact with children who do not have disabilities promotes mutual learning and understanding.

The promotion of cultural activities also has a long tradition. Bayer Arts & Culture and its clubs and ensembles offer a diverse program of music, theater and art at our German sites.

161 BAYER WEB
[UNEP](#)

162 ONLINE REPORT
[Simply Soccer](#)

Reporting principles

Our Sustainable Development Report provides clear and concise information on all issues that we and our stakeholders consider to be of relevance for sustainability. Our reporting meets the requirements established in the internationally recognized G3 guidelines of the Global Reporting Initiative (GRI) and covers all financial and non-financial indicators corresponding to GRI level A+. Our reporting is also based on the content of the 10 principles of the UN Global Compact (UNGC) and on OECD Guidelines. You can find a summarized GRI index and the corresponding UNGC principles inside the back cover. A comprehensive overview of the GRI indicators and our progress in implementing the 10 UNGC principles can be found in the online report.

163 BAYER WEB
UNGC progress report

164 BAYER WEB
Long version of
GRI Index

When selecting and measuring indicators, we took recommendations by the following into consideration:

- World Business Council for Sustainable Development (WBCSD)
- Greenhouse Gas Protocol (GHG Protocol)
- European Chemical Industry Council (Conseil Européen de l'Industrie Chimique, CEFIC)
- Society of Investment Professionals in Germany (Deutsche Vereinigung für Finanzanalyse und Asset Management, DVFA) in conjunction with the European Federation of Financial Analysts Societies (EFFAS), for the reporting of non-financial indicators.

Recording our sustainability indicators

Transparent reporting is based on the acquisition of valid and plausible data. 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. We use various other information systems to gather HR performance indicators and social data worldwide, such as ProKon, the Global HR Productive system and the reporting database Human Resources Controlling Tool. 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. The following information on the reporting group applies to all indicators with the exception of greenhouse gas emissions:

- The years 2006 to 2010 are shown as continuing operations following the spin-off of Lanxess. The Wolff Walsrode and H.C. Starck sites and the Diagnostics Division are no longer included in the reporting group. Schering sites are included from mid-2006. Because Schering sites were reported for the first full year in 2007, some indicators may show year-on-year balance sheet growth in 2007.
- Data on occupational injuries and transport accidents and environmental incidents are captured worldwide at all sites of subgroups and service companies.
- Environmentally relevant indicators are recorded at all (production) sites.

To meet the customary international standard, we shall modify our reporting on occupational injuries for the next report by replacing the indicator used to date, the "million working hour quota" (MAQ), with the LTRIR. The LTRIR (Lost Time Reportable Incident Rate) is based on 200,000 employee working hours and includes work-related illnesses. At the same time, we will extend our reporting to include incidents that do not lead to lost working time but require more than simple first aid measures. The corresponding indicator is the RIR (Recordable Incident Rate). (See also page 41 in the Employees section.)

The auditing company Ernst & Young reviewed the data capture process and statements made in the entire Sustainable Development Report, including the printed version and the additional online content, to verify that they are consistent, appropriate and plausible (see page 69f.). Furthermore, on-site visits were made to 10 reporting objects in Germany, France, the United States and Thailand. During these visits, random checks were performed on the gathering and reporting of HSE data.



To the Management Board of Bayer AG, Leverkusen

Our engagement

We have reviewed all parts of the Bayer Sustainable Development Report (hereinafter: the report) for the reporting period from January 1, 2010 to December 31, 2010. The report is published both as a printable version and as an online version on Bayer's web presence www.sustainability2010.bayer.com and www.nachhaltigkeit2010.bayer.de respectively.

A review is aimed at achieving a limited level of assurance and is therefore less extensive than an audit, which is aimed at achieving reasonable assurance. Consequently, a review cannot ensure that all significant issues are identified as in an audit. Accordingly, we cannot express a conclusion in the positive form (audit opinion) on the report.

Limitations of our engagement

Our engagement is exclusively limited to the German and English printable version as well as to the German and English online version on Bayer's web presence www.sustainability2010.bayer.com and www.nachhaltigkeit2010.bayer.de 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 statements from external experts on pages 16, 20 and 24 in the printable version and on the online version respectively.

Criteria

We assessed the report against the criteria set out in the Sustainability Reporting Guidelines Vol. 3 issued by the Global Reporting Initiative and the reporting principles presented on the front flap of the report. We believe that these criteria are suitable for our assurance engagement.

Responsibility of the Management Board of Bayer AG

The Management Board of Bayer AG is responsible for the preparation and the content of the report in compliance with the above-mentioned criteria. This responsibility includes the design, implementation and maintenance of internal controls for the preparation of a report that is free from material misstatements, in accordance with the above criteria and based on suitable methods for gathering source data.

