

Sustainable Development Report 2004



TABLE OF CONTENTS

→ Visions and Values

→ The new Bayer Group

→ Foreword Werner Wenning

→ Management - Practical sustainability is a team function

→ Economic responsibility

→ Ecological responsibility

→ Responsibility to society

→ Worldwide data recording

- Data recording 2001 – 2002
- Data recording 2003

→ Sustainable development objectives

→ Dialog at Bayer

- Glossary
- More on the children's pictures
- Imprint

You can also call up particular sections of the document. Please click on the desired heading in the table of contents.



Science For A Better Life

Visions and values

Our contribution to a sustainable world

Bayer has been committed to environmental protection and social responsibility around the world for more than a century. In line with the principles of sustainable development, our future-oriented strategy pays equal attention to economic, ecological and social requirements.

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.

In reorganizing the Bayer Group and continuing to streamline our portfolio, we have set out to create a new Bayer – focused on its strengths, its potential, its customers and the markets of the future.

To speed innovation and growth, we are carrying out a strategic realignment and concentrating our future activities in three subgroups: HealthCare, CropScience and MaterialScience, supported by three service companies. Our employees are eager to actively participate on the basis of common values, using their knowledge and their innovative skills.

Building on a proud history as an inventor company, we plan to continue setting trends in research-intensive areas. For us, innovation is a major factor in improving existing products and discovering new ones. It lays the foundation for competitiveness, growth and economic success.

We believe our technical and commercial expertise entails a duty to contribute to sustainable development – a principle we wholeheartedly

endorse, mindful of its social, ethical and environmental elements. In awareness of our responsibilities as a corporate citizen, we define economy, ecology and social commitment as values of equal rank.

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

The new Bayer Group

The Bayer Group has been reorganized – faster and more sustainably than ever before. The new Bayer Group is flexible, competent and focused on its core businesses and particularly on research, paving the way for long-term growth and a sustained increase in corporate value. The new corporate structure comprises a holding company (Bayer AG), three subgroups and three service companies. Bayer Chemicals (with the exception of H.C. Starck and Wolff Walsrode) and some areas of the MaterialScience business area are being transferred to a new company called Lanxess, which is to be listed on the stock exchange by the start of 2005.

Bayer AG

Bayer AG is the management holding company for the Bayer Group. It is headed by a four-member Board of Management, which is supported by the Corporate Center. Global coordination of the subgroups and service groups is carried out through Community Management, a Group-wide network of teams and working groups with defined assignments, responsibilities and procedures. Their role is to share experience, discuss and decide on a wide range of tasks and issues and implement policies and directives adopted for the entire Bayer Group.

Bayer HealthCare

Bayer HealthCare AG, which is headquartered in Leverkusen, Germany, operates worldwide in the following divisions: Animal Health, Biological Products, Consumer Care, Pharmaceuticals and Diagnostics (Self-Testing Systems and Professional Testing Systems). It is one of the world's largest suppliers of pharmaceuticals, diagnostics and other medical products to prevent, diagnose and treat diseases in people and animals. Together with its German subsidiaries Bayer Vital and KVP Kieler Pharma + Veterinärprodukte GmbH and a large number of foreign affiliates, Bayer HealthCare does business in more than one hundred countries.

Bayer CropScience

Bayer CropScience AG, which is based in Monheim, Germany, is one of the world's leading innovative plant science companies. Its activities cover crop protection, seed treatment, plant biotechnology and non-agricultural pest control. Bayer CropScience aims to become the world's top crop science company through the expertise of its staff, its innovative products, its unique research platform and its customer focus. Offices and agencies in more than 120 countries ensure that it is always close to its customers.

Bayer MaterialScience

Bayer MaterialScience AG is a leading manufacturer of high-quality polymers. A large proportion of sales is generated by products that occupy leading positions on the world market. The main success factors of the company are its efficiency, closeness to the customer and expertise in innovative system solutions. Its portfolio includes polycarbonates, polyurethanes, coatings and adhesive raw materials, thermoplastic polyurethanes and inorganic basic chemicals. Bayer MaterialScience includes the Wolff Walsrode and H.C. Starck subsidiaries, which have an excellent position in specialist niche markets and contribute valuable additions to the portfolio. It has facilities at 40 sites worldwide.

Bayer Business Services

Bayer Business Services (BBS) is the Bayer Group's IT-based competence center providing business, administrative and scientific services. Its offering ranges from technical consultancy to the performance of business processes in the areas of procurement, human resources, logistics, IT operations and accounting. The company also groups together a number of subsidiaries providing hosting, travel and media services.

Bayer Technology Services

Bayer Technology Services provides technology services and innovations for all major Bayer sites around the world and other companies at Bayer's chemical park sites. It specializes in the development, planning and construction of production facilities and optimization of established products and processes for Bayer's subgroups and other companies.

Bayer Industry Services

As operator of the largest German chemical park network, which spans the sites in Leverkusen, Dormagen, Krefeld-Uerdingen and Brunsbüttel, Bayer Industry Services supports efficient manufacturing operations. It provides a custom-tailored portfolio of core infrastructure, safety, utility, waste management and analytical services. More than 35 companies at the chemical park sites, including Bayer's subgroups, use its extensive range of services.

Foreword

Werner Wenning

| **We want** to shape a sustainable
world for future generations! |

Dear readers,

With its realignment, Bayer has taken on a new shape over the past couple of years. Having successfully adopted a holding structure with subgroups responsible for the operating business, supported by three independent service companies, we have now decided to transfer the majority of our chemicals business and some areas of our polymers operations to a new company – Lanxess – which is to be listed on the stock market as an independent organization. The future Bayer Group will therefore be able to focus entirely on its core competencies in the areas of health care, nutrition and high-tech materials. Our ultimate goal is to offer products and technologies that help make life healthier and more pleasant. That objective is clearly expressed by our new corporate slogan: Bayer – Science For A Better Life.

Much has changed at Bayer, but we have remained true to our fundamental principles, including our commitment to sustainable development, the vision generated by the community of

nations of how to reconcile economic progress with a sustainable future. Alongside economic and ecological requirements, the concept of sustainable development embraces a commitment to society. We are proud to rank among the leaders in industry as a whole – not just the leaders in the chemical industry – in all three areas.

In summer 2000, when UN Secretary-General Kofi Annan approached selected international companies with the idea of a global pact to promote respect for human rights and environmental responsibility, Bayer did not hesitate to endorse the idea. The principles of corporate social responsibility form an integral part of our corporate philosophy because we believe they are inseparable from sustainable development.

Bayer was among the founding members of the UN Global Compact, comprising eight German companies and about 50 companies worldwide. We are aware of our responsibility to society and play an active role in preventing child labor, eliminating discrimi-

nation and promoting health, nature and the environment in many parts of the world. These are the standards that shape our present and future decisions.

Sustainable development also involves a responsibility to ensure that products are manufactured in a way that is safe and environmentally compatible and saves resources. We have been committed to these goals for decades.

We have also set standards in the field of social and societal responsibility. In the early twentieth century, Bayer set up Germany's first training workshop, pioneering cultural facilities and a wide range of clubs and societies for employees to use outside of work. Our commitment to society has long extended beyond the factory gate. These days we organize, fund and support several hundred social projects throughout the world.

Accordingly, our Sustainable Development Report does not simply focus on environmental data. We want to show you what Bayer is doing to balance economic, ecological, social and soci-

etal requirements. We believe it is important to publish our sustainable development objectives as a yardstick against which our performance can be measured. We regard that as an important part of our dialog with the general public.

The following pages show how young people in many countries see the future. Bayer aims to combine expertise with responsibility to help turn their visions into reality.

Sincerely,



Werner Wenning



Management

Practical sustainability is a team function

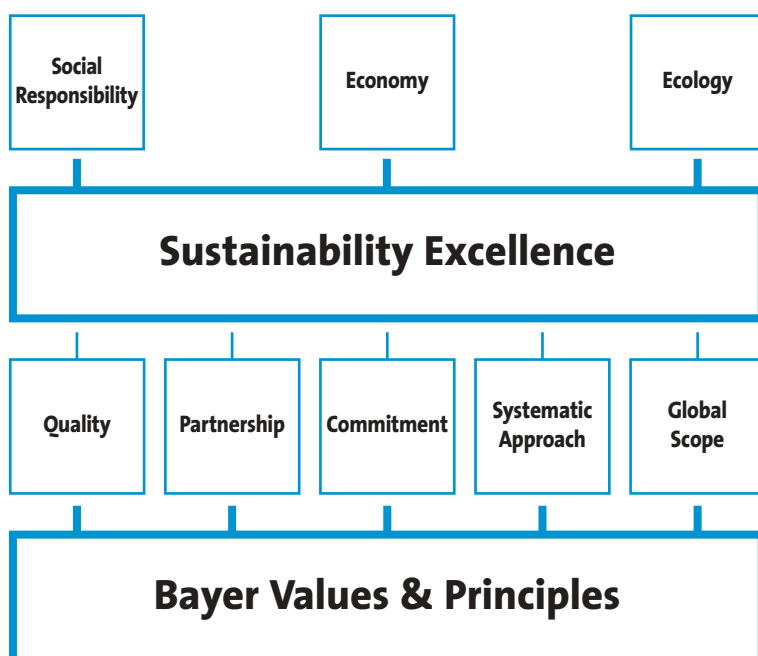
Sustainability is a priority issue in our company, but its definition is also exposed to a constant tide of change in public opinion. We have to respond to the public debate and take up the standard interpretation, yet at the same time develop and define our own specific procedures. For Bayer, sustainable development means finding a balance between economic, ecological and social requirements. We have identified five elements as a basis for this: quality, partnership, commitment, a systematic approach and global scope.

Our endeavors in all these areas are geared to sustainability excellence, in other words, a continuous process of improvement in our sustainability profile. Sustainability excellence is achieved by integrating company-specific demands and requirements in order to create value. That means that the demands made at various levels must be linked together. Building on our values and principles, we aim to foster sustainability excellence by concentrating on quality, partnership, commitment, a systematic approach and global scope.

Organizational integration of sustainability

As a strategic task with long-term implications, sustainability management is a governance task. As such, it can only be carried out in conjunction with the subgroups. Accordingly, a Corpo-

rate Sustainability Board forms the heart of the sustainability management structure for the Bayer Group. The Corporate Sustainability Board is chaired by the member of the Group Management Board who is responsible for Innovation, Technology & Environment. It is responsible for making decisions on objectives, strategy and major initiatives and for communicating the issue of sustainable development (SD), and our activities and initiatives in the area of corporate social responsibility (CSR), internally and externally. The work of the Corporate Sustainability Board is supported by the SD Planning Group, whose task is to make sure the strategies and initiatives are put into practice. The SD Planning Group is an interdisciplinary team comprising the heads of relevant functions at the subgroups and staff from various Corporate Center departments.



Components of sustainability excellence in the Bayer Group

The main elements of practical sustainable development at Bayer are discussed at an annual SD Conference which is also attended by the Group's Responsible Care officers.

Responsible Care is a global chemical industry initiative dedicated to achieving continuous improvement in environmental protection, health and safety. It is voluntary and, in some areas, its goals exceed statutory requirements. Bayer has been committed to this voluntary initiative since it was introduced.

Elements for implementing sustainability excellence

Sustainable development is supported by various programs and initiatives, each of which has to be driven individually, but all of which interact. Management of these interfaces is important because the multi-faceted nature of sustainable develop-

ment requires transparent internal and external integration. This is achieved through the organizational structure shown below. The most important activities and programs embedded in our sustainable development strategies are as follows:

- Responsible Care, the worldwide initiative of the chemical industry, plays an important role by involving the employees in the process.

- The Bayer Eco-Check is an evaluation method developed by Bayer to examine products with a view to the key aspects of sustainability. This tool is thus an extended form of product stewardship.

- Corporate social responsibility brings all the threads of our social commitment together: As a globally operative company, we are part of society in all countries where we operate – as an employer, neighbor and business partner. We take our

responsibilities seriously, incorporate them into our business decisions, take part in many community projects and support a wide range of initiatives.

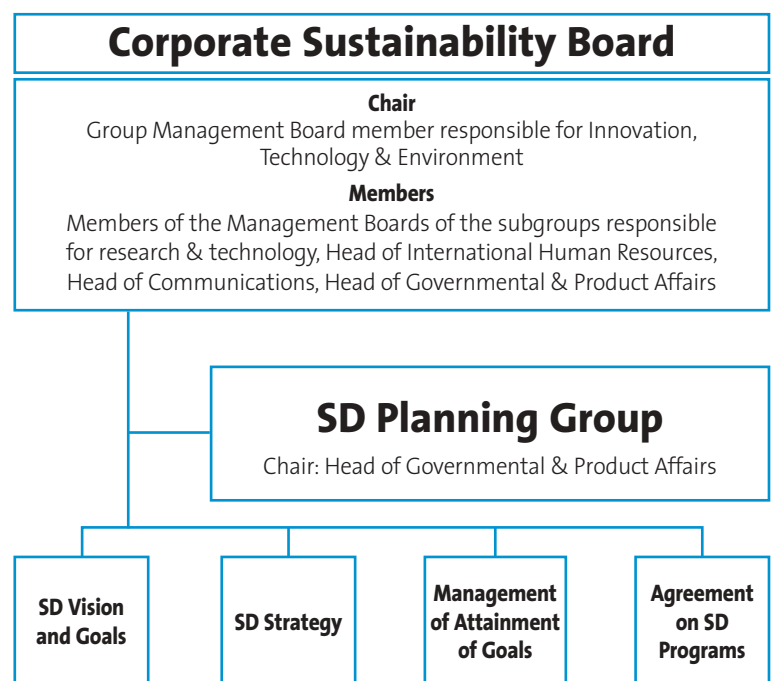
- Support of the capacity-building activities of the International Council of Chemical Associations (ICCA): Capacity building means passing on information and know-how on sustainable production and the safe handling of chemicals, especially to newly industrializing and developing countries.

- At Group level, HSE (health, safety, environmental protec-

tion) management directs the main elements of implementation, e.g. the management systems and audits and the provision of information on substances and sites.

- Ensuring transparency within the company and for outsiders requires clear reporting of the main information required by our stakeholders. Systematic recording and tracking of such data are the most important steps in this assignment. We set ourselves concrete objectives which we publish and against which we allow ourselves to be measured.

Organization of sustainability in the Bayer Group



Economic responsibility

TABLE OF CONTENTS

➔ **Introduction**

➔ **Klaus Kühn: Sustainability strengthens our company**

➔ **Milestones in corporate development**

➔ **Corporate Governance – A tradition of transparency**

➔ Glossary

➔ More on the children’s pictures

You can also call up particular sections of the document. Please click on the desired heading in the table of contents.

For a global corporation, acting responsibly means keeping a close eye on changing markets to make sure that the right decisions are made at the right time. Bayer regularly reviews and actively adapts its organizational structure in response to changing market requirements. In 2002 we embarked on the most far-reaching reorganization in our history to create “The New Bayer” – a future-oriented group, initially comprising four subgroups and three service companies managed in line with the principles of good corporate governance. As a logical continuation of this process, we decided in the fall of 2003 to concentrate in future on our core businesses in health care, nutrition and high-tech materials. The chemicals operations and some parts of the MaterialScience business area that are no longer core businesses are to be transferred to a separate company called Lanxess, which is to be floated on the stock market as an independent company by the start of 2005.



Estefania Ortega, Colombia, aged 3

“My wish is for a future with lots of children who are friends with one another, together with many animals, mountains and a house on a small lake.”

→ [More on the children’s pictures](#)



Klaus Kühn

Sustainability strengthens our company

Economic responsibility means, among other things, reviewing the company's competitive position at regular intervals as a basis for any necessary action. One example is the extensive reorganization of the Bayer Group. This reflects the fact that there is no permanent patent recipe for dealing with the increasing pace of change in the modern world. In order to be successful, we have to align our corporate structures to the dynamism of the global market,

changing customer needs, mounting international competitive pressure, the need for sustainable development and a large number of other factors. In the initial restructuring phase, which took just seven months, we created an organization of which we were proud: "The New Bayer."

As a logical continuation of the reorganization we shall now transfer our chemicals operations and parts of the polymers business to a new independent company, which is to be floated on the stock market, so that in future we can concentrate on our innovation-based core business. Our objective is continued innovation and increased growth.

Ecological achievements honored

The restructuring of the Bayer Group has naturally given priority to ensuring that we continue to apply the principles of Responsible Care and sustainable development as effectively as in the past. We have long ranked among the world leaders

in these fields, a fact confirmed by many experts and institutions. However, since nothing is ever so good that it cannot be improved, our aim is to enhance our performance in these areas still further.

In the future, these areas will be increasingly important determinants of the success of the company.

Companies like Bayer that actively implement the principles of sustainable development through social as well as ecological responsibility are investing in sustainable growth in corporate value – in the interests of their stockholders, employees and society as a whole.

We have received many awards for our pioneering ecological achievements, including the renowned Presidential Green Chemistry Challenge Award in the United States on several occasions. Our social and societal commitment is evidenced by the fact that we were one of the 50 or so founding members of the Global Compact initiative introduced by UN Secretary-General Kofi Annan.

Milestones in corporate development

1863

The businessman Friedrich Bayer and dyer Johann Weskott found "Friedr. Bayer et comp." in Wuppertal, Germany on August 1.

1870

Bayer opens its first foreign agencies in Austria, France and the UK.

1875

Bayer starts to conquer the U.S. market. A year later it opens its first foreign production plant in Moscow.

1881

"Farbenfabriken vorm. Friedr. Bayer & Co.," a joint stock company with equity capital of 5.4 million marks, is established on July 1.

1891

Bayer buys the ultramarine factory Dr. Carl Leverkus & Söhne and further sites on the banks of the Rhine in Wiesdorf (now Leverkusen).

This ethical focus has been acknowledged by the capital market for many years. A report by the Oekom Institute of Munich, Germany, ranks Bayer third among the world's leading pharmaceutical companies for social and ecological commitment and Bayer was included in the Dow Jones Sustainability World Index in 2003 for the fifth consecutive year. This index tracks companies with a proactive sustainability-driven policy. Bayer stock is also included in a number of well-known sustainable investment funds.