Our responsibility

Our responsibility is to issue an assurance report on the report based on our review. Our responsibility in performing our assurance activities is to the management of Bayer AG only and in accordance with the terms of reference agreed with them.

We conducted our review in accordance with the International Standard on Assurance Engagements (ISAE) 3000. This standard requires that we comply with our professional duties and plan and perform the review to obtain a limited level of assurance to preclude that the report is not in accordance, in material respects, with the aforementioned reporting principles and criteria.

We performed the engagement in accordance with the independence requirements of the IFAC Code of Ethics for Professional Accountants.

Procedures

Within the scope of our engagement, we requested evidence on a sample basis based on risk and materiality criteria to obtain a limited level of assurance on the compliance of the report with the reporting principles and criteria. The nature and scope of our work was based on our professional judgment and we have performed all the procedures deemed necessary to provide a basis for our conclusions. The performance of our engagement mainly involved the following work:

- Assessment of the suitability of the underlying criteria and their consistent application.
- Inquiries of employees concerning the sustainability strategy, sustainability principles and sustainability management of Bayer AG.
- Inquiries of employees responsible for data capture and preparation of the Sustainable Development Report designed to assess the sustainable development reporting system, the data capture and compilation methods as well as internal controls to the extent relevant for a review of the Sustainable Development Report.
- Inspection of the relevant documents and systems for gathering, analyzing and aggregating data from the areas Health, Safety & Environment (HSE) and Human Resources (HR) in the reporting period as well as tests on a sample basis.
- Analytical considerations at Group level, subgroup level and the level of significant reporting units with regard to analysis and aggregation of HSE and HR data in the preparation of the report.
- Inquiries and inspection of documents on a sample basis relating to the collection and reporting of HSE data during site visits for the following 10 reporting units: Bayer HealthCare Berlin (Germany), Bayer HealthCare Myerstown (United States of America), Bayer CropScience Frankfurt (Germany), Bayer CropScience Knapack (Germany), Bayer CropScience Roussillon (France), Bayer MaterialScience Dormagen (Germany), Bayer

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MaterialScience Map Ta Phut (Thailand), Bayer Material-Science South Charleston (United States of America), Bayer Technology Services Dormagen (Germany) and Currenta Leverkusen (Germany).

- Review of material qualitative statements in the report with regard to consistency and plausibility.
- Inquiries of employees from selected departments at the Group's headquarters, at subgroup level and the service companies and at the sites visited relating to significant qualitative statements made in the report as well as inspection of underlying documents.
- Review of selected press articles to ascertain whether they reflect company-specific topics of relevance for sustainable development considered in the report.

Our conclusion

Based on our work, nothing has come to our attention that causes us to believe that the printable version of Bayer's Sustainable Development Report 2010 and the online version on Bayer's web presence www.sustainability2010.bayer.com and www.nachhaltigkeit2010.bayer.de respectively are not presented fairly, in material respects, in accordance with the reporting principles and criteria.

Recommendations

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

- The comprehensive sustainability strategy of Bayer aims to balance ecological and social activities with the economic growth and interests of the company. We recommend to consistently continue the strategic integration of sustainability and the new values concept LIFE into the core business and existing risk and reputational management systems across all subgroups and service companies.
- As a socially engaged, globally operating company, Bayer seeks a transparent and tailored dialogue with its internal and external stakeholders via different communication media. Through regular surveys and workshops with management representatives, Bayer determines a materiality matrix which correlates the importance of various issues from the viewpoint of its stakeholder groups with their importance to Bayer. We support the continuous advancement of the established and systematic dialogue with all employees and Bayer's relevant stakeholders originating from industry, academia, politics and general public.
- Through BaySIS™, Bayer has available a sophisticated, IT-based information system for the collection, aggregation and analysis of data related to Health, Safety and Environment (HSE). We suggest proceeding the enhancement of this database on a regular basis.
- With the help of HSE management systems that are based on recognized international standards and regular reviews, Bayer wants to achieve an appropriate and uniform performance level. We welcome the newly determined external certification concept for HSE management systems across all Bayer sites aiming to increase present coverage from 60% to 80% within the next years.



Peter Nolden
Wirtschaftsprüfer
[German Public Auditor]

Ernst & Young GmbH
Wirtschaftsprüfungsgesellschaft

Düsseldorf, May 3, 2011



Annette Johne
Wirtschaftsprüferin
[German Public Auditor]

Glossary

A

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

ATM – “Access To Medicine” indicates the performance of pharmaceutical companies in terms of promoting general access to vital drugs and improving knowledge of health issues.

B

BayPac (Bayer Corporation Political Action Committee) An association of Bayer USA employees through which private donations are collected to support candidates in their election to political offices.