Bayer commands trust in the United States too

Our commitment to sustainable development enhances the standing of our company, a fact shown, for example, by a survey of 850 opinion leaders in the United States and Europe regarding the credibility of organizations and companies. According to this survey, Bayer commands more confidence in the United States than any other non-American company. The

only companies that obtained a better rating were Microsoft, Coca Cola and McDonalds. In Europe Bayer was ranked sixth. That was the best score by a European company: The first three places went to non-governmental organizations (NGOs) such as Amnesty International. This survey shows that we are on the right track. Our goal now is to continue this excellent track-record.



Klaus Kühn has been Bayer AG's CFO since May 2002.

Guidelines for legal compliance and corporate responsibility at Bayer

Bayer is committed to lawful and ethical conduct. Already in July 1999 it introduced guidelines for legal compliance and corporate responsibility. Among other aspects, this code of conduct, which was recently updated, sets out basic principles for dealings with colleagues, customers, suppliers, other companies and authorities.

1900 Bayer's sites have 800 managers (known at the time as clerical staff), 145 chemists, 35 engineers and 4,400 laborers. Bayer is thus the second largest German chemical company.	1904 On January 6, the Bayer cross is registered as a trademark with the Imperial Patents Office.	1912 Leverkusen becomes the company's headquarters.	1925 Farbenfabriken vorm. Friedr. Bayer & Co ceases to exist. It is integrated into I.G. Farben's Lower Rhine operating consortium.	1945 I.G. Farben is dissolved by the Allies immediately after the Second World War.	1947 On July 1, the facilities belonging to the Lower Rhine operating consortium are renamed "Farbenfabriken Bayer."	1951 Bayer is "founded" for the second time in its history: On December 19 it is entered in the commercial register as "Farbenfabriken Bayer Aktiengesellschaft."	1953 Bayer stock is re-listed on the stock exchange.
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Corporate governance

A tradition of transparency

Corporate governance means responsible corporate management and supervision. Bayer has always been committed to these principles in the interests of long-term value management. This commitment long predates the introduction of the German Corporate Governance Code.

parency, especially international-ly. We will be following most of the recommendations made by the code and therefore issued a “Declaration of Conformance” in December 2002.

Bayer applied the same principles in the past

The German Corporate Governance Code encompasses statutory requirements and recognized national and international standards on responsible management and supervision of listed companies. Specifically, it details the rights of stockholders and the tasks and responsibilities of the Board of Management and Supervisory Board. It also contains rules on corporate transparency, accounting and auditing. Bayer complied with many of the standards and rules set out in the code well before it was introduced so it has not triggered any

To raise the confidence of national and international investors, customers, employees and the general public in the management and supervision of public companies in Germany, the German government has drawn up a Corporate Governance Code. Bayer has traditionally placed great value on responsible corporate policy geared to increasing the value of the company. We therefore welcome the adoption of the German Corporate Governance Code because it can raise trans-

1958 Bayer's annual sales exceed DM 2 billion. Exports account for 42 percent.	1963 Bayer celebrates its centenary. The 122-meter high administrative block by the River Rhine is opened.	1971 First reorganization of the company creates nine divisions operating as independent profit centers and nine central service units.	1972 The company changes its name from "Farbenfabriken Bayer AG" to "Bayer AG."	1979 Bayer's annual sales exceed DM 25 billion.	1984 Bayer groups its operations in six sectors comprising 25 business groups, a corporate administration center and five central service divisions.	1991 The sector structure is dissolved. The heads of the business groups now report directly to the Board of Management.	1994 In September, Bayer regains the right to use its name and logo in the United States and Canada.
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Further information on corporate governance can be found in Bayer's Annual Report and on our website: www.bayer.com

major changes in our corporate structure and processes. Since Bayer AG is headquartered in Leverkusen, Germany, it is required to comply with the German law on which the Corporate Governance Code is based. This stipulates a dual management structure. The Board of Management and Supervisory Board each have their own independent role to play. This contrasts with the common international system where the management and supervision of companies is in the hands of a single managerial body, the board of directors. As a global company, Bayer AG is listed on many foreign stock exchanges. Since January 2002 it has also been listed on the New York Stock Exchange. That means it has to comply with specific U.S. regulations, especially the Sarbanes-Oxley Act, which was passed in July 2002 to prevent accounting fraud. This leg-

islation also impacts corporate governance. Where necessary, we will adapt our corporate governance procedures to make sure that we also comply with American legislation.

Ensuring maximum transparency

To maximize transparency, we provide regular information for stockholders, financial analysts, stockholders' associations, the media and the general public on the company's performance and major business trends. In line with the principle of "fair disclosure," we provide the same information for all stockholders and key target groups. All significant new facts are disclosed immediately. Stockholders also have timely access to information that Bayer publishes in foreign countries to comply with local stock market regulations.

In addition to our regular reporting through our Annual Report, Stockholders' Newsletter and the internet, we issue news releases and ad-hoc statements on developments that may affect our net worth, financial position or general business performance and could thus materially affect the price of Bayer stock.

Bayer is one of the first companies in Germany to publish details of the remuneration of members of its Board of Management and Supervisory Board. This information is published as an annex to the financial statements in our Annual Report.

Improvements at EU level welcomed

On May 21, 2003 the European Commission published an action plan on "Modernizing Company Law and Enhancing Corporate Governance." Since Bayer has

affiliated companies in nearly all countries in the European Union, we welcome this initiative to harmonize national corporate governance rules and will be examining the practicability of the recommendations.

1999 To celebrate the centenary of Aspirin®, Bayer's administrative high-rise in Leverkusen is turned into the largest Aspirin® pack in the world.	2000 Bayer acquires the polyols business of Lyondell Chemical Company, making it the world's leading producer of polyurethane raw materials.	2001 Bayer acquires Aventis Crop-Science for €7.25 billion and becomes a world leader in crop protection.	2002 Bayer is listed on the New York Stock Exchange.	2003 In April, the Annual Stockholders' Meeting approves the reorganization of the Bayer Group into a holding company, four sub-groups and three service companies.	2003 In November, the Supervisory Board approves the Board of Management's plans to split off Bayer Chemicals (except H.C. Starck and Wolff Walsrode) and	some parts of the MaterialScience business area into a separate company.	2004 The new company for the chemicals business and parts of the polymers operations is named Lanxess.
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Ecological responsibility

TABLE OF CONTENTS

➔ Introduction

➔ Dr. Udo Oels: Product-integrated environmental protection is an everyday matter for us

➔ Milestones in ecological responsibility

➔ Responsible Care in our day-to-day work

- The Bayer Eco-Check
- Bayer HealthCare: Effective drugs
- Bayer CropScience: Safeguarding harvests
- Bayer MaterialScience: Innovative products and processes

➔ Glossary

➔ More on the children’s pictures

You can also call up particular sections of the document. Please click on the desired heading in the table of contents.

The history of environmental protection at Bayer

began on November 5, 1901. That was the date on which the newly founded Wastewater Commission at the Leverkusen dyeworks first convened. Since then Bayer has consistently stuck to its principle of more environmental protection, health protection and safety. Today, the company's achievements in these fields are acknowledged throughout the world and documented with numerous awards.



Valentina Laborde, Ecuador, aged 8

"I imagine a future with lots of technology and with me developing computer games. But there must still also be large forests."

→ More on the children's pictures



Dr. Udo Oels

Product-integrated environmental protection is an everyday matter for us

Protection Agency (EPA) award, also made in recognition of the development of environment-friendly products, is regarded as the American “environment Oscar.”

Environmental protection concerns top management

Two things stand out here. Firstly, environmental protection has evidently become a political matter for top management in many industrial countries. Secondly, awards are not being presented for environmental protection facilities and processes, but for endeavors made by companies to develop products that have no impact on the environment and, in ideal circumstances, also protect it from any adverse effects.

Both of these apply to us. At Bayer, environmental protection is a matter for the top echelons of management. Having said that, every individual employee is – as stated in our Guidelines for Responsible Care, Health Protection and Safety – also com-

mitted to act in line with corporate objectives in this field.

For Bayer, environmental protection has been taken for granted for many decades. In fact, we have gone a good deal further than that. We have moved forward from so-called ‘end-of-pipe’ environmental protection to ‘in-process’ environmental protection, which means that environmental protection is more or less built into our present-day production facilities through process optimization, so that pollutant emissions are substantially reduced or avoided completely. End-of-pipe environmental protection is becoming increasingly superfluous.

Now, Bayer is pushing on with third-generation environmental protection – so-called product-integrated environmental protection – which also covers product-integrated safety. Our products must not affect, let alone endanger, humans, animals or the environment during their production and use or during their disposal. Above all, they must also comply with the prin-

In June 2002, in the presence of the Federal German Chancellor, Gerhard Schröder, the Federation of German Industries (BDI) awarded Bayer its Environmental Prize for the development of Baypure®, an environment-friendly dispersion agent based on polyaspartic acid that combats limescale. Previously, Bayer’s U.S. subsidiary, Bayer Corporation, was twice presented with the prestigious Presidential Green Chemistry Challenge Award set up by the former U.S. President, Bill Clinton. This Environmental

Milestones in ecological responsibility

1898
Establishment and official recognition of Bayer’s own monitoring and control department

1901
Wastewater Commission of the Leverkusen Dyeworks

1903
First accident statistics published

1913
“Committee for Clean Factory Air” in Leverkusen

1934
Department for accident prevention

ciple of sustainability; in other words they must be manufactured in a way that ensures maximum conservation of resources and energy, and also be largely recyclable or allow problem-free disposal. We are thus one of the pioneers in this field. Through our Responsible Care and product stewardship programs we were practicing “integrated product policy” long before it was first called for by the European Commission.

Proud of U.S. Responsible Care award

The fact that we are one of the leading companies in the world in matters of Responsible Care is also documented by a prize that makes us particularly proud: The American Chemistry Council (ACC) has presented our subsidiary Bayer Corporation with the Responsible Care Leadership Award – which is the most important recognition in the United States for outstanding achievements in the field of environmental protection and safety that a chemical company can receive.

The level of acceptance of our efforts was also illustrated by a recent survey in Germany in which more than 2,000 of those questioned named Bayer as the second most environment-friendly company among major enterprises. For us, such recognition is an encouragement not to let up in our endeavors to constantly develop and further enhance our performance in the fields of environmental protection, health and safety. Another important objective is the further reduction of our

environmental impact through eco-efficient products and manufacturing technologies. Among our approaches in this regard has been the introduction of the Eco-Check, a tool by means of which we can examine important products with respect to ecology and sustainability. We are also constantly optimizing our use of finite resources and improving eco-efficiency. As a result, we have already today achieved the officially specified targets for 2010 and have even exceeded them in some areas.



Dr. Udo Oels, since 1996 member of the Bayer Board of Management responsible for Innovation, Technology & Environment

Guidelines for Responsible Care in Environmental Protection, Health Protection and Safety

In 1986, we published our first “Bayer Guidelines for Responsible Care in Environmental Protection and Safety,” which are binding for all employees. Following the establishment of the international Responsible Care initiative by the chemical industry, Bayer has integrated the principles of the initiative into its guidelines and regularly adapts them to new developments. The idea is that all employees should act in line with corporate environmental protection and safety objectives, adopt them in their personal areas of work, and implement innovative solutions to ensure constant improvements in health protection, safety and environmental protection.

1936 First appointment of an officer to monitor air at the Leverkusen site	1954 Wastewater and emission control laboratory in Leverkusen	1959 Laboratory for aquatic biology to examine the toxicity and biodegradability of chemicals	1963 First Bayer air measurement network to monitor sulfur dioxide emissions	1966 Leverkusen waste management center with wastewater treatment plant, incinerator and landfill	1974 Bayer AG's first safety competition	1979 Technical introduction of Bayer Tower Biology®	1986 Guidelines for environmental protection and safety
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Responsible Care in our day-to-day work

Designing products that take into account environmental protection, health protection and safety, and responsibly accompanying them over their entire life cycle – from their initial development and production to their use and final disposal – is nothing new for Bayer. Product stewardship traditionally covers a whole spectrum of measures, extending from the specific development of improved products and the testing of new ones, to responsible product management and the carrying out of research activities aimed at acquiring knowledge of the long-term effects of substances on humankind and the environment.

1987 First international press forum to present Bayer's perspective on the environment; launch of a DM 3 billion program to improve environmental protection	1989 Guidelines on quality and quality assurance	1993 Bayer AG's first Environmental Report	1994 Guidelines for Responsible Care in Environmental Protection and Safety in line with the global Responsible Care initiative
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1995
Guidelines
for Quality
Management
at Bayer

1995
Second Environ-
mental Report
(Group-wide for
the first time)

1997
Third Environ-
mental Report
with updating of
targets so that
the public can
monitor if the
targets are being
achieved

1999
Bayer Site Infor-
mation System
(BAYSIS™) Group;
Responsible Care
Report

2000
Media forum
on environmental
protection and
safety: "Bayer's
Perspective on
Ecology 2000";
introduction
of the Bayer
Eco-Check

2001
First Sustainable
Development
Report with
account of
sustainable
development
targets

2002
Dr. Udo Oels,
Bayer Board of
Management
member responsi-
ble for Innovation,
Technology &
Environment,
opens the German
Business Day at
the World Summit

in Johannesburg,
South Africa, and
presents Bayer's
achievements
in sustainable
development.

The Bayer Eco-Check

Consumers today often make demands on products that extend well beyond the traditional definition of quality. The focus is no longer merely on a product's use and its safety in application.

Nowadays, it is also important that a product meets ecological and health requirements and that it is accepted by society, in other words by customers, consumers, the authorities and also, for example, by groups with specific interests. Its chances of market success are being increasingly dictated by such criteria.

That is why, when Bayer has a new idea for a product, it makes a thorough examination of which criteria it satisfies: The product must have a high benefit for the user and it must be accepted by society. It must not constitute any appreciable risk for humankind, the animal world or the environment throughout its life. Its production should consume as few resources as possible and cause a minimum

of emissions. It should be largely recyclable, or at least be readily disposable. And, of course, it should be relatively economical to manufacture and yield a maximum return.

Although such a product seldom materializes in its entirety, by continuously developing products it is possible to come ever closer to this ideal. In order to systematically evaluate present and future products against these criteria, Bayer has introduced what it calls the "Bayer Eco-Check."

Key products under scrutiny

For Bayer, product stewardship means also monitoring products already on the market for their environmental compatibility, safety, health protection and resource efficiency, especially if they are regarded critically by the general public, so that, if necessary, appropriate countermeasures can then be taken.

For this purpose, Bayer uses the Bayer Eco-Check, which was described in detail in the 2001 Sustainable Development Report. The evaluation is made on the basis of six core criteria: economy, health, environment, life cycle, technology and public value. Specialists from all parts of the company analyze the results and draw up recommendations for the product management teams.

The Bayer Eco-Check provides a comprehensive analysis of a product by linking up the technical (application) angle, the health aspect and the economic evaluation to the stakeholders' viewpoints – i.e. the views of the customers, the consumers and society generally.

To present the results in graphic form, we use a diamond-shaped diagram in which the six criteria making up the Eco-Check are mapped on a uniform evaluation scale. A rating in the green sector indicates an excellent performance, while yellow indicates

that the performance is "state-of-the-art." Generally speaking, an evaluation in the red area indicates that there is need for action.

The diagram on the right shows the result for Teldor®. This crop protection agent is used to combat fungal diseases on wine, fruit and vegetables. (The results of the project are explained in detail on pages 25 – 26.)

On the health axis, our experts assess the safety of the product (and possibly also of its intermediate products) for our employees, users and consumers. The environment axis contains an evaluation of the environmental compatibility, both during production and during the service life of the product.

The life cycle axis looks at the use of resources and the resultant ecological effects. Finally, the technology axis evaluates plant safety and includes aspects such as the availability of technology and the state of development of the process.

The six quality criteria of the Bayer Eco-Check

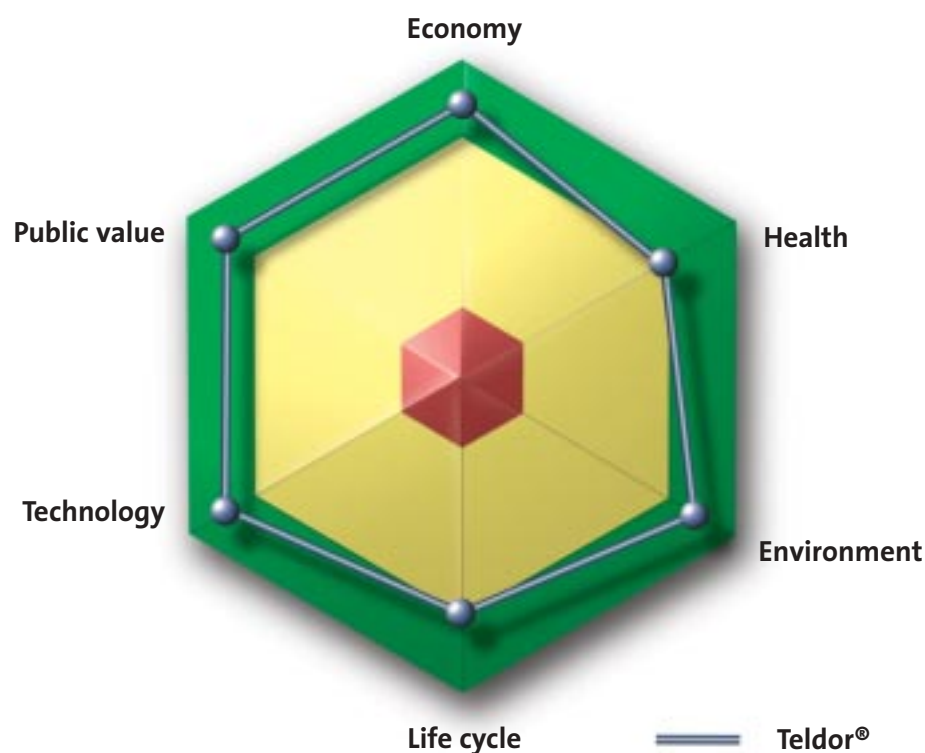
Through the Eco-Check each product is analyzed and evaluated against six relevant criteria. These comprise:

1. Health – the safety of the product for the consumer, processor, customer and employee;
2. Environment – an examination of the product's environmental compatibility;
3. Life cycle – a consideration of all possible effects of extensive emissions on the environment and the dwindling supply of natural resources throughout the entire product life cycle (eco-balance);
4. Technology – safety of the production processes and availability of the raw materials;
5. Public value – a look at the acceptance of the product in the overall corporate environment and its value for society;
6. Economy – the economic opportunities and risks.

This overall picture is then completed by an economic evaluation and an assessment of the public value. The public value covers evaluations that were not drawn up by our experts but were submitted or requested by other parties such as our customers, the consumers, the

authorities or politicians and affect the relevant product. These evaluations allow conclusions to be drawn about the level of acceptance of the product among these groups – an essential factor for the sustained success of the product on the market.

In the case of Teldor®, the Eco-Check confirmed its sustainable value for customers and for Bayer. Through the use of Teldor®, consumers can now enjoy even higher-quality foodstuffs.



An example of an evaluation using the Eco-Check: In all six areas, the crop protection agent Teldor® is in the green sector, an excellent rating that reflects the sustainable value of the product for the customer and for Bayer.

Effective drugs

In a declaration made in February 2003, Bayer HealthCare AG committed itself to support the aims of Responsible Care in all sectors of the company, extending from research and production to the storage, use and disposal of its products.

The following examples show how Bayer HealthCare honors this commitment across all divisions.

Animal experiments reduced considerably

In our search for innovative and effective drugs, we regard it as part of our product stewardship responsibility to first test potential development candidates for their safety and effectiveness in animal experiments before they are tested on humans. In any case, it is a moral obligation to make safe and effective products available. In this connection, it would be unethical not to use the most telling method to achieve this. Moreover, animal experiments are also indispens-

able when it comes to developing medication for animals because it means that millions of other animals can be successfully treated as a result. In doing this, we are also acting in line with the legal requirements, and we strictly observe the regulations governing the protection of animals. Although alternative and supplementary methods may help reduce the use of animal tests, they cannot and will not be able to completely replace animal experiments in the foreseeable future. From a scientific point of view, animal tests are in many cases the only way to assess and ensure the safety and efficacy of drugs. This is why animal testing will continue to be an important part of biomedical research and development for the foreseeable future. Nevertheless, it is Bayer's declared aim to minimize the use of animal experiments and to opt for alternative and supplementary methods wherever this is possible. We now use some 60 percent fewer animals than we did ten years ago.

In keeping with its commitment to product stewardship, Bayer has also set up an international initiative to combat the increasing danger of resistance formation from human anti-infectives: LIBRA. You can find out more about this initiative on the internet at www.librainitiative.com or in the 2001 Sustainable Development Report, p. 19.

Baytril®: Combating the development of resistance

The Bayer veterinary medicinal product Baytril® has now been licensed for over 15 years in numerous countries throughout the world for the treatment of many common infectious diseases in cattle, pigs and poultry as well as in dogs and cats. As it is particularly effective against the main bacterial pathogens, this anti-infective agent, which belongs to the fluoroquinolone group of substances (active ingredient: enrofloxacin), is now regarded as the “gold standard” among treatments. Around 3,000 scientific publications make Baytril® currently the best-documented anti-infective agent in veterinary medicine. Like all antibiotics, the fluoroquinolones have the disadvantage that bacterial resistance can develop if they are used inappropriately. In order to prevent this, Baytril® is only available for the treatment of infections on a veterinary prescrip-

tion. It is not licensed as a growth promoter – Bayer is also very much against this. The Baytril® active ingredient, enrofloxacin, has one advantage over many of the anti-infective agents developed in the past: It prevents the genes which are responsible for resistance from being transferred from one species of bacterium to another.

In order to find out more about the problem of resistance, Bayer started building up a resistance monitoring program in several European countries in 1992. The monitoring network has now been further strengthened. Together with ten other pharmaceutical companies and the European Animal Health Study Center (CEESA), Bayer has set up the EASSA Program (European Antimicrobial Susceptibility Surveillance in Animals). The EASSA experts in eight European countries collect and analyze samples – another important step in coming to grips with the formation of resistance.

In addition, the continuous further development and optimization of formulations and administration regimens helps to reduce the risk of resistance development. Bayer has issued special guidelines to ensure the correct and responsible use of Baytril® by veterinarians throughout the world (Prudent Use Guidelines).



Rolf Classon, Chairman of the Executive Committee of Bayer HealthCare

“Bayer HealthCare wants the products it has developed to be of the greatest benefit to humans and animals. Product stewardship in the sense of sustainable development therefore has a very special meaning for us. Products which do not meet our expectations are not developed further. Products which are already authorized for sale, which, despite scrupulous testing, cause unexpected serious side effects, are removed from the market, regardless of any financial aspects.”

International committee advises Bayer on ethical matters

The Biological Products Division at Bayer HealthCare AG set up an independent international committee in 2003 to advise Bayer on all ethical issues that could arise in connection with blood plasma products. It is called the “Bayer International Bioethics Advisory Council” (BIBAC). It has nine members from six countries, including medical experts, lawyers, philosophers and a theologian, all experts with a worldwide reputation. BIBAC is completed by two Bayer representatives, whose job it is to advise the council on technical matters. BIBAC has already begun work and has advised the World Bank, which intends to set up a similar initiative.

Safeguarding harvests

Sustainable agriculture must ensure an efficient equilibrium between economic success, ecological responsibility and social acceptance. Bayer CropScience (BCS) provides agricultural technologies and solutions that help to safeguard harvests, reduce harvest losses, improve the quality of products, and optimize the use of natural resources. In this way, BCS makes an important contribution towards meeting the global demand for food and animal feedstuffs.

| Strategy for sustainable agriculture |

In 2003, together with a British non-governmental organization called the “Stakeholder Forum for Our Common Future,” BCS developed a strategy for sustainable agriculture that focuses on three core areas in which BCS can contribute to the setting up of sustainable agriculture:

- making significant R & D investment in innovative, economical technologies and solutions;
- providing consulting and other services throughout the entire life cycle of products with the aim of responsibly shaping their development, manufacture and use;

■ encouraging good agricultural practice, e.g. the expansion of integrated agriculture and ecosystem management. This involves the responsible and efficient use of agricultural technologies, the careful management of water and energy resources, and biodiversity (see also pages 57 – 58).

| Teldor® – a crop protection agent under scrutiny |

Products not only have to meet the demands of customers, they also have to be environmentally compatible and meet the expectations of our society. The crop protection agent Teldor® (active ingredient: fenhexamid) was evaluated with the aid of the Bayer Eco-Check (see also pages 21 – 22) as a model product against competitors’ products. All these products are used in wine-growing to combat the fungus botrytis. The excellent action of such products against fungi improves the quality of the grapes, raises the wine yield per hectare, and, as a result, brings considerable cost savings and higher profits for the vintner. In each of the Eco-Check categories, all the products investigated received a ‘very favorable’ rating – a reflection of the strin-

gency of the licensing requirements for crop protection agents generally. But Teldor® scored a number of additional points: In the Environment category, for example, it received (along with one other product) a particularly good rating because of its excellent overall properties. Teldor® can even be applied very shortly before harvesting without affecting the color or taste of the fruit. The new mode of action of Teldor® also helps to prevent the fungus from becoming resistant when used in a spraying sequence with other products. An examination of the toxicological properties resulted in Teldor® coming out best with regard to the potential health risk for users and consumers. Because of its positive properties, Teldor® has been classified as a “reduced risk” active ingredient in the United States and is conse-

quently given preferential treatment by the authorities in what is otherwise a highly time-consuming licensing procedure. This move by the U.S. authorities is intended to encourage the development of outstanding new products.

Disposal of obsolete pesticides

How seriously Bayer takes product stewardship is shown by the example of the disposal of obsolete pesticides from developing countries. This issue is relevant mainly in countries with planned economies in which procurement was organized by central authorities without the actual needs of farmers being taken into account. In many cases there were donations in the form of development aid. BCS has already participated in several

disposal projects involving products from Bayer, for example in Brazil, Mozambique, Namibia, Pakistan, South Africa and Swaziland. Other cooperation projects are currently under way in Ethiopia and Senegal. Help has also been offered with a disposal project in Nepal.

In August 2003, the world crop protection product association CropLife International pledged to contribute 30 million U.S. dollars to the Africa Stockpiles Program. The aim of this multi-stakeholder project, which is also supported by BCS, is to remove obsolete crop protection products from Africa in the next 15 years.



Prof. Dr. Friedrich Berschauer,
Chairman of the Board of
Management of Bayer Crop-
Science AG

“As one of the world’s leading plant science companies, we strongly support sustainable agriculture. We fully realize that we must meet our economic targets but, at the same time, must also fulfill our social and ecological responsibilities.”

A responsible approach to genetic engineering

Bayer believes that responsibility for its products begins as early as the research and development stage. This also applies to products created or enhanced by genetic engineering techniques, which are monitored and investigated rigorously.

The science known as “red biotechnology” is generally accepted throughout the world as a key technology in the treatment of diseases. Although it harbors an enormous development potential and could help many patients, Bayer rejects certain types of projects for ethical reasons, including those which involve genetic manipulation of the human germ line.

“Green biotechnology,” on the other hand, is still struggling for broad acceptance in some countries. In 2003, seven million farmers in 18 countries successfully planted genetically enhanced plants. Bayer believes that plant biotechnology is a vital technology which can usefully supplement classical plant breeding efforts. The company scrutinizes all developments in the light of its clear commitment to product safety for people and the environment.

Bayer is convinced that crop protection, conventionally bred seed and genetically enhanced seed are three areas that will increasingly work together and reinforce each other, helping to safeguard food production for people today and future generations.

Bayer MaterialScience

Innovative products and processes

The core competency of Bayer MaterialScience is the development of innovative products, applications and processes. For us, ongoing improvements in health protection, safety and environmental protection are just as important as optimum quality and maximum economic efficiency. Here are a few examples of how Bayer MaterialScience implements the concept of sustainable development.

Reduction in energy consumption

Ecological responsibility means, among other things, handling natural resources responsibly. This, of course, includes efforts to save energy during production. Bayer has succeeded in doing this with the production of chlorine. By recently converting the chlor-alkali electrolysis units at its German sites in Leverkusen and Dormagen – and partly also in Krefeld-Uerdingen – from the amalgam (mercury cell) process predominantly used in Europe to the modern membrane technology, Bayer has been one of the European pioneers in this field. This has cut the con-

sumption of electrical energy in chlorine production by up to 30 percent. It has also brought about a significant reduction in the emission of the greenhouse gas carbon dioxide (CO₂) during electricity production (of approx. 400,000 tons of CO₂ equivalents a year). At the Bayer site in Baytown (Texas, U.S.A.), a new chlor-alkali membrane electrolysis plant went on stream back in 1999. Consequently, Bayer now produces 90 percent of its chlorine worldwide by the energy-saving membrane process.

In cooperation with various partner companies, Bayer is currently developing the so-called oxygen-depolarized cathode technology. Once the process has reached industrial maturity, it should be possible to cut energy consumption by up to 30 percent.

Rigid foam for thermal insulation

Efficient thermal insulation in buildings can play a significant part in conserving resources and preventing emissions. This is an area where considerable savings can be made over the entire service life of a building. In terms

of insulation efficiency, rigid foam insulating boards made from specially-formulated polyurethane raw materials supplied by Bayer MaterialScience outperform all other insulating materials currently in widespread use. This means that a much higher insulation performance can be obtained with the same thickness of external insulation. Alternatively, high-performance polyurethane insulating materials provide the same insulation effect with considerably thinner walls than is possible when conventional insulating materials are used.

Solvent-free adhesive raw materials

Dispersions for the production of high-quality adhesives can now also be formulated without solvents, as is shown by the Dispercoll® line of products. The benefits of solvent-free adhesives are obvious: They are safer to use and make much less of an impact on the environment than their solvent-based counterparts, and they also have an economic advantage, because there is no longer any need for the

costly treatment of the solvent contained in conventional dispersions. Dispercoll® products are used in the production of shoes and furniture, the construction industry, automotive engineering and, last but not least, the DIY sector.

New coating technique saves costs and energy

The paintwork on a modern-day car needs to be really tough. It must be resistant to intense sunlight and hot sand, and must not be damaged by flying stones or the like. To comply with such stringent specifications, car manufacturers apply a final clear coat that acts like a protective shell. It not only gives the car its desired high gloss, it also protects the layers underneath – the colored paintwork, surfacer, anticorrosion primer and steel. For such applications, use is nowadays frequently made of high-grade polyurethane clear coats based on raw materials from Bayer MaterialScience.

The innovative “Dual Cure” technology, which Bayer MaterialScience is currently developing together with the paint and

automotive industries, is likely to set new quality standards in future. The resulting coatings combine the advantages of heat curing with those of efficient radiation curing. The resultant polyurethane network has even higher brilliance and better scratch resistance than conventional coatings. The coatings cure with the aid of ultraviolet radiation in just fractions of a second. The subsequent heat curing process cures any areas in complex three-dimensional geometries that are not normally accessible for UV radiation. This extends the field of application for UV-curing coating systems to complex three-dimensional parts, and, for the first time, opens the door for this modern technology to enter the field of automotive finishing. The Dual Cure systems are regarded as a clean technology: They contain very little solvent and the rapid curing under UV light consumes comparatively little energy.



Dr. Hagen Noerenberg,
Chairman of the Board of
Management of Bayer
MaterialScience

“In our capacity as a global player we want to be an attractive partner to our customers – the partner of choice, offering genuine value added worldwide and earning the trust of our customers. We want to grow and enjoy success together with our customers.”

Ecological responsibility

For us, ecological responsibility means responsibility for people's health and for the protection and preservation of the natural resources that form the basis for life. It relates to our efforts and achievements in matters of environmental protection, health protection and safety with regard to our products and production processes.

Responsibility to society

TABLE OF CONTENTS

➔ **Introduction**

➔ **Dr. Richard Pott: Success through common values**

➔ **Milestones in corporate social responsibility**

➔ **The workforce as a guarantor of success**

- Remuneration concepts and social benefits
- Employee advancement
- Continuing education and vocational training
- Education and research

➔ **Social commitment**

- Bayer and UNEP: Successful cooperation
- Participation in the U.N. Global Compact initiative
- Cooperation with numerous groups: Public private partnerships
- Specific help for the community
- Protecting biodiversity
- Support for minorities
- Support for leisure, sports and culture

➔ Glossary

➔ More on the children’s pictures

You can also call up particular sections of the document. Please click on the desired heading in the table of contents.

“I agree with Henry Ford that if we industrialists do not contribute toward solving social problems, we have left our foremost duty undone.” These were the words of Carl Duisberg, who made Bayer a pioneer in corporate social responsibility at the beginning of the 20th century. This tradition has remained strong at Bayer to this day: Corporate social responsibility and corporate citizenship are now more than ever being rigorously applied in our company.



Neeva Young, United States, aged 3

*“I hope that the sun
always shines so that
the trees and bushes
can grow nicely!”*

→ More on the children’s pictures



Dr. Richard Pott

Success through common values

and improve quality of life with our ideas, products and services. At the same time, however, we want to take into account the different views and cultural backgrounds existing throughout the world and treat all people with respect.

The Bayer Group can only be successful in its new organizational structure if all employees adopt the company's goals as their own. For this reason, we require and support employees who think and act entrepreneurially. In other words: Committed, highly motivated and qualified employees are our most important capital. Essential criteria in this respect are a commitment to lifelong learning and a willingness to develop self-initiative, work independently and assume responsibility – with the courage to take risks. As part of our corporate mission, we undertake to safeguard the future – for Bayer and for coming generations.

The goals are ambitious: We want to achieve a top performance in all areas of our enterprise and safeguard long-term success at our approximately 350 companies worldwide. We aim to create sustained value

An active commitment to common values

Common basic values provide a framework for action in specific situations and serve as a workable basis for open, honest and trusting cooperation both within and outside the Bayer Group. Traditional Bayer values include Responsible Care, a gentle approach to resources and the environment, an emphasis on product quality and safety, and a commitment to reliability, fairness and transparency.

Our commitment to social responsibility is an integral part of Bayer's active corporate culture worldwide. We take our values seriously and work to implement them. We maintain ambitious social programs at numerous locations that contribute to solving such diverse societal problems as human rights abuses, child labor, discrimination, hunger, disease and environ-

Milestones in corporate social responsibility

1877

The "Factory Workers' Relief Fund" of Friedrich Bayer & Co. is officially recognized as a registered relief fund.

1885

The Bayer "Relief Fund" becomes a corporate health insurance fund.

1887

Bayer joins the local organization "Bergischer Verein für Gemeinwohl" which builds houses for workers.

1889

A medical dispensary is established in Elberfeld.

1890

Two funds – one for wage earners and the other for salaried staff – are set up to support employees in emergencies.

mental destruction. This is one reason why Bayer was a founding member of the Global Compact initiative set up by U.N. Secretary-General Kofi Annan. The 2004 Sustainable Development Report contains many examples of how Bayer acts as a global pioneer in the area of social responsibility – which is also consistently supported and practiced within the Bayer Group (see inset). It is up to all of us to serve as an example and contribute to a better quality of life through our own actions.



Dr. Richard Pott joined the Board of Management of Bayer AG on May 1, 2002. He is responsible for Strategy and Human Resources and also serves as the company's Labor Director.

Bringing values to life

We aim to align our employees' actions to Bayer's corporate values and assess them accordingly. This is reflected in the following aspects of human resource policy among others:

Management principles based on Bayer's values let our employees know what we expect of them.

Performance management demands, supports and honors commercial success and the implementation of our values.

Lifelong learning and human resources development allow us to recognize, evaluate and support the potential of our employees through seminars, job rotations and feedback.

1895

Preferential shopping opportunities are established for employees.