C

Carbon Disclosure Project is an independent not-for-profit organization that collects climate-relevant information from companies on behalf of analysts and investors. The Carbon Disclosure Leadership Index (CDLI) has been published as part of the Carbon Disclosure Project since 2007. Criteria for the CDLI ranking comprise the level and quality of disclosure of climate-relevant data and reporting on long-term climate strategy, ambitious objectives and specific achievements in reducing greenhouse gas emissions. The new Carbon Performance Leadership Index (CPLI) introduced in 2010 evaluates the efforts of around 500 large companies to reduce CO₂ emissions.

Carbon footprint is the sum of greenhouse gas emissions, measured in CO₂ equivalents, for a specified entity e.g. a company, the life cycle or partial life cycle of a product, or a service.

Carbon nanotubes (CNT) Microscopically small tube-shaped structures (molecular nanotubes) made of carbon.

Chagas Chagas (South American trypanosomiasis) is an infectious disease caused by parasites (*Trypanosoma cruzi*). It is transmitted to humans by so-called assassin bugs (*Reduviidae*).

China Greentech Initiative The China Greentech initiative is an international platform based in China for the identification, development and promotion of green technology solutions. Founded in 2008, it represents more than 100 partners from industry, services and politics. Its focus is on strategic market research in the field of greentech.

COD Chemical Oxygen Demand. Measure of the total amount of organic compounds in water, including those that are poorly degradable.

Compliance

- Corporate compliance comprises the observance of statutory and company regulations on lawful and responsible conduct by the company, its employees and its management and supervisory bodies.

- 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 citizen Term denoting the status of a company as a responsible member of society. Corporate citizenship is often employed as a synonym for corporate social responsibility, a concept which enables companies to position themselves as “good citizens.”

D

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

Dressing (seed dressing) Treatment of seeds with crop protection agents prior to sowing.

E

Econet China is an information platform for construction, energy and the environment in China specifically for German companies to facilitate market access and arrange contacts in the greentech market.

Ecotoxicity Ecotoxicity is used to describe the harmful effects that chemical substances, preparations or formulations have on living organisms, their population and the natural environment.

EMAS Short for Eco Management and Audit Scheme, also known as E.U. Eco-Audit or Eco-Audit. It is an E.U. regulation. Introduction of EMAS is voluntary. Examples of organizations that can be validated according to EMAS are industrial companies, service providers and administrative centers.

Energy consumption (calculated in petajoules)

Unit of labor, energy and heat volume (1 joule = 1 watt x second = 0.2239 calories; 1 petajoule = 10¹⁵ joules)

ESG indicators ESG stands for Environment, Social, Governance. Indicators in these areas are playing an increasingly important role in assessing companies' achievements in the field of sustainability.

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.

External Adverse Incident Guideline

This guideline governs global internal reporting channels in the event of unexpected incidents involving Bayer CropScience products.

F

FDA U.S. Food and Drug Administration, which is responsible among other things for licensing drugs on the U.S. market. It corresponds to the Federal Institute for Drugs and Medical Devices (BfArM) in Germany.

G

GHG Protocol The Greenhouse Gas Protocol is a standard tool for the registration 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).

GHS Globally Harmonized System for the classification, labeling and packaging of substances and mixtures (Regulation (EC) No. 1272/2008), which has been in effect since January 20, 2009

Global Product Strategy Based on the objectives of the United Nations, the International Council of Chemical Associations (ICCA) took the initiative and established the Global Product Strategy (GPS). The aim of the GPS initiative is to improve and standardize the level of product stewardship in the chemical industry worldwide.

Green IT Efficiency-raising and resource-conserving measures in the information and communications technology sector for reducing greenhouse gas emissions

H

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

I

Innovative Vector Control Consortium (IVCC) Initially established as a research consortium in November 2005, the Innovative Vector Control Consortium (IVCC) has now evolved into a Product Development Partnership (PDP). The IVCC brings expertise and technical resources together with the goal of overcoming barriers to innovation in the development of new insecticides and information systems for improved vector control in health care.

ISO 14001 International standard specifying requirements for environmental management systems.

L

LTRIR (Lost Time Reportable Incident Rate) – The number of reported occupational injuries and work-related illnesses resulting in at least one or more days lost per 200,000 hours worked.

M

Macular degeneration Age-related macular degeneration is one of the most common causes of blindness. In the United States and Europe, wet AMD is

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the most common cause of blindness in people aged above 65. The Bayer active ingredient VEGF Trap-Eye for the treatment of wet (age-related) macular degeneration (AMD) is currently in Phase III of clinical development.

MDI Methylene diphenyl diisocyanate, a raw material for polyurethane applications and insulating foam.