1899

A savings bank for workers is founded.

1900

A medical dispensary is established in Leverkusen.

1900

The Bayer orchestral society is established.

1901

To meet the demand for highly skilled labor, Bayer establishes a training school and workshop in Leverkusen.

1902

Bayer establishes a library, a home for women who have recently given birth and a housekeeping school.

The workforce as a guarantor of success

Bayer is successful in more than 150 countries around the world. This can only remain so if we continue to address rapidly changing market conditions and the related challenges. Here, flexibility, speed and an adjustment of our structures are required to safeguard our existence in the future. Bayer is relying on its employees’ abilities, motivation and willingness to commit to life-long learning and accept change.

1904 The first Bayer athletics club (TuS 04) is established.	1904 The company's various care units are integrated into a single welfare department. An "Employee Affairs Committee" is	set up at the company's offices to advise on hirings and dismissals and serve as an appeals body for complaints.	1905 Bayer establishes a preschool.	1907 A group of Bayer employees sets up a continuing education center for Bayer workers and craftsmen on August 18.	1907 The Cultural Affairs Department is established and its program steadily expanded.	1908 The "Erholungs- haus" performing arts center is inaugurated in Leverkusen-Wies- dorf on September 13.
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1909

Expenditures for voluntary welfare facilities total 1.6 million marks – 18 times the statutory minimum at that time.

1909

The eight-hour shift is introduced.

1910

Bayer becomes the first German company to employ a “social secretary” whose job it is to mediate in disputes between workers and supervisors.

1912

The “Böttinger Home” is built in the Bergisches Land region near Leverkusen for employees requiring recuperation or care.

1920

A society of long-serving employees is founded on November 28, with a membership of 627. Today it has more than 28,000 members.

1922

For the first time, students are hired at Bayer to fill in for employees on vacation.

1926

An annual bonus is introduced for all employees.

Remuneration concepts and social benefits

Bayer places tremendous value on the outstanding qualifications and high motivation of its employees – and thus also on appropriate remuneration. An important tool for employee motivation is a remuneration concept that includes both a competitive fixed income and variable income components that allow employees to participate in the company's business success. The concept also comprises appropriate pension benefits.

Innovative incentives for employees

Another aspect of Bayer's remuneration system involves further innovative incentives for all employees such as Bayer AG's stock participation program, which has since also been intro-

duced in Belgium, the Netherlands, France, the United Kingdom, Ireland, Spain and Greece. As Bayer shares have been listed on the New York Stock Exchange since 2002, we have also established share purchase programs for employees of our U.S. subsidiaries.

Bayer's stock programs are very popular. More than 60 percent of those eligible take advantage of the offer each year. At the end of 2003, approximately 55,000 employees around the world held more than 15 million Bayer shares in all – 2.1 percent of the company's capital stock. Nearly half of all Bayer employees own stock in the company.

Provisions for secure pension benefits

A further key fringe benefit is Bayer's company pension system, which is of particular

importance in countries where the social security systems are only now being established. Bayer provides for the period following retirement either directly or by making payments into private funds. The company's benefits vary according to the legal, tax and economic conditions existing in the individual countries and are generally based on the employee's salary and duration of employment.

In 2003 Bayer paid €747 million into all forms of pension plans for its employees – nearly 40 percent of the company's total expenditures of approximately €1.9 billion for social benefits and support.

Individual and flexible work schedules

Wherever it is possible and compatible with the circumstances existing in individual countries, Bayer is a proponent of flexible work schedules that meet both corporate and individual needs. For example, about 16,000 non-managerial employees of Bayer AG for many years have enjoyed the benefits of flexible working hours. In 2001 Bayer introduced annual worktime accounts for a further 13,000 employees in Germany with fixed working hours. This allows staff to be deployed flexibly, according to production requirements.

Since the beginning of 2003, we have increasingly made employees at many of our sites around the world aware of the possibility of individually shaping their

1926

Carl Duisberg decides to considerably expand the Japanese Garden first established in 1913 near his villa next to the Leverkusen site. The result is an attractive garden landscape in the Japanese style.

1943

The Social Department sets up a special industrial safety unit. A service is also established to assist employees whose homes have been destroyed by bombing during World War II.

1952

Bayer-Wohnungen GmbH is established. Construction of new housing for employees begins for the first time since the war.

1953

Bayer shares are listed once again on the stock market. The first employee stock ownership scheme is launched.

1957

Introduction of the 43.75-hour working week. The collective bargaining agreement still provides for a 45-hour working week.

1959

An agreement is concluded governing cooperation between management and the works councils of Bayer AG. It greatly expands on the first Industrial Constitution Act

of the Federal Republic of Germany enacted in 1952, already introducing elements of the 1972 Act.

1965

Groups are established to support non-German employees. A wide range of language courses is offered.

Bayer offers its employees a number of modern flexible work-time options: Men also take advantage of part-time employment opportunities, although the percentage of women using these models is higher. The ratio is approximately two to one.

working hours, while taking account of the requirements of business operations. They can choose from numerous flexible part-time models, including two different part-time working arrangements in Germany for older employees winding down their careers. Options also include sabbaticals lasting a longer period of time for personal or educational reasons. These practices are already gaining increased acceptance in many countries and companies. Furthermore, we are open to teleworking options, allowing employees to work from home with the help of modern communication and information technology.

Balancing family and career

For a number of years now, the company's social benefits have also included a commitment to balancing family and career. At Bayer's headquarters in Leverkusen, this commitment is evident in part through the support of pre-schools operated by the German Red Cross. Bayer also supports certain parental initiatives and assists employees in finding daycare options for their children.

The company also offers a number of other services to help young parents balance their family and career responsibilities, such as extended maternity or paternity leaves lasting up to seven years. Our part-time employment, job-sharing and teleworking practices also serve this purpose.

Other Bayer companies help to locate pre-school openings for the children of their employees or find suitable daycare centers, as is the case at Bayer Corporation in the United States. There, the company assumes part of the costs for these services. Bayer Corporation is also active in finding care takers for elderly family members requiring care. In this case, too, the company helps defray the cost of these services.

1970 The Kurt Hansen Foundation is established for the training of science teachers.	1977 Introduction of the "Learning by Doing" program for young people without a school diploma.	1981 The Herbert Grünewald Foundation is established to promote sports for the disabled.	1982 Following the death of Professor Dr. Otto Bayer on August 1, the "Otto Bayer Foundation for the Recognition and Support of Scientific Researchers" is established.	1986 Bayer AG establishes an endowment to finance a teaching position for industrial chemistry in the Mathematics and Science Faculty of the University of Cologne.	1987 The "Family and Career" agreement takes effect. It allows mothers or fathers with young children to take up to seven years' leave of absence with a guarantee that they will be reinstated at the end of this period. Such employees are, however, obligated to continue their professional education during this absence so they retain their skills.
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Employee advancement

Employee advancement independent of gender is a matter of course at Bayer. The focus is on supporting men and women in planning their careers and private lives and giving them equal opportunities for individual development in the company. This is achieved at the company's German sites in part through the "Equal Opportunity" task force, a joint body of the management and Works Council that was established more than a decade ago. The result: Over the past ten years, the proportion of female managerial employees at the company's locations in Germany has more

than doubled, and the number continues to grow. Women account for one in every five newly employed university graduates at Bayer. These are excellent figures for the German chemicals sector, since most graduates in scientific and technical fields are still men. In Germany, Bayer AG received the "Total E-Quality" award from the association of the same name in May 2003 for the third time in honor of its commitment to equal opportunity. Nearly 20 percent of all Bayer AG employees are women. The proportion of female trainees at Bayer is almost 25 percent.

Strengthening the role of women at the workplace

In the United States, Bayer Corporation was named a 2002 recipient of the Catalyst Award for its role in promoting the advancement of women with the initiative "Bayer Women: Leaders for the Global Marketplace." Catalyst

is a non-profit research and advisory organization working to advance women in business and the professions, with offices in New York and Toronto. The award is given to companies implementing new and creative solutions for ensuring women's advancement in the workplace of the 21st century. The initiative "Leaders for the Global Marketplace" focuses on preparing women of all colors for wide-ranging tasks in a global company.

Cultural diversity – multicultural interaction

The company's efforts to fight racism and anti-foreigner sentiment throughout the world are every bit as intensive as its commitment to the advancement of women. As a multinational company, equal opportunity for all our employees is a guiding principle of our corporate policy. Therefore, we support the sixth principle of the United Nations

Global Compact initiative: "Industry should work to eliminate discrimination in respect of employment and occupation." (Read more about Bayer's participation in the "Global Compact initiative" on pages 48–49.) Bayer employs people from a wide range of cultural backgrounds. This is not only the case at Bayer's German sites – where foreign workers have been employed for decades, currently accounting for about 5.8 percent of the company's total workforce – but also around the world, where people of different nationalities and ethnicities are employed at Bayer sites. For the Group as a whole this figure is around five percent. We see this cultural diversity as a tremendous opportunity for our company. That's why our human resources development programs encourage assignments in foreign countries to prepare our employees for global responsibilities and sensitize them to cultural differences.

1988 The Hermann Strenger Foundation is established for the promotion of international employment experience.	1991 The Bayer Communication Center – or "BayKomm" for short – is inaugurated in Leverkusen.	1992 The "Bayer Foundation for German and International Labor and Commercial Law" is established jointly with the University of Cologne.	1993 The integrated community program "Bayer goes to the community" is launched in Belford Roxo, Brazil. Through March 2003, 400,000 people from the community surrounding Bayer's site north of Rio de Janeiro have participated in programs providing health education, training, school lunches and many other services.	1993 First environmental report for Bayer AG.	1994 The first production facility comes on stream at Bayer's new site in Bitterfeld, eastern Germany. Bayer's choice of this location was a social policy decision made in the context of German reunification.	1996 The Agrovida program is introduced in Brazil to improve living and working conditions for farm laborers. Specially developed education models are employed to teach
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In the 1990s our U.S. subsidiary Bayer Corporation set up the “Bayer Diversity Advisory Council.” The goal of this body is to promote the unprejudiced coexistence of different cultures within the company. This is achieved partly through a mentoring program for the integration of new colleagues. The program is also aimed at investigating and putting a stop to any potential discrimination due to ethnicity, skin color or other physical characteristics. Nearly all of our U.S. managerial staff – and many other employees – have since visited a seminar aimed at breaking down stereotypes and misconceptions about other nations and races.

Increased opportunities for the disadvantaged

The principle of equal opportunity naturally also applies to disadvantaged people in our society. These include young people without a high school diploma.

As their career opportunities are initially very poor, we believe we have a special social obligation to help such young people complete a vocational training course. To help achieve this, we maintain a program at our German sites of Leverkusen, Dormagen and Krefeld-Uerdingen, that gives youngsters without a high school diploma the opportunity to prepare over a 12-month period for a vocational training course in a scientific field. We also support external initiatives, such as the campaign at our headquarters site entitled “A Ship for Leverkusen.” The two-year job creation program of the employment office run by the educational organization Kolping Bildungswerk and financed by a number of sponsors involved the construction by ten educationally challenged young people of a vessel able to navigate on the open sea. Under the direction of a master shipbuilder, the participants gained expertise in wood- and metal-working, painting and

varnishing, and electrical, gas and water installation – key qualifications that open up chances to them in the job market.

Support outside of the workplace

Many Bayer companies support their employees outside of the workplace too. With an extensive “quality of life” program, for example, Bayer Corporation helps its employees to overcome difficulties in their private lives. The company provides financial support to employees who adopt a child. Bayer Corporation also makes arrangements and defrays costs for employees requiring care for their children or other family members dependent on assistance. In addition, the Employee Assistance Program provides free assistance in a number of areas affecting employees’ private lives, including drug counseling. The company even helps employees to find legal advice

for a wide range of everyday problems, as well as professional debt management services for those in financial need. In Germany too, employees with questions and problems linked to addiction and dependence can find professional assistance in the company.

the laborers about the safe, economical and ecologically compatible use of crop protection products. About 25,000 families take part.

1997
Bayer becomes a member of the World Business Council for Sustainable Development.

1998
Bayer launches extensive projects in India to assist street children, orphans and children of migrant workers.

2000
Bayer becomes a founding member of the United Nations Global Compact initiative.

2000
U.S. President Bill Clinton honors Bayer Corporation with the President’s Service Award – the highest accolade for corporate social responsibility in the United States

– for the company’s “Making Science Make Sense” program.

2000
Bayer launches the global Libra initiative to combat the spread of anti-biotic resistance.

2001
Bayer supplies WHO free of charge with its drug products Germanin® and Lampit® to combat African sleeping sickness.

Continuing education and vocational training

In a time of ever more rapidly developing technologies, changing tasks and evolving markets, the key factor for success is not just acquired knowledge, but rather the topicality of that knowledge. This is essential both for the company, to establish itself at the top in the international arena, and for the career development of each employee. Lifelong learning is therefore

both an opportunity and an obligation for our employees. For this reason, we offer an extensive continuing education program worldwide. Each year more than 20,000 employees at Bayer AG alone take the opportunity to update their knowledge in about 4,000 daytime courses and 200 evening courses. This corresponds to more than a million course hours a year. The company invests more than €100 million yearly in vocational training and continuing education. There is also rising demand for the management training programs offered by Bayer's Asian and Australian subsidiaries. Nearly 200 seminars have been held since they were introduced in 1992, and the programs were recently extended to Bayer's companies in Belgium and Sweden.

An important contribution to social policy

Continuing education builds on vocational training. More than 100 years ago, Farbenfabriken Bayer was one of the first German companies to hire apprentices, who were familiarized with their future occupation in a special workshop. The training workshop of yesteryear has developed into a full-scale corporate vocational training program completed by some 5,000 young people in 20 countries every year. About half are trained at the German sites of Bayer AG, while a further 600 receive training at the company's German subsidiaries. In the fall of 2003, 788 high school graduates were accepted into vocational training programs at the five sites of Bayer AG. This is about 300 more than

the company is likely to need. Bayer is thus also making an important social contribution at a time when vocational training openings are rare.

Science-based careers particularly popular

More than 20 vocations are taught at Bayer. About 43 percent of the trainees who entered the program in the fall of 2003 aim to pursue a scientific career. A clerical training course was chosen by 30 percent of the participants, while 27 percent chose technical training. Bayer's main site in Leverkusen accepted the lion's share of trainees in 2003, with 434 young people. At Bayer's German sites, trainees account for 6.7 percent of the workforce, which is well above the chemical industry average.

2001 An agreement reached between the management and the Works Council to help safeguard the future of Bayer AG's German sites rules out dismissals for economic reasons through 2004.	2002 Bayer reaches an agreement with WHO subsidiary "Medicines for Malaria Venture" to develop a new malaria drug to aid developing countries.	2003 Bayer becomes one of the first major foreign sponsors of Brazil's "Zero Hunger Program" aimed at combating poverty.	2004 Bayer's continues its collaboration with the Brazilian government on its Zero Hunger Program.	2004 A third agreement is reached between the management and the Works Council to help safeguard the future of Bayer AG's German sites: There will be no dismissals for economic reasons through the end of 2007, and the planned number of jobs to be shelved is reduced by 1,000.
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Supporting training where it's most needed

Outside of Germany, more than 200 young people in about 20 countries are currently taking part in dual training programs based on the German system. We make an effort to bring qualified young people into our workforce in other countries as well – and particularly those with a completely different vocational training system than in Germany. Here are just two examples:

■ **Mexico.** Here, Bayer's training programs are a good example of how the company's social responsibility and its need for a well-trained workforce go hand in hand. Bayer has run the "Centro de Capacitación para la Industria Química A. C." (CECIQ) – a modern vocational training center – in this Central American country since 1986. At CECIQ young Mexicans receive a three-year specialized training in various occupational branches according to the standards of the German Chamber of Industry and Commerce. Bayer places great importance on German standards not just in safety and environmental protection, but also in the training level of its employees. For a number of years now, numerous leading international companies – and not just from the chemical industry – have also been taking advantage of Bayer's training and

continuing education programs for the qualification of their employees, who receive intensive instruction from staff at the Bayer school.

As a training provider, Bayer also participates in the vocational training programs of the "Instituto Superior Mexicano-Alemano de Capacitación" (ISMAL). ISMAC is an institute of the German school in Mexico City that provides training particularly for office administrators and industrial clerks, who complete internships at Bayer Mexico during their time at the school.

■ **China.** In June 2002 Bayer signed an agreement with Shanghai Petrochemical Academy (SPA) concerning cooperation in the training of chemical production technicians. In February 2004, the "Bayer Training Plant" got under way with three "SPA Bayer Classes." The 132 students receive specialist qualifications and practical training. Bayer has provided a sum of €1 million for the construction of a laboratory, a pilot plant and a pipe assembly workshop. The goal of the collaboration is to work with the renowned Chinese training center for chemical vocations in training potential employees for our new production site in Caojing.

Education and research

In the area of education and research, our goal is to promote the talents and abilities of young people and thus help secure the flow of new and qualified talent into the company and industry. Bayer has a good image in Germany particularly among talented young scientists. Evidence of this is supplied by the Absolventenbarometer 2003 – a study carried out by the Trendence Institute in Berlin in cooperation with the Young Chemists' Forum of the Society of German Chemists (GDCh). At 39 universities throughout Germany, some 700 prospective chemists – undergraduate, graduate and doctoral students alike – were asked to choose their favorite potential employer out of a list

of 100 companies, primarily from the chemical, automotive and IT industries. Bayer and BASF finished tied for first place by a wide margin in the survey of the most popular potential employers, each garnering 28 percent of the votes.

Support for up-and-coming university-level scientists

Bayer is also active in promoting highly qualified young scientists. For this reason, we have long cooperated with universities and award scholarships to particularly gifted students. The committees of the various Bayer foundations decide on the awarding of scholarships in Germany (see inset). At the company's international locations, the granting of scholarships is usually conducted directly by the company through its regional organizations.

The following are a few examples of how our companies in various countries approach the advancement of young scientists, taking care to address the specific needs of their individual countries:

■ **China.** Since 1996 Bayer has awarded scholarships to undergraduate and postgraduate students at Beijing University of Chemical Technology (BUCT) in recognition of their excellent academic performance. Bayer also works with the Chinese Academy of Science (CAS) to promote young scientific researchers. Together we presented the "CAS Bayer Research Award" for the first time in 2002, awarding prizes in two categories: The "Start-Up Fund", endowed with \$25,000, is aimed at scientists trying to establish their own research groups, while the "Young Chinese Scientist Award," endowed with \$10,000, is presented to young scientists at the CAS institutes. Through 2005 we will provide the Chinese Academy of Sciences with a total of \$500,000 for this purpose.

■ **Japan.** To promote the interest of young people in science, Bayer Japan since 2000 has organized the annual "Bayer Student Reporters" program in cooperation with the Japanese daily newspaper Mainichi Shimbun. High school students selected during a science essay competition visit Bayer sites in Germany and the United States as young "journalists" and become familiar with scientific themes such as pharmaceutical research, genomics and environmental protection. Afterwards the students report on their trip in the newspaper.

■ **Australia.** Bayer finances a university research scholarship that is awarded every two years by an independent institution, the Research & Education Foundation of the Royal Australasian College of Physicians. Receiving support in particular are research projects that deal with cardiovascular, anti-infective and metabolic medicine.

Bayer scholarships

Dr. Carl Duisberg Foundation for German students studying abroad

The foundation makes a variable contribution to the living expenses of German students studying abroad.

Dr. Carl Duisberg Foundation for German medical students

Travel grants are awarded to young German medical students wishing to intensify or supplement their studies by undergoing clinical training abroad.

Kurt Hansen Foundation for the training of science teachers

The scholarship takes the form of a grant of €800 paid each semester from the fifth up to and including the ninth semester.

You can find information on other Bayer and Bayer-administered scholarships on the internet at:

www.bayer.com/about_bayer/social_responsibility/foundations

■ **Mexico.** Students at the National Autonomous University of Mexico do not learn solely from their professors, but also from Bayer HealthCare AG's Animal Health experts, who inform the prospective veterinarians about the company's biological safety programs. In addition to the up-to-date scientific materials the company provides free-of-charge to the students, Bayer also matches the volume of products ordered by the Department of Veterinary Medicine for treating animals at no charge. Other divisions, too – such as Pharmaceuticals – promote similar activities to support student training and the continuing education of academics.

■ **France.** Via a special button ("Site étudiants") at its corporate website, Bayer France provides students with information about important scientific events and gives them an opportunity to pose a wide range of science-related questions to the company's experts.

Diverse curriculum for teachers and students

We aim to promote and support chemistry teaching at German schools, both in the scope of our corporate social responsibility and in our own interest as a company. For this reason, we foster regular contact with teachers and students in the communities around our sites. Our goal is to promote an understanding for chemistry and other sciences, increase the acceptance of this important economic sector and present attractive career opportunities. To achieve this, we offer target-group and demand-oriented programs for teachers and students of all ages and school types. A 164-page brochure helps teachers to choose the right options out of the various programs offered (at www.schule.bayer.de), which range from tours of the Bayer sites and open house events in the company's training centers through school project weeks and student internships to continuing education for teachers and Bayer-supported student contests. Teachers can also order

manuscripts for experimental presentations and experiments for schools, as well as lecture notes on macromolecules and dyestuffs. Bayer provides the chemicals necessary for the selected experiments free of charge.

“Bay-Labs” established at various sites are intended to supplement science classes in schools and strengthen the interest in science that undoubtedly exists among the young participants of various ages. However, safeguarding the flow of young talent into the company is not the only goal here. Another aim is to stimulate dialog between the public and the research community. One example of this is the “Observational Laboratory for Molecular Biology,” which can also be visited by adults at the Fuhlrott Museum in Wuppertal.

Further examples:

■ In **Germany**, Bayer for several decades has sponsored the “Jugend forscht” (Youth per-

forms research) competition for students. The goal of this competition is to introduce young people to science and recruit them into the industry as scientists and researchers. In April 2004 the annual state competition for North Rhine-Westphalia was held for the 39th time, taking place for the 12th time at BayKomm, the Bayer Communication Center in Leverkusen. Bayer also supports a five-day state seminar as part of the Chemistry Olympics.

■ In the **United States**, the “Making Science Make Sense” initiative established by Bayer in 1992 is aimed at improving science teaching in U.S. schools. We have already described these activities in detail in earlier Sustainable Development Reports. The program has since also been introduced in **Japan**, where Bayer employees demonstrate experiments at elementary schools as part of this initiative. In this way, Bayer aims to revive the interest of Japanese children

in science, which according to studies has been sharply declining in recent years.

■ In September 2001 the Education Business Partnership joined with Bayer to launch “Science for Life”, a science competition for students in the **United Kingdom** and **Ireland**. The competition recognized by Science Year, an initiative of the British government, is open to teams of up to four students from the age of 16 in the U.K. and Ireland who study science. At the center of the project is the Science for Life website (www.scienceforlife.uk.com), which contains a tremendous volume of reference materials that are relevant to curricula for teachers and students.

■ In **Mexico**, Bayer for years has supported a program of the Papalote Museo del Niño in Mexico City to benefit state schools. This children’s museum is one of the most important of its kind in the world. The program gives

children and young people from less socially established families and from orphanages the opportunity to experience science, technology and art in an entertaining setting.

■ In recent years, Bayer has been participating in an environmental education program for students in **Poland**. The company worked together with education experts to develop a new high school learning program entitled “Eco-Class” that is designed to teach students about environmental protection. So far, four schools have participated in projects dealing with recycling and environmentally friendly transportation and energy. With this initiative, Bayer supported the “Green Certificate” program of the Polish Environment and Education Ministry. Bayer has since been awarded an environmental prize for its Eco-Class project by the well-known Polish travel magazine *Poznaj Swiat* (“Introduction to the world”).

Internships for high school and university students

A further important activity for the promotion of young researchers involves offering internships to high school students so that they can get a taste of what might await them in a scientific career. The company also offers internships in many fields that students need to cover to satisfy the requirements of their studies. These internships are primarily available in the areas of natural science, technology and business, and can be completed at all Bayer sites in Germany as well as a number of foreign locations in countries such as Argentina, the United States, China/Hong Kong, Mexico, Singapore and Spain.

Since 1993, Bayer Australia has offered high school graduates a training program called the Bayer Youth Traineeship Scheme, which provides them with insight into the working world and helps them find the career

best suited for them. Over a period of 18 months, the trainees receive and complete practical assignments in all parts of the country. They also study at a college for higher learning and continuing education to develop management expertise.

Awards and prizes as an incentive

In order to promote scientific research and support up-and-coming scientists, Bayer presents awards and prizes in various fields. These range from the Otto Bayer Prize and the International Aspirin Award to the “Endowed Prize of the German Diabetes Society” and the “Ludwig Heilmeyer Prize.” The company also supports the environmental medicine society “via medica” through collaboration and financial assistance. Furthermore, Bayer has provided considerable organizational and financial support to the Robert Koch Foundation for more than 40 years. Another important prize, the “Bayer Hemophilia Awards Program,” was established by the company in September 2002. The goal of this research initiative is to promote the development of the next generation of treatment and therapy options for hemophiliacs. The company provides \$2.75 million each year to finance scholarships for up-and-coming researchers, assistant university professors and other hemophilia specialists. The program is aimed at supporting basic and clinical research and education in the field of hemophilia therapy. As part of the awards program, between five and 15 prizes are awarded each year in four categories.

Social commitment

Like all other corporate policy objectives of the Bayer Group, our corporate social responsibility objectives are derived from the company's self-image. Our goal is to grow the value of our Group over the long term and generate a high value added in the interest of our stockholders, employees and society at large in all the countries in which we operate. At Bayer, we believe our technical and business expertise involves a responsibility to work for the benefit of mankind and contribute to sustained and environmentally friendly development.

Since the end of the 19th century, social responsibility has been an integral part of Bayer's corporate culture. That commitment has never been an end in itself, since it involves working not only for the good of society but also for the attainment of corporate goals, such as the advancement of our corporate image.



Bayer and UNEP: Successful cooperation for youth and the environment

As a research-based enterprise, Bayer places great emphasis on promoting science education for young people and has therefore been committed to providing youth environmental programs for many years. As partner to the United Nations Environment Programme (UNEP), Bayer organizes and supports a number of specific projects which aim to strengthen environmental awareness and improve knowledge about the environment among young people. Building on their many years of cooperation in the Asia-Pacific region, Bayer and UNEP want to give their close and successful partnership a more global basis. A cooperation agreement, making Bayer UNEP's first private partner in the area of youth and the environment, is to be signed in June 2004. The new commitment focuses on the regions Asia-Pacific, Central and Eastern Europe and Latin America.

Young envoys for environmental protection

With its *Environmental Envoy* project, Bayer provides young people with opportunities to gain first-hand experience of environmental protection, with a focus on industry, households and the role of government. A key goal of the program is to promote a greater understanding of the interaction between the different sectors of society and familiarize young people with modern industrial product development and manufacture based on the concept of sustainable development. Originally established in 1995 in Thailand, the program has since been expanded to India, Singapore, the Philippines and China. Bayer has been the program's main sponsor since 1998, with support also coming from governments and authorities of the countries involved. It is planned for the program to include Indonesia and Korea in

2004. In Latin America, Brazil, Colombia, Venezuela and Ecuador will join the *Bayer Young Environmental Envoy* Program, as should Poland and possibly some other Central and Eastern European countries from this year on.

Practical ecological experience for young people

The *Bayer Eco-Camp* is an important local component of the youth environmental program. As well as serving as a tool for enhancing basic knowledge of sustainable development among young people, it also facilitates the selection of *Bayer Young Environmental Envoys* in each country. The students selected in each country experience nature, study the science of environment and engage in dialog with experts. Such camps are currently held in Thailand, the Philippines, Indonesia and China.

Discussing and implementing new ideas

With the regional youth environmental forum *Eco-Innovate 03*, UNEP and Bayer have started a project, which offers young people from Asia-Pacific a unique platform for discussing innovative project ideas for sustainable development and environmental protection. The pilot project was launched in July 2003 at the University of New South Wales in Sydney under the patronage of Dr. Klaus Töpfer, the Executive Director of UNEP. An important objective of the "Capacity Building" forum was to provide the participating youth with an opportunity to interact with leaders of governmental and non-governmental organizations, academia, media and industry through the establishment of a network. The 100 delegates of *Eco-Innovate 03* were chosen from some 1,000 applicants who participated in national selection processes.

es. By involving young people from Australia, New Zealand, Singapore, Thailand, Indonesia, the Philippines, China and India, the forum was unique in recognizing the importance of diverse worldviews in sharing expertise and developing best practice across borders. As part of their partnership in youth and the environment, UNEP and Bayer are intending to further develop the concept of a “Capacity Building” forum.

Environmental award for young journalists

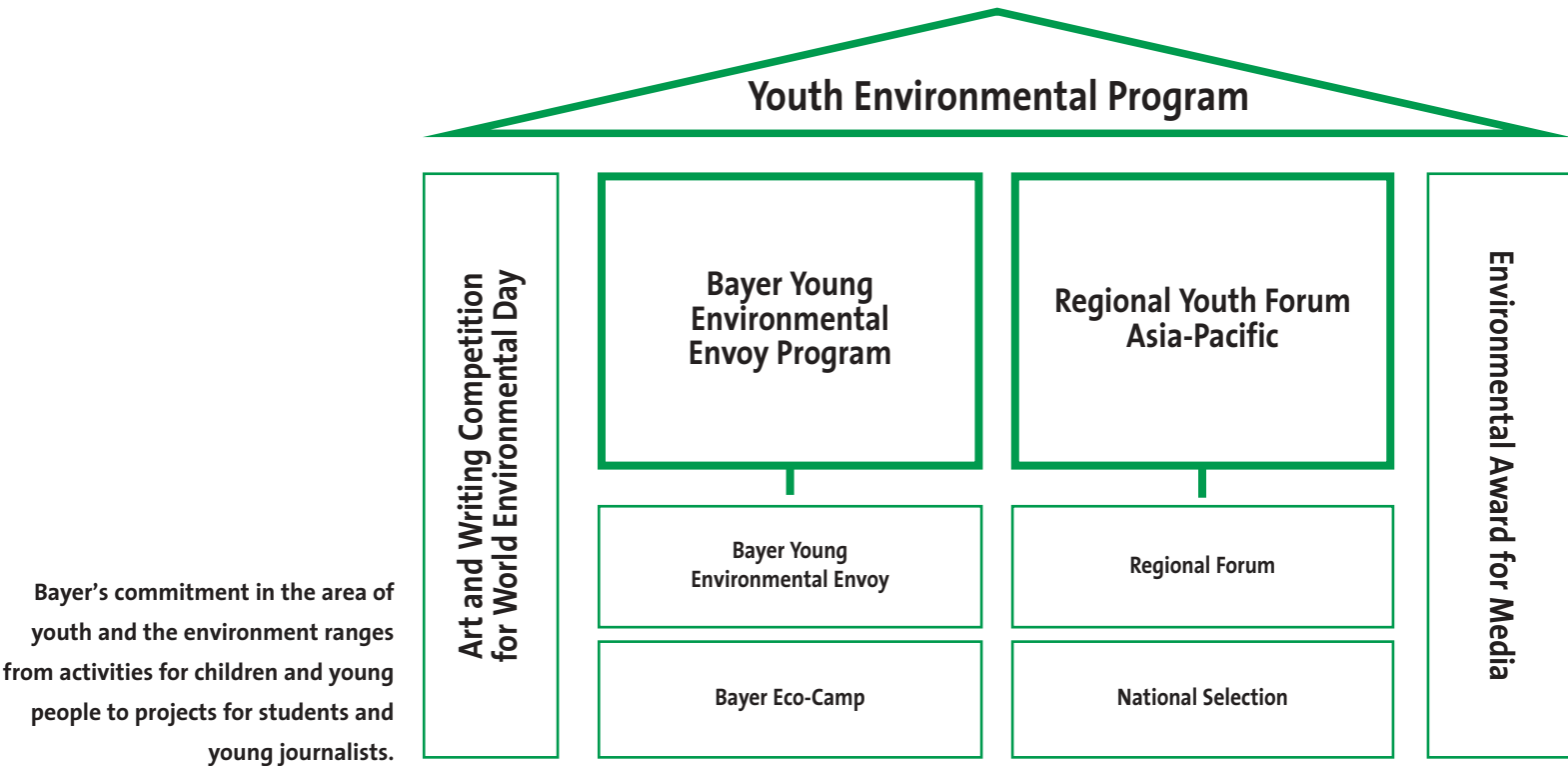
In cooperation with UNEP, Bayer awards an Environmental Award for Media, a media prize for young journalists in Asia Pacific. It acknowledges outstanding reports that have helped to raise awareness of sustainable development among a wider public. The prize was first awarded in July 2003 during the *Eco-Inno-*

vate 03 youth environmental forum with participation from seven countries: Australia, China, Indonesia, New Zealand, the Philippines, Singapore and Thailand.

Children’s art and writing competition

To commemorate the World Environment Day, a children’s art and writing competition is organized for the Asia-Pacific

region every year. The World Environment Day is one of the principal vehicles through which the United Nations stimulates worldwide awareness of the environment. It therefore promotes activities which serve this aim. Bayer supports this effort in Asia-Pacific as part of its partnership with UNEP in the region. The topic for the 2004 competition is “Wanted! Seas and Oceans – Dead or Alive?.”



Participation in the U.N. Global Compact initiative

The Global Compact initiative set up by the United Nations (U.N.) is a unique project backed by the world organization and world business leaders. Under the leadership of U.N. Secretary-General Kofi Annan, the Global Compact initiative aims to make principles for human rights, labor standards and environmental protection as adopted by international conventions the basis for corporate actions, and thus contribute to a more balanced globalization process. Bayer expressly supports the goals and principles of the Global Compact and rejects human rights abuses, child and forced labor, and discrimination. We described this initiative of U.N. Secretary-General Kofi Annan in detail in our 2001 Sustainable Development Report. Following the biggest reorganization process in Bayer's more than 140 year history, the company's existing management systems in

the areas of health, safety, environmental protection and quality (HSEQ) are now being improved in terms of content and structure – partly to ensure and promote the enactment worldwide of the Global Compact principles. One example of the implementation of these principles in related areas is the "Supplier Relationship Management; SUPREME" system, which was introduced in the spring of 2003.

The management of a sustainability-oriented supply chain is also a major challenge for Bayer, considering that our supply chain comprises more than 25,000 suppliers and half a million raw materials, products and services. Suppliers are regularly evaluated with the help of this system, the establishment of which is among the performance targets set by employees in purchasing. The system assesses, for example, the observance of human rights, working conditions and environmental standards. The goal is to evaluate 80 percent of all supply and delivery activities with this system in the future.

Bayer is not only committed to the principles of the Global Compact, but was one of just eight German companies and approximately 50 enterprises in the world which were founding members of the initiative. The company has also initiated a number of projects in line with the objectives of the Global Compact. Below is a selection:

Cooperation to eliminate child labor in Brazil

Child labor is still widespread in countries such as Brazil. Nonetheless, it has declined by roughly 30 percent in that country since 1995 – thanks in part to the Abrinq Foundation for Children's Rights, with which Bayer cooperates. The goal of the initiative is to push for children's human rights and their rights to receive health care and education on the one hand, and to

support social programs for children on the other. As a "child-friendly" company, Bayer is authorized to use the Abrinq logo, which is only awarded to companies who observe the principles laid down in the U.N.'s 1989 Convention on the Rights of the Child. At the recommendation of the Abrinq Foundation, Bayer supports a home for street children dependent on drugs and a care facility for 370 needy children between four and 14 years of age.

New malaria drug being developed

In May 2002 Bayer and "Medicines for Malaria Venture" (MMV), a WHO initiative financed by the World Bank and private foundations, signed an agreement on the development of a new malaria drug based on artemisone. This new active ingredient, for which Bayer holds the patent rights, is the result of our research alliance with Hong Kong University of Science and Technology. The first registration is planned for 2006.