Millennium Development Goals In 2000, high-ranking representatives from 189 countries adopted the Millennium Declaration at a UN summit in New York. This describes the global challenges and agenda for international politics at the beginning of the 21st century. Eight internationally agreed objectives, the Millennium Development Goals (MDGs), were derived from the Declaration and assigned specific targets and indicators. These goals, such as eradicating poverty, maintaining peace and protecting the environment, should be achieved by 2015. The UN is monitoring the implementation of the Millennium Declaration.

N

Nitrification, also called ammonia oxidation, describes the bacterial oxidation of ammonia (NH₃) into nitrate (NO₃⁻). In the nitrogen cycle of ecosystems, nitrification plays an important role because, through this process, nitrogen-containing mineral nutrient is formed for plants.

O

OHSAS 18001 stands for the Occupational Health and Safety Assessment Series, which contains requirements for occupational health and safety management systems.

Open innovation approach The open innovation approach describes the optimization and opening up of the innovation processes of companies and thus the active strategic use of outside sources to expand one's own innovation potential.

Ozone-depleting substances (ODS)

Ozone-depleting substances include fluorochlorohydrocarbons, other fully halogenated fluorochlorohydrocarbons, halons, tetrachlorocarbon, 1,1,1-trichloroethane, methyl bromide, partially halogenated fluorobromohydrocarbons and partially halogenated fluorochlorohydrocarbons. The successive discontinuation of their use was resolved in 1987 by the Montreal Protocol.

P

Phase I-III studies Phase I-III studies are phases in the clinical development of a drug product. The candidate active ingredient 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 Launch Policy Supported by the Biotechnology Industry Organization, this policy aims to simplify the traffic in commodities and minimize trade disruptions.

Product Safety Assessments Process for assessing product safety in terms of risks to the environment and health. This comprises the steps product prioritization, risk characterization, risk management and risk communication on the basis of the information available.

Product stewardship 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

R

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

3R Principle is the term used to describe the scientific concept of "reduce, refine and replace" of the European Partnership for Alternative Approaches to Animal Testing (EPAA), in which Bayer is an active member. In the context of animal testing it refers to efforts to develop additional and substitute methods of animal testing to spare animals and minimize their suffering.

S**Seed Treatment Application Center**

The Seed Treatment Application Center (STAC) in Monheim is a center of expertise for seed treatment applications technology that offers consulting, technical services, support and training for customers.

T

TDA Toluene diamine, an intermediate in the plastics industry.

Telepresence is a type of videoconferencing that enables lifelike, one-on-one communication across great distances through high-resolution communication solutions.

Total Organic Carbon (TOC) Total volume of organically bound carbon in water.

U

UN Global Compact This global pact represents an agreement between companies and the United Nations. It calls upon transnational companies to participate in sustainable globalization in a constructive, responsible manner. Companies participating in the UN Global Compact have undertaken to engage in responsible business practices based on compliance with minimum social and ecological standards, and to document their company's commitment in this area. These standards have been encapsulated in 10 principles based on the areas of human rights, labor, environment and anti-corruption.

UNEP 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. Government agency for development aid in the United States.

V

Varroa mites Varroa mites feed on the blood of honey bees. They reproduce in the breeding cells of the bees, damaging the brood until bee colonies die due to the lack of young.

VEGF Trap-Eye VEGF Trap-Eye is a fully human, soluble receptor binding protein of VEGF (vascular endothelial growth factor). The active ingredient is currently in Phase III of clinical development for the treatment of wet (age-related) macular degeneration (AMD).

Volatile Organic Compounds (VOC)

Volatile organic compounds are gaseous 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 agents into various hazard classes. Class 1 products are deemed to be extremely hazardous.



Statement GRI Application Level Check

GRI hereby states that **Bayer AG** has presented its report “Sustainable Development Report 2010 “ 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 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 Guidelines.

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

Amsterdam, 3 may 2011



Nelmara Arbex
Deputy Chief Executive
Global Reporting Initiative



The “+” has been added to this Application Level because Bayer AG has submitted 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 29 April 2011. GRI explicitly excludes the statement being applied to any later changes to such material.

UN Global Compact Principles	GRI core indicators (version G3)	Page number, links to the online report
Vision and strategy		
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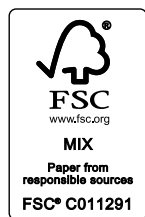
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Financial Calendar

Q2 2011 Interim Report	July 28, 2011
Q3 2011 Interim Report	October 27, 2011
Annual Report 2011	February 28, 2012
Q1 2012 Interim Report	April 26, 2012
Annual Stockholders' Meeting 2012	April 27, 2012
Sustainable Development Report 2011	scheduled for May 2012
Q2 2012 Interim Report	July 31, 2012
Q3 2012 Interim Report	October 30, 2012

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