Bayer places third in study

A study carried out in 2002 by the Oekom Institute in Munich, Germany, found that Bayer is among the world's leading companies in terms of commitment to society and the environment. The study rated the 22 biggest pharmaceutical companies worldwide according to 200 ecological and social criteria. Bayer placed third.

Under the terms of the cooperation agreement, Bayer will assume product development and supply the finished product, while WHO/MMV will be responsible for monitored distribution in the developing countries' health systems. The price in this market is to be set at a level that would allow all segments of the population in the developing countries who suffer from malaria to receive treatment. For its part, Bayer will market the product in the industrialized countries. The demand for new forms of malaria treatment remains high. About 2.5 billion people live in regions where there is a risk of contracting malaria, which is transmitted by the Anopheles mosquito. Between 300 and 500 million people are newly infected with malaria each year, primarily in tropical developing countries. Of the one to three million people

who die of malaria each year, most are children.

In a number of African countries – Uganda, Zambia, Mali and Malawi – Bayer was actively participating in the fight against malaria even before its joint initiative with the WHO and MMV. In cooperation with rotating partners such as the German Society for Technical Cooperation or the Christian relief organization World Vision, as well as with the relevant authorities in those countries, the company sponsored the distribution of mosquito nets treated with Bayer insecticides that are effective against the Anopheles mosquito but harmless to humans. This is the only effective way to prevent insects from stinging through the fabric of the nets.

Bayer joins the fight against AIDS

In 2002 there were more than 45 million HIV-infected people around the world, mainly in African countries. Approximately four million people died of

AIDS in that year alone. In order to intensify the global fight against AIDS, Bayer has joined the Global Business Coalition on HIV/AIDS, which now includes more than 100 companies. HIV/AIDS is a major focus of Bayer's pharmaceutical research. We regard our participation in this global initiative as a further element of our extensive social commitment and a contribution to fulfilling the obligations we have assumed through our support of the United Nations Global Compact initiative.

Bayer received good marks from the Munich-based Oekom Institute for its social activities in the communities surrounding its sites worldwide, for its policy with regard to social and ethical problems, and in the management and reporting of these issues (see inset above). The selection procedure was based

not only on information provided by the companies themselves, but also on details supplied by independent institutes. Non-governmental organizations (NGOs) were also used as a source of information for evaluating Bayer's performance. Based on the study results, Oekom recommended Bayer's inclusion in the portfolios of ethically oriented investors and funds.

Cooperation with numerous groups: Public private partnerships

Most of our social policy activities are decentralized. Our foreign subsidiaries and individual sites can decide for themselves which projects they support. These decisions are based on local needs, as well as on regional corporate policy interests and circumstances. In many countries we cooperate with social organizations that are prepared to work to solve specific problems. At a number of sites, Bayer also maintains public private partnerships, which are cooperation projects with local and government organizations. Here are a few examples:

■ **Malaysia.** Poultry production is one of the most highly developed industries in Malaysia. One of the biggest risks faced by this industry sector is the threat posed to stocks by rats. That's why Bayer Malaysia joined with the Malaysian Department of Veterinary Services in 2002 to inform, in a workshop, more than 200 poultry farmers, dealers and executives from the Department

of Veterinary Services about various rodent control options – marking the first time in Malaysia's history that a multinational company has joined with the local authorities in a public private partnership of this kind.

■ **Indonesia.** As part of a public private partnership project, the German Society for Technical Cooperation (GTZ), the district government of Sumba Timur and Bayer Indonesia worked together in 2002 to save 80 percent of the harvest in Sumba Timur from a locust infestation. By providing an insecticide and coordinating its use, Bayer safeguarded the livelihood of hundreds of farmers. The affected farmers also received training in how to use the products, while a specially constructed early warning system now detects breeding grounds and the forming of swarms in plenty of time – giving the farmers the opportunity to fight the swarms at an early stage.

■ **Cuba.** The dangerous tropical disease dengue fever is widespread in Cuba. It is transmitted by mosquitoes (*Aedes aegypti*) and can be fatal in a worst-case scenario. As part of a special public private partnership program funded by the Cuban Ministry for Public Health, the German Federation of Samaritan Workers and Bayer, 2,270 hermetically sealed plastic water tanks were distributed free-of-charge in the eastern Cuban city of Guantánamo in 2002 to reduce the spread of mosquitoes. Female mosquitoes like to lay their eggs on the edges of open water tanks. If these breeding grounds are removed or covered, the mosquitoes can no longer multiply. The city does not have sufficient drinking water available for the local inhabitants, so the water needs to be stored in suitable containers. In a number of other Central and South American countries in which dengue fever is also widespread – such as Guatemala, the Dominican Republic, El Salvador and Brazil –

the company has been conducting regular campaigns for several years in cooperation with the national health authorities. Bayer volunteers have been taking action in urban locations where the risk of transmission is high and in areas where the *Aedes aegypti* mosquito species is common. As part of this project, the insecticides and the spraying equipment and instruments are made available by Bayer free-of-charge.

In addition to these individual activities at the sites themselves, Bayer either participates in, or has itself launched, a number of international, non-site-related initiatives that are managed centrally from Group headquarters in Leverkusen. Bayer is also a member of numerous international associations, and participates in projects and collaborations with international organizations such as the United Nations and the World Health Organization (WHO).

■ **Thailand/South Korea.** The outbreak of the “chicken flu” in 2003 posed a threat to both people and animals. To prevent the further spread of the disease in Thailand and South Korea, Bayer has donated the disinfectant VirKon® S. In Thailand, where the disease has raged particularly rampant and the consequences are most serious, the company has donated 5,000 kilograms of the product to the government and offered unrestricted assistance in combating the disease. In South Korea the company has donated the product to the city of Yangsan in Kyungsang Province.

■ **Mozambique.** Bayer has signed a two-year agreement with the Roman Catholic Community of Sant’Egidio, a charitable organization, concerning the supply of diagnostic systems and services. The project aims to enable targeted therapy for HIV-infected patients in Mozambique and other African countries. The shipments will first be

made to Mozambique, where local authorities and volunteers are working to establish nationwide care and therapy programs for HIV patients. In addition to the diagnostic systems, Bayer HealthCare will offer scientific and technical cooperation, as well as training courses and workshops for specialist personnel.

Objectives of our social commitment:

Our corporate social responsibility commitment has eight main objectives:

1. It helps increase the company's value by ensuring our acceptance into the portfolios of investment and pension funds that are oriented around ethical principles and sustainability criteria.
2. It contributes to a positive evaluation from rating agencies that specialize in assessing the commitment of companies to social, ecological and sustainable development principles.
3. It is designed to enhance customer loyalty. This applies to industrial customers who are increasingly examining their supplier chains with respect to the observation of ethical and social standards. It also applies to consumers for whom the social commitment of a company and its suppliers is an increasingly important factor in purchase decisions.
4. The social commitment of the company is intended to contribute to a stable business environment, safeguarding the legitimacy and justification for the company's operations while at the same time strengthening the confidence of a broad cross-section of society in the company's social responsibility.
5. Behavior as a good corporate citizen is also aimed at making us an attractive employer for high-skilled personnel.
6. Bayer aims to demonstrate that we respond to social development in a responsible manner. We seek to ensure that politicians, industry leaders, scientists and society at large understand and appreciate our opinions and positions.
7. We also regard our commitment as an instrument of preventative risk management. In addressing social problems, we aim to identify issues that could adversely affect business conditions.
8. Bayer's goal is to boost our company's self-image and sense of community together with its perception and standing in the community at large by ensuring that Bayer is seen as different and distinct from competitors and other companies.

Specific help for the community

In all countries in which we are active we feel a responsibility towards the local society. This involves active community work in and around our sites all over the world. Instruments of our social commitment include donations which we make in special cases to help overcome difficult circumstances.

Donations are generally made in kind, particularly in the context of international disaster aid. Bayer adopts a cautious approach to direct monetary donations, generally confining them to specific projects in the immediate vicinities of our sites. The following recent examples show how Bayer's donations are distributed. Further examples were already mentioned in the previous chapters.

Aid in the event of disasters

■ **Germany.** In August 2002, Bayer and many of its employees spontaneously demonstrated their willingness to help those affected by flooding along the Elbe and Mulde rivers that ravaged the region surrounding Bayer's youngest German site in Bitterfeld.

In a donation campaign lasting several weeks, more than 3,600 employees of Bayer AG voluntarily paid €413,630 into a relief fund set up for the flood victims. The company made good on its pledge to match any employee donation and rounded up the figure to €828,000, thus increasing total donations and relief initiatives from Bayer to €3.3 million. Just a few days after the flooding began, the company made a cash donation of €1 million and contributed a further amount in excess of €1 million in material donations and relief initiatives.

A charity soccer match between Bayer 04 Leverkusen and Dynamo Dresden raised an additional €350,000. In addition, the employees of Bayer subsidiary Wolff

Walsrode made a donation of €80,000 and Bayer Vital GmbH donated €25,000 to a children's hospital in Dresden.

Bayer's activities and donations for victims of this natural disaster focused on the Bitterfeld region, where the company operates an important production site. From the onset of the flooding until the relief activities were wrapped up, Bayer Bitterfeld supplied catering for more than 500 helpers at the dikes round the clock and transported an additional 35,000 bottles of the insect repellent Autan®, 15,000 bottles of sunblock and urgently needed medicines to the areas affected by the flooding, where aid workers had to deal with scorching sunshine and swarms of mosquitoes for days on end. 150 Bayer Bitterfeld employees were on duty the whole time while the flooding lasted. A further 220 volunteers from Bayer AG's Lower Rhine

Flood Medal awarded

As a gesture of thanks for the company's active and committed help during the flood disaster in Bitterfeld, Saxony-Anhalt's Premier Professor Dr. Wolfgang Böhmer presented Bayer Bitterfeld GmbH with the "Flood Medal" in May 2003 on behalf of all Bayer employees in eastern and western Germany who had helped in the relief effort. Many of these employees worked to the point of exhaustion for several weeks at the site of the flooding.

sites were granted leave of absence from work to help with the cleanup and maintenance efforts, while a group of skilled laborers from the Leverkusen site and a firefighting unit addressed oil spillage and water and electrical supply problems. Bayer also provided special equipment, vehicles and a large number of sandbags for the flood relief effort.

■ **Indonesia.** After a flood disaster hit the Indonesian capital Jakarta in 2002, many Bayer employees were among those who came to the aid of flood victims. Employees at Bayer's head office and staff from the Cibubur and Pulogadung production sites acted of their own volition to collect money and clothes to benefit the victims. The company donated medicines and participated in a campaign by the SCTV television station, which

delivered the donations directly to those affected. Bayer's contributions included financial assistance, clothing and hygiene articles. A relief fund was quickly set up for Bayer employees who were among the hundreds of thousands of people affected by the flood.

■ **Peru.** Following a severe cold spell in July 2002, the population in many parts of Peru experienced an acute crisis. After the government asked for Bayer's help, the company's subsidiary in Lima quickly made available urgently needed medicines to save Peru's threatened livestock, the means of subsistence for much of the country's population. Bayer's employees in Peru also set up a relief fund to collect food, clothing and other supplies.

■ **South Korea.** Bayer donated both money and medicines to aid victims of a typhoon that destroyed the homes of many people living near Bayer's South Korean subsidiary in September 2002. Bayer also gave assistance to its employees who had been affected by the flooding.

Bayer Bitterfeld Award for outstanding social commitment

In October 2002, Bayer celebrated the tenth anniversary of the founding of its site in Bitterfeld, eastern Germany, by presenting the €2,500 "Bayer Bitterfeld Award" for the first time. This newly established prize is meant to honor outstanding commitment to the Bitterfeld region. Eligible for nomination were examples of social commitment, commitment to nature, work on behalf of young people and resolute action to promote democracy and tolerance. The "Society for the Promotion of the Dessau School for the Disabled" took top honors out of a field of 34 nominees.

■ **China.** In February 2003 the first cases of SARS (severe acute respiratory syndrome) were reported, especially in China. In response Bayer set up a crisis management unit in Hong Kong.

Monetary and material donations

■ **Brazil.** Bayer is one of the first major foreign sponsors of Brazil's "Zero Hunger Program" aimed at combating poverty in South America's largest country. The program aims to provide not just food, however, but also assists in other ways to make life more bearable for the poor in many regions of Brazil. As part of the initiative, Bayer employees recently undertook a three-week journey to parts of the state of Minas Gerais in north-eastern Brazil at the request of the government to distribute a total of 3.2 million Aspirin® tablets and nearly 190,000 tablets to purify water. In some of the areas where Bayer distributed the tablets, it has hardly rained in

more than 18 years. Not surprisingly, the quality of the water is poor, and the people there cannot drink it unless it is treated. Bayer's aquatabs can make more than nine million liters of water potable, a big help for the region. The Aspirin® tablets were also distributed at the request of the Brazilian government. This shipment of aid supplies – the first in a cooperation agreement scheduled to last for an initial period of four years – will provide assistance to 700,000 people in all. Bayer was the first company whose employees personally distributed supplies in the hardest-hit areas, as monetary and material donations usually go to the ministry in charge of the "Zero Hunger Program."

Bayer will continue to support the Brazilian government's anti-hunger program in 2004. The concept involves a collaboration between Bayer CropScience and the NGO Agência Mandala, which has developed efficient models for irrigation projects to

Spontaneous assistance following the terrorist attack on Bali

Following the terrorist bombing on the Indonesian island of Bali in October 2002 – in which nearly 200 people were killed and more than 300 injured, some seriously – Bayer donated tablets of its anti-infective drug Ciprobay® to reduce the threat of infection in those that survived. The product was made available to Sanglah Hospital on Bali, as well as eight Australian hospitals where more than 100 bombing victims were treated.

benefit small farmers (families with between two and eight hectares of land) in the drought region Sertão. The collaboration will provide the farmers with a suitable infrastructure, training and the necessary water to successfully cultivate their land. With its assistance for the social policy efforts of the government in Brasília, Bayer is once again expanding its already extensive social commitment in Brazil. Since 1992 several hundred thousand Brazilians have taken part in social programs initiated by the German company. The projects cover a variety of topics, such as education about AIDS or dengue fever, prevention of child labor, vocational training and internships for street children, as well as the safe use of crop protection products.

■ **Venezuela.** Bayer Venezuela supports the rural outpatient project "La Milagrosa" in the state of Bolívar by donating money and medicine. The doctors and caregivers of this facility provide dental care to about 5,000 people, many of whom are native Venezuelans belonging to the Panare tribe.

Thousands of needy people live in the dock area of La Guaira in the Venezuelan state of Vargas, including approximately 2,000 children, most of whom suffer from deficiencies, infections and parasite infestation. Bayer donates medicines for these people, thus ensuring basic medical care in the neighborhood.

■ **Canada.** In 2002 Bayer's Canadian subsidiary, headquartered in Toronto, supported five cardiac hospitals with donations of CAD 10,000 each. Hospitals in the cities of Vancouver, Calgary, Toronto, Montreal and Halifax benefited from the money. Bayer declared February 2002 to be "Heart Month." A portion of the company's sales of Aspirin® between February 1 and 14 (Valentine's Day) was set aside for the donation. In this way, Bayer contributed to the recovery of patients with heart problems.

■ **Belgium.** Bayer Benelux celebrated the 100th anniversary of its founding by donating €125,000 to the Belgian Cystic Fibrosis Organization. The money went to a foundation that supports adults suffering from cystic fibrosis by offering education projects that help them to integrate into society.

■ **Bulgaria.** Many state-run hospitals in Bulgaria suffer from a shortage of all medicines required for basic patient care, especially antibiotics. Bayer has had a long-standing commitment that safeguards the supply of vital drugs to many hospitals in Bulgaria. These donations are so important to Bulgaria that President Georgi Parvanov has personally assumed patronage of the program. All told, drugs valued at more than €2 million have been donated in Bulgaria since the program was launched in 1997.

Funding for employee sponsorships in Australia

At many Bayer sites around the world, employees participate in community activities or do voluntary work for charities, schools and clubs. Bayer Australia has decided to make funding available to such projects on an application basis. Up to AUD 1,000 (approximately €540) is available for individual projects. Bayer's staff sponsorship program will aim to achieve a balance between environment, education, science, research and technology. Bayer also recognizes that sports and the arts are an important part of cultural life.

■ **Scandinavia/Baltic states.** Since the mid 1990s, Bayer's Scandinavian subsidiary has been supporting annual summer camps for children from Latvia, Lithuania, Denmark and Sweden who suffer from hemophilia. At the camps – which have taken place, for example, at the Lithuanian seaside resort of Palanga and on Roslagen, a small island off the coast of Stockholm – the children are treated with Bayer's Koate DVI and Kogenate® hemophilia drugs under medical supervision. This allows them to play without fear of dangerous injuries and take part in the many activities offered at the camps.

■ **U.S.A./Canada.** At many sites of Bayer's U.S. subsidiary Bayer Corporation and Canadian subsidiary Bayer Canada, the company's employees support the United Way of America and the United Way of Canada in these organizations' efforts to help solve the most urgent problems facing cities and communities in the two countries. Once a year,

the "United Way Day of Caring" takes place, which is part of Bayer's "United Way Campaign" in which employees solicit and make donations, as well as volunteer their labor, for example to renovate a home for abused children. The volume of donations is impressive. In 2003, a total of \$2.4 million was raised at the company's North American sites. The money ultimately goes to the local United Way chapters.

■ **South Africa.** In August 2002 Bayer South Africa donated a large volume of vitamin products to various aid organizations in socially disadvantaged areas of the country, such as Soweto. These medications are intended to improve the quality of life of critically ill patients.

■ **Ecuador.** Bayer in Ecuador supports the efforts of the National Institute for Children and Families (INFA) – one of this South American country’s best-known charity organizations – with an annual donation of medications. The medications are distributed by INFA to needy families throughout the country.

■ **Congo.** A devastating volcanic eruption in the eastern part of the Democratic Republic of Congo in January 2002 seriously disrupted the work of the world-famous Dian Fossey Gorilla Fund (DFGF). This organization not

only focuses on nature preservation matters such as protecting the gorillas in the region, but also maintains a number of humanitarian projects that benefit the local population. To ensure that these activities so important to the region’s population and natural habitat would not come to a standstill, Bayer subsidiary H.C. Starck immediately donated €10,000 to the fund to finance reconstruction efforts following the natural disaster. (See also “Support for the Dian Fossey Gorilla Fund” on the next page.)

■ **Indonesia.** Thousands of Indonesians suffer from cataracts, glaucoma and diabetic eye problems. For diabetics in particular, treatment of eye problems is complicated by an Indonesian law, which forbids eye surgery for individuals with higher than normal blood sugar levels. For this reason, Bayer Indonesia has donated products to the Rotary Humanitarian Projects organization to help combat diabetic symptoms and thus enable vision-impaired Indonesians to undergo operations to restore their sight.

Bayer supports benefit for the International Year of Freshwater

As a member of the Association of Plastics Manufacturers in Europe (APME), Bayer MaterialScience took part in a global campaign to benefit the International Year of Freshwater 2003. The initiative raised €150,000, which will be used to help finance urgent water projects of the international organization WaterAid in Africa. Through June 22, 2003, anyone visiting the campaign’s website could contribute to the initiative with just a click of the mouse: For every mouse click on a special button at the site, APME donated ten cents toward WaterAid’s goal of improving water supply and hygiene for roughly one billion people, mostly in Africa, who currently do not have access to clean drinking water.

Protecting biodiversity

At many sites around the world, our companies participate in environmental and nature preservation projects aimed, for example, at protecting endangered species from extinction.

Asia: Donating medicines for bears

Asiatic black bears, which are also known as moon or sun bears due to the crescent-moon-shaped patch of white fur on their chest, often suffer a cruel and tragic fate. In many Asian countries, thousands of these animals are confined in tiny cages on special farms. There the animals' bile is extracted directly from their gallbladder several times a day in a painful procedure involving a catheter. This bile is one of the most expensive substances used in traditional oriental medicine – although the ursodeoxycholic acid contained in it has already long been synthetically produced. The operation in which the catheter is implanted is painful and unhygienic and many bears do not survive the procedure. Thanks to the efforts of the Animals Asia Foundation (AAF), captured

bears can often be ransomed. The catheters in their gallbladders are then surgically removed, which means they require urgent medical attention. Bayer has supported the activities of the AAF by donating lifesaving veterinary pharmaceuticals.

New Zealand: Protecting genetic heritage

Bayer makes a special contribution to biodiversity in New Zealand. On fallow land in the neighborhood of a chemical storage site in East Tamaki, the company has set up a biotope that enables 150 rare or endangered plants from New Zealand to grow in a protected environment. Protecting the genetic heritage of fauna and flora is an issue of great national importance in New Zealand. Many species can only be found in New Zealand, and even there only in certain regions. This means there is always a risk that natural disasters such as forest fires could forever extinguish certain rare species.

United States: Award for Bayer employees

Employees of Bayer Corporation in Pittsburgh belong to a volunteer-based nature protection team dedicated to the preservation of natural habitat for flora and fauna. The company's site in Pittsburgh lies between the city and the airport. Of the 120 hectares of land at the site, more than 80 hectares serve as a habitat for flora and fauna. The Bayer employees' efforts include implementing programs and workshops involving the local community. These activities focus primarily on pond studies and research into bird species native to western Pennsylvania. The Corporate Lands for LearningSM award, which was established in 2001, is presented to sites of companies that have rendered outstanding services to environmental education and environmental protection through volunteer work by employees.

Congo: Support for the Dian Fossey Gorilla Fund

In the Democratic Republic of Congo, Bayer subsidiary H.C. Starck supports the Dian Fossey Gorilla Fund (DFGF) in a project aimed at helping people in the eastern part of the central African country to practice environmentally friendly extraction of natural resources. The world-famous animal rights organization wants to create incentives to encourage miners who in the past searched for raw materials such as coltan in national parks like Kahuzie-Biega – and in the process threatened rare and protected animal species that live there – to leave the parks. By sponsoring agricultural cooperatives outside of the parks, Bayer is helping to establish a concept headed by the DFGF and supported by numerous governmental agencies and non-governmental organizations (NGOs) that is aimed at a sustained improvement in living conditions in eastern Congo.

The raw material coltan, which is found in certain African countries, is used in electronic components, cellular phones, computers and cars.

According to various animal rights organizations, the miners had reduced the gorilla population in Kahuzie-Biega National Park from 8,000 to 1,000 animals within just a few years. Some environmental organizations have called for a general moratorium on exports from the entire region in order to halt illegal activities such as mining in national parks. Yet other organizations, including the Dian Fossey Gorilla Fund, consider such measures to be unsuitable, particularly for humanitarian reasons, as they would eliminate an important source of income for the local population. In this case, the organizations fear that the population would be forced to seek food in the national parks to an even greater extent than is currently the case. This would most likely result in the permanent extinction of severely endangered species.

Australia: Help for butterflies

To help a rare species of butterfly, Bayer sponsored a project in New South Wales, Australia: More than 280 schools participated in the “Richmond Birdwing Conservation Project” to help the endangered Richmond Birdwing, Australia’s biggest and best-known butterfly. The company’s financial support has allowed many students to be trained in the development of concepts to save the butterfly. Through the productive cooperation between Bayer and the schools, the butterflies’ situation has improved considerably. For its efforts in this area, Bayer received the “Financial Review 2000 Sponsorship Award” in the categories Environment, Health and Education.

United Kingdom: Creating natural habitat

Bayer CropScience U.K. has set up a biodiversity project aimed at better protecting water resources and enhancing species variety on the company’s own farms. For example, wild flowers have been planted on bordering strips, areas of land left fallow, new hedgerows planted and old woodland and ponds properly managed. The project is designed to increase the variety of flora and fauna on the farms, while at the same time educating farmers about the benefits of natural habitats.

Bayer CropScience supports similar projects to protect biodiversity in other countries. In **Guatemala** the company works together with the German Society for Technical Cooperation to teach farmers how to increase their agricultural yields. They

learn to protect land and water resources and maintain species diversity by optimizing pest control. In **Brazil**, Bayer sponsors a pilot program called “Regeneration through new planting” together with the University of São Paulo and the owner of a citrus plantation. This program is aimed at the renewal of native plants near sources of water. Due to the high level of interest in the program, similar projects are planned. The aim is to establish networks of biodiversity across farms in Brazil.

Support for minorities

Bayer regards assistance for minority groups – for example in providing medical care – as a further element of its corporate social responsibility commitment. This is demonstrated by the following examples from Mexico, Australia and the United States:

Mexico: Help for the disadvantaged

Bayer Mexico uses the services of the charitable organization “Industrias de Buena Voluntad” (“Industry of Good Will”) for the shipment of all its printed materials. One of the organization’s eight centers in Mexico employs physically and mentally handicapped people who pack and ship the Bayer publications. Industrias de Buena Voluntad provides the disabled workers with practical training through special courses and workshops.

Australia: Diabetes monitoring for Aborigines

The average life expectancy in the Aboriginal community of Australia is nearly 20 years less than that of the country’s population as a whole. One reason for this is the high rate of type 2 diabetes mellitus. Caring for the health of Australia’s Aboriginal population has become a little easier, however – thanks to a diagnostic system from Bayer that allows the blood glucose levels of diabetic patients to be tracked over a period of three months. As part of a government project to improve diabetes therapy for Aboriginal people, Bayer is sponsoring the introduction of its diagnostic system at 47 Aboriginal health centers in urban and rural Australia. The program

allows more tests to be conducted and better monitoring of patients’ health.

A report published by the Aboriginal Community Controlled Health Organization came to the conclusion that Bayer’s efforts offer a good opportunity to improve diabetes treatment and help patients better understand the significance of their health care.

United States: New home for children’s charity

In October 2003, Bayer Health-Care sold a 90,000 square meter laboratory, production, office and storage building in Elkhart, Indiana, to “Feed the Children” for the symbolic price of \$1. The children’s charity organization plans to move its international headquarters to northern Indiana and will use the laboratory facilities as an R&D center at

which the nutritional needs of children around the world will be researched.

Thanks to Bayer’s offer, “Feed the Children” can more quickly realize its strategic goal of further expanding its international activities. With the building in Elkhart, the organization will now be in closer geographical proximity to – and be able to better support – the nearly two million families within a 500 kilometer radius of Elkhart who live at or below the poverty level.

Support for leisure, sports and culture

| Bayer also means clubs |

As a manifestation of a company's corporate social responsibility commitment, Bayer's clubs are probably unique in Europe, maybe in the world. The company maintains 67 of its own clubs at its German sites alone. 29 of these clubs are active in recreational, youth or disabled sports, while 17 involve cultural activities and groups and 21 are for people pursuing a variety of hobbies. The clubs have a total membership of over 61,000, with sports clubs accounting for more than 50,000 of these members. All the clubs share close links with the company – a relationship that is illustrated by the incorporation of the Bayer name into their own names and use of the Bayer Cross in their logos.

Support for sports has a long tradition at Bayer. The idea of establishing a company sports club came from the employees themselves at the beginning of the 20th century and arose simply from their desire to use their leisure time constructively. Thus, it was on July 1, 1904 that the TuS 04 Leverkusen company sports club was founded – the first works club of any kind to be established in Germany. TuS 04 Leverkusen underwent a rapid transformation into a club open to all members of the community. Probably no one could have guessed in the beginning that this company sports club would later evolve into an institution represented by 195 Olympic athletes who would go on to win a total of 15 gold, 20 silver and 20 bronze medals between 1952 and 2000.

Bayer provides all clubs with an infrastructure to make them attractive to a wide range of

interested social groups. About 30,000 club members are not employed by Bayer.

At many sites outside Germany, Bayer clubs organize sporting and cultural events for employees and neighbors and provide training or rehearsal facilities.

At the same time, the company maintains or supports public facilities both in Germany and at many of its non-German sites for such diverse purposes as recuperation, sports, culture, stakeholder dialog and much more. These facilities are an example of Bayer's long-term relationship with the communities around its sites.

| Bayer also means sports |

Bayer is closely involved with sports – and for good reason. Sports activities strongly pro-

mote social integration, and that is as much in the company's interests as the fostering of teamwork, social skills and dedication to tasks. Sports also encourage our employees to identify with their company. For these reasons, sports are an important element of Bayer's social commitment around the world. This applies to recreational, disabled and professional sports.

In Germany, Bayer supports sports primarily through its own infrastructure consisting of 29 company sports clubs in the neighborhoods of its sites. These clubs have a combined membership of more than 50,000 in 50 different sports. The company also supports major sporting events. During the 2006 Soccer World Cup in Germany, the German national youth team will train at the BayArena in Leverkusen, with sessions open to the fans and media.

To support disabled sports in Germany, Bayer established the Herbert Grönwald Foundation. The company is also a main sponsor of the German Disabled Sports Association. The Disabled Sports Section of TSV Bayer 04 was founded in 1950 and is among the oldest, largest and most successful sports clubs for the disabled in Germany. Since the beginning of the 1990s, the disabled sports activities in Leverkusen have shifted more and more to track and field events. The athletes have managed to win numerous World Championship titles and Paralympic medals. Outside of Germany, Bayer's support for sports usually involves individual projects or the organization of events. Yet here too, the company also maintains permanent institutions such as the Bayer clubs at a number of sites or the youth soccer schools in Brazil and South Korea.

Bayer also means culture

"Cultural events are educational events." This philosophy has characterized our corporate social responsibility commitment for more than 100 years. In 1901 the "Education Department" and an "Orchestral Society of the Farbenfabriken Bayer" were founded. In 1907 the Cultural Affairs Department was established to define, promote and bundle such activities. Today, cultural activities form an important part of Bayer's corporate social responsibility commitment. Cultural events enhance Bayer's image both internally and externally, boost employee motivation and improve the company's acceptance by society. We believe that close involvement with cultural activities – whether as an active participant or an audience mem-

ber – encourages open-mindedness and the willingness to critically address themes that are relevant both to Bayer's commercial success and to the individual well-being of its employees. In Germany, Bayer promotes cultural activity mainly through its own infrastructure consisting of 17 different ensembles and clubs. In addition, Bayer AG's Cultural Affairs Department in Leverkusen, Wuppertal, Krefeld-Uerdingen and Dormagen enriches the cultural life of the local community by organizing high-caliber and original events and seasonal programs. Cultural activity has an international focus at Bayer. It represents a conscious decision on the company's part to participate actively and over the long-term in the social and cultural life of all the countries where we have business operations. Thus Bayer is building a bridge between industry and society.

Outside of Germany, Bayer's cultural activities are usually determined by the national and regional subsidiaries. These activities are often conducted in close cooperation with the company's Cultural Affairs Department. Over the past 15 years, Bayer has organized cultural activities in western and eastern Europe, Asia, the United States, Latin America, South Africa and Australia.

Worldwide data recording

2001–2002 and 2003

TABLE OF CONTENTS

[→ Introduction](#)

[→ Dr. Wolfgang Große Entrup:
Our objectives remain as ambitious as ever](#)

[→ Validation statement](#)

[→ Data recording](#)

[→ Data recording 2001/2002](#)

- HSE management
- Employees
- Health
- Occupational safety
- Environment
- Water balance
- Air pollution control
- Waste management

[→ Data recording 2003](#)

- Social issues
- Transport safety
- Environmental emissions
- Use of raw materials

[→ Glossary](#)

[→ More on the children’s pictures](#)

You can also call up particular sections of the document. Please click on the desired heading in the table of contents.

The **facts and figures** given on the following pages document our achievements in HSE (**h**ealth, **s**afety and **e**nvironmental protection) for the period 2001 to 2002 and in 2003 and relate these to the achievements of the last ten years (1992 to 2002). Also included is an assessment of our achievements in relation to the targets for 2001 and 2002 that we set ourselves in the 2001 Sustainable Development Report. Due to the far-reaching reorganization that has taken place, this was quite a demanding task, as the company can no longer be compared with the Bayer Group as it was in 2001. Following a series of significant divestments and acquisitions, the company has completely changed its profile. Nevertheless, the figures have been presented in such a way that enables comparisons to be made between the targets set and the results achieved and developments to be evaluated. The facts and figures are oriented to the structure of subgroups (Bayer HealthCare, Bayer CropScience, Bayer MaterialScience and Bayer Chemicals) and service companies (Bayer Business Services, Bayer Technology Services and Bayer Industry Services) that was set up in the period under review and also include the business activities that will in future be handled by the new company Lanxess.



Julian Okfen, Germany, aged 7

"My wish is that plants remain healthy – and that is something that everybody has to help achieve."

→ More on the children's pictures



Dr. Wolfgang Große Entrup

Our objectives remain as ambitious as ever

Global competition, changing customer expectations, the presence of many very different stakeholders – these are just a few characteristics of a world that is changing at an ever faster rate. We firmly believe that we can only overcome these challenges if we adhere to the principles of sustainability in all three dimensions in our everyday work. This is the only way in which we can achieve a sustainable increase in the value of our company. But to do this we need a foundation on which to build – political and regulatory parameters that must be reliable and fair if we are to remain competitive.

Dialog with policymakers and society

This is why we actively seek dialog with policymakers and society, enabling us to input our expertise and make our contribution to legislation that will have an impact on our operations. Current examples include the European Chemicals Policy, consumer protection, the Integrated Product Policy and climate policy. This commitment is something we view as a major part of our social responsibility, and just as important as dialog with our stakeholders on our own actions. This is why, for more than a decade now, we have been recording and publishing our key worldwide data

in the fields of health, safety and environmental protection. Nowadays, this activity has become second nature to us throughout the Group as a whole.

During the period under review, the Bayer Group has undergone the furthest-reaching reorganization of its entire 140-year history, a dynamic process which has not yet been concluded. Divestments and site closures have resulted in the loss of more than three dozen production bases while just as many have been added in the form of acquisitions. Despite all of these changes, however, our goal remains unchanged: In the future, as before, we want to set benchmarks and to be one of the world's best companies in the areas of health, safety and environmental protection.

Since the beginning of the decade, we have been continuously improving and enhancing our data recording process, including in the wake of the Group restructuring in the past year. We have recognized that dialog with our stakeholders will be a major factor in future when it comes to prioritizing our specific sustainable development targets. This is why we are using key performance indicators to provide a clear picture of our focus. We will be setting ourselves quantitative targets in these areas, which will be the subject of regular reviews, with

progress being communicated both internally and externally. In addition, we have actively committed ourselves to the Global Reporting Initiative (GRI), and took part in corresponding activities in 2003. Indeed, we already adhere to the GRI recommendations as far as possible.

Acknowledgement of our policy

Bayer will continue in future to demonstrate its responsibility to society and the environment, in keeping with its long tradition! We will therefore again be asking independent third parties to take a critical look at our data and to voice their opinions. And as in past reports we will be publishing our objectives and providing information on what we have achieved. This is a policy that has not gone unnoticed. For the fifth time in a row we were included in the renowned Dow Jones Sustainability Group indices in 2003. This is a success story that will encourage us to go on and achieve even greater things in future.



Dr. Wolfgang Große Entrup,
Head of Governmental and
Product Affairs at Bayer AG

Validation statement

[→ Table of Contents](#)

Objective, scope and process of validation

The objective was to evaluate how completely and accurately HSE impacts of Bayer's operations are reported and to what degree improvement targets have been met. The verification of HSE performance data for the reporting years 2001 and 2002 was limited to production sites, nine of which were selected for a review. The sites were selected to represent

- all relevant production activities
- all regions in which Bayer is operating production units
- the different size of production sites.

The verification is based on an evaluation of the data reported and on interviews which included a review of the HSE organization. Two sites were visited and telephone interviews were conducted with seven sites.

In 2002–2003 Bayer implemented a significant organizational restructuring by establishing four subgroups and three service companies as legal entities. These entities are reporting individual sets of data for this report rather than Bayer reporting one overall set of data.

The effect of this reorganization on the reliability of the data was checked in a second validation cycle by comparing the data of three multi-subgroup sites before and after the reorganization.

Summary

The number of reporting units increased from 168 to 444 as a result of the fundamental restructuring of the corporate organization and the inclusion of warehouses, R&D facilities and administration and sales offices. All production sites and >90 % of the total reporting units provided an HSE report. Compared to previous reports the data quality has improved which seems to be attributable to limiting the questionnaire to relevant HSE performance data and the introduction of key performance indicators (KPIs). In addition the ongoing introduction of certifiable HSE management systems at several sites supported the improvement of the data quality.

Another important element for improving the data quality is the involvement of the subgroups and service companies in the data collection and consolidation process.

Several of the targets described in the previous report have already been met or are likely to be met in the target year 2004.

In particular the conversion from chlor-alkali electrolysis to membrane technology for the manufacture of chlorine is showing its effect in the reduced mercury load in the wastewater and in reduced energy consumption.

Bayer reports engagement in many social activities and working with non-profit organizations. We did not, however, verify any of this information.

Areas for improvement

Safety performance

Extra efforts will be required to meet the safety performance goal for own and contracted personnel for the year 2004.

Also the reporting of information on contractor work should be checked to ensure completeness.

In addition the reporting of occupational illnesses needs additional attention to ensure reporting of all relevant cases.

Environmental reporting

The introduction of new reporting criteria for environmental incidents is obviously the reason for a reduction of the number of cases reported for 2003. It is recommended to change the criteria for the reporting of incidents as a KPI to ensure the inclusion of minor incidents. This will improve the basis for successful risk management and risk control.

The responsibility for the reporting of transportation accidents needs to be clearly defined to ensure all accidents are included in this report.

In addition to the energy consumption the KPIs cover also CO₂ emissions. This information, however, is of limited relevance since it does not include the external energy supply and the reported reductions are partly re-

sulting from the increased outsourcing of energy production.

It is understood that activities have begun to ensure achievement of all targets that have been set for 2004.

Product stewardship

The report contains a number of case studies and articles on improving the application and reducing the environmental impact of products. However, the HSE aspects and goals of these activities are not always identified nor is the progress on improving HSE performance.

Format and contents of report

The involvement of the subgroups and service companies in revising the former questionnaire was key for the successful data collection process for 2003.

The inclusion of information as per the GRI guidelines e.g. on material use should be considered for future reports.

Development of targets

The availability of key performance indicators provides the opportunity for the development of specific HSE targets for each reporting unit. One subgroup has already started to develop a five-year rolling HSE improvement plan based on this report.

It is recommended that the other subgroups and service companies consider following this example.

This report should also be used to compare the development of the HSE performance of the subgroups and service companies to identify opportunities for introducing best practices for all and also to ensure a high level of performance standards in all parts of the Bayer Organization.



Wolfgang Baldauf Simon Berkeley
dr. hardtke **Arthur D Little**
Unternehmensberatung

The HSE performance indicators of all Bayer production sites in which the Bayer Group maintains at least a 50 percent holding are surveyed on an annual basis in the form of an electronic questionnaire. For the period 2001–2002 we have compiled data according to the principle of “continuing operations,” including all production sites that were continuously owned by Bayer throughout the period under review. Sites that, as a result of divestments, ceased to be owned by Bayer during this period are generally excluded. New sites are included in the data recording process as soon as this is possible from a technical and organizational point of view.

We used the restructuring process in 2003 as an opportunity to extend the data recording process so that in future it will encompass all sites, i.e. including offices and warehouses, and we have introduced HSE key performance indicators. These will be used in future to depict the main focuses of our continuous improvement process. They will be enhanced by quantitative targets against which we will measure our achievements. Additionally, we are currently working on extending the social parameters.

To highlight the development mentioned above as clearly as possible and enable comparison, we have decided to depict the two periods under review, 2001–2002 and 2003, separately.

The targets that were set for the periods under review can be found on pages 92 – 93 of our 2001 Sustainable Development Report, as well as on our website www.sd2001.bayer.com

Validation of the Bayer HSE data

For the purposes of assessing data quality and of the continuous improvement of HSE management at our sites across the world, the independent environmental auditing company Arthur D. Little undertook a validation of the data (see p. 65).

Abbreviations

BHC	Bayer HealthCare
BCS	Bayer CropScience
BPO	Bayer Polymers*
BCH	Bayer Chemicals
BTS	Bayer Technology Services
BIS	Bayer Industry Services

* since January 1, 2004
Bayer MaterialScience (BMS)

A core feature of this for the period 2001–2002 took the form of spot-checks of the data relating to nine sites on four continents:

Site	Country / Region	Subgroup
H.C. Starck, Goslar	Germany	BCH
Baytown	USA	BPO/BCH
Thane	India	BHC/BCS/BPO
Cervantes	Mexico	BHC/BCS
San Salvador	El Salvador	BHC
Wuxi	China	BCH
Filago	Italy	BHC/BCS/BPO
Rustenburg	South Africa	BCH
Camacari *	Brazil	BPO

* This site had already taken part in the previous validation cycle. In 2002, the aim was to ascertain whether improvements had been achieved.

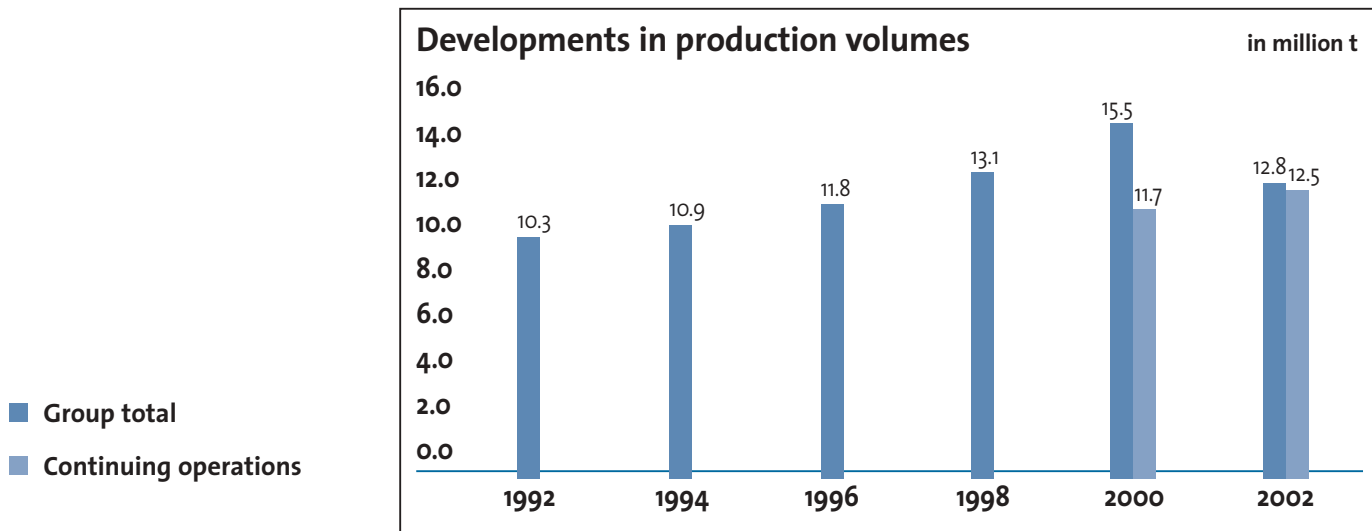
For the year 2003, spot checks were carried out at the following sites:

Site	Country / Region	Subgroup
Dormagen	Germany	BCS/BPO/BIS/BCH/BTS
Thane	India	BPO/BCS/BHC
Filago	Italy	BCS/BPO/BCH

Principal changes 2001–2002

The most significant changes that have taken place since the 2001 Sustainable Development Report and which affect our reporting include:

- The incorporation of the BASF textile dyestuffs business into DyStar textile dyestuffs. Bayer's share in this company fell as a result to 35 percent at the end of 2000, which means that the DyStar sites are no longer considered for the purposes of this report.
- The sale of the 50 percent holding in EC Erdölchemie GmbH, Cologne on May 1, 2001.
- The sale of Haarmann & Reimer on September 30, 2002.
- The divestment of the Bayer-Degussa joint venture PolymerLatex on March 4, 2003. This company's sites are no longer included in the data due to the fact that there was already in 2002 a specific intention to sell.
- The acquisition of Aventis CropScience AG (ACS) on June 3, 2002 with the addition of 38 production sites. In 2002, ACS still maintained its own HSE indicators, which, insofar as these are available and comparable, have been included in the information presented here.
- The acquisitions made by Bayer Chemicals such as the acquisition of Sybron Chemicals and the newly acquired sites of the subsidiary H.C. Starck.



These changes, together with further relocations or divestments of business areas, increases in capacity and plant closures, had a considerable effect on the indicators in some cases during 2002.

The considerable decrease in production volumes after 2000 is mainly the result of the sale of our share in EC Erdölchemie GmbH which, with its 3.6 million metric tons, had contributed as much as one quarter of Bayer's overall production volume (23 percent).

The production volume of our continuing operations once again rose slightly, up 6.8 percent during the period under review. Overall, the production volume of the Bayer Group fell when compared with 2000 by 17.4 percent. This should be taken into account when interpreting and comparing the environmental parameters of 2000 and 2002.

To enable us nevertheless to make a comparative statement as to the development in the HSE data of the Bayer Group during the past two years, we have compiled a number of graphs and tables that portray the development within the continuing operations. This data takes account of divestments and site closures. The former ACS sites are treated separately. These newly acquired sites had a production volume in 2002 of 0.3 million metric tons.

Our management system in the health, safety and environmental protection areas forms the basis of our company policy relating to sustainable development as an overall concept. We are currently in the process of reviewing and updating our HSE management system, in such a way that in future, operational responsibility will lie with the subgroups and service companies. While Group management lays down the basic principles in this regard, in the form of policy guidelines, framework regulations and coordination measures, it is the responsibility of the subgroups to construct their own corporate and management systems for HSE(Q), encompassing the following areas, among others:

- Environmental management
- Product safety
- Measures relating to occupational health and safety
- Investigation into causes, follow-up work and learning from incidents.

HSE audits

Over 40 percent of all Bayer sites have achieved ISO 14001 certification Of the 38 former ACS production sites, 17 (45 percent) were certified to ISO 14001. In total, 41 percent of all production sites within the Bayer Group have been certified to this standard. Additionally, Bayer has continued its internal audit program – the HSE management systems at 59 sites have now been audited in accordance with in-house processes, compared with a figure of only 14 by 2000.

By 2002, all sites had additionally undertaken a second self-assessment of their HSE management systems, based upon a predetermined checklist. A catalog of continuous improvement measures has been drawn up and adopted. The evaluations are complete and the results have been passed to the subgroups for further processing. From there, they will be incorporated into the relevant HSE management systems.

By 2004, all key Bayer production sites worldwide will be audited by qualified auditors that do not belong to that particular site.

Environmental incidents and incidents causing damage

**Reportable
environmental
incidents down
by 23 percent**

The number of reportable environmental incidents at Bayer fell from 69 in 2000 to 53 in 2002, which is equivalent to a reduction of 23 percent. The number of incidents causing damage was almost halved during the period under review, from seven to four. By continuing and improving our systematic safety management, we intend to achieve a further significant reduction in the number of reportable incidents by 2004. Our aim of avoiding environmental incidents or incidents that cause damage is an expression of our sense of responsibility to society and the environment.

Environmental incidents and incidents causing damage (Bayer Group)				
	1999	2000	2001	2002
Reportable environmental incidents	68	69	47	53
Incidents causing damage	6	7	1	4

Given that reporting obligations differ from one site to another, the individual figures can only be compared against each other to a limited extent. Our aim in our future reporting is to introduce even stricter, Group-wide criteria for recording environmental incidents and incidents causing damage. Having worked on and implemented the principle of key performance indicators we further optimized the recording process and performance in this area for 2003 (see p. 105).

We regard as an **incident causing damage** all events such as chemical releases, fires or explosions, the direct costs of which, both internally and to third parties, exceed the damage threshold of €500,000 (internal) or €100,000 (third-party) or which give rise to health and environmental damage beyond the limits of the facility where the incident occurred. This includes damage that results from incidents involving force majeure.

Experts regard as a reportable **environmental incident** any incident that occurs as a result of activities undertaken at a production facility and constitutes a hazard to human health and/or the environment, either within the site or off-site, and which, by virtue of local or national regulations, is required to be reported to the local authorities. An example of this would be fires, explosions or emissions into the groundwater or the atmosphere that are higher than the legal limits.

HSE employees

Qualified employees who undergo continuous staff development, a clear distribution of roles within the various company divisions and clarity with regard to responsibilities are the basic requirements of an efficient HSE management system. During the period under review, approximately every second employee at the 168 sites to which this report relates attended a safety and environment seminar and approximately one in ten took a First Aid course.

Almost four percent of Bayer employees at the 168 production sites to which this report relates carry out functions relating to health, safety and environmental protection – either within central HSE management or in operational HSE units, such as the waste management facilities, the site fire departments or the environmental analytics units.

HSE expenditure

**€3 million a
day spent on
environmental
protection**

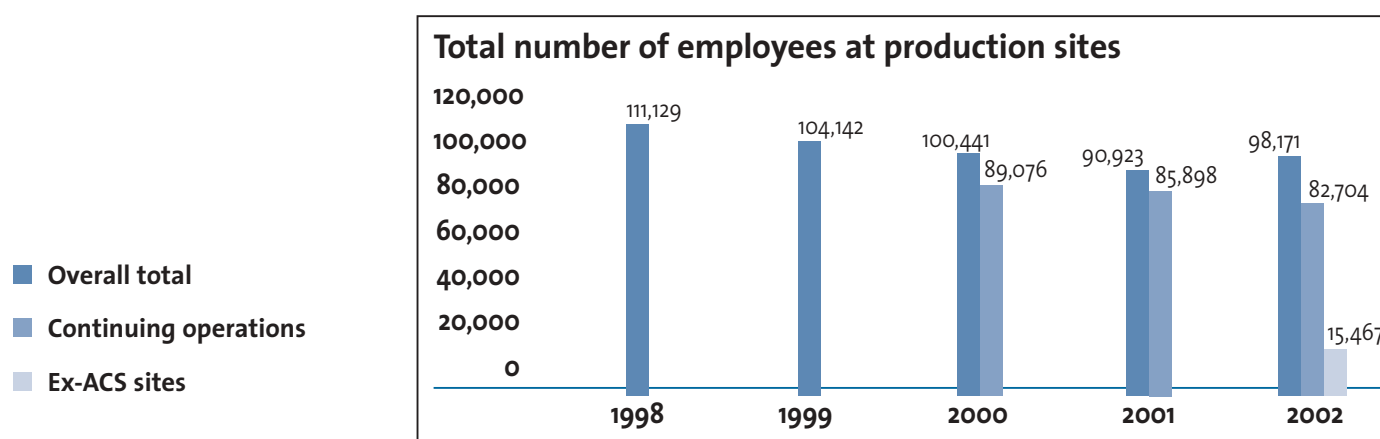
Between 1990 and 2002, the Bayer Group invested worldwide approximately €16 billion in environmental protection, of which 83 percent was spent on financing the operation of the waste management facilities such as wastewater treatment and incineration plants and on meeting personnel-based expenses relating to environmental protection. The remaining 17 percent was spent on the construction of new environmental protection facilities. Across the world as a whole, Bayer invests around €3 million every day in protecting the environment – this amounts to approximately €1 billion each year.

Environmental protection on an industrial scale includes the building and operation of waste management facilities, which, though just as necessary as they always were, are now becoming less and less significant thanks to the groundbreaking principle of “in-process environmental protection” that Bayer has consistently and successfully pursued since the beginning of the 1980s. Thanks to newly developed processes and products, emissions have decreased so dramatically that in some areas, further treatment of waste air and wastewater and disposal of waste or residues at the end of the production chain is either no longer necessary, or has been reduced to a minimum. The construction of new disposal facilities is therefore only required in a small number of cases.

**A successful principle:
In-process environmental protection** Though financial expenditure has decreased significantly as a result of the principle of in-process environmental protection, the achievements and advances in relation to health, safety and environmental protection as before remain at a very high level. In other words: On the one hand, the costs associated with environmental protection provide an economically relevant indicator for the ecological commitment of a company; on the other hand, they are not a direct or comprehensive reflection of the success of any such commitment. In future, it is, therefore, our intention to document only our direct achievements with regard to the environment and to do so using suitable indicators.

Our new corporate structure, changes to our portfolio and other measures that were taken in order to safeguard our international competitive position all affected the number of people employed at the sites of the Bayer Group. Headcounts decreased in Europe, Latin America and North America, while in Africa, Asia and Australia, Bayer now employs more people than it did in 2000.

In total, the headcount of the Bayer Group was 2.3 percent lower in 2002 than it had been in 2000.



Employees at the production sites as of the end of the year, according to region						
	Africa	Asia, Australia	Europe	Latin America	North America	Total
2000 Group	1,205	6,553	64,337	6,479	21,867	100,441
2002 Group	–	–	–	–	–	98,171
2000 continuing operations	1,205	5,419	56,218	5,899	20,335	89,076
2002 continuing operations	1,249	6,027	50,989	4,957	19,482	82,704
Change in % Group	–	–	–	–	–	–2.3
Change in % continuing operations	3.7	11.2	–9.3	–16.0	–4.2	–7.2

We work to design and nurture a good working environment for Bayer employees in order to ensure that at all sites around the world, the highest possible degree of health and safety is achieved at all times. This is something we have long regarded as our company's social obligation. We regard the early recognition of occupational and work-related diseases as being a particularly important task and, for this reason, we carry out regular and specific preventive healthchecks.

There is no binding international definition for occupational diseases and it is therefore difficult to compare the number of occupational diseases that occur in a corporate organization with worldwide operations. The processes by means of which cases of occupational disease are acknowledged also differ from country to country. The acknowledgement process for an occupational disease may take some time, which means that the data does not necessarily reflect the current situation.

If we were to apply rules as stringent to all Bayer sites as those that currently apply in Germany, then the number of newly acknowledged cases across the Bayer Group as a whole would come to approximately 100 per year.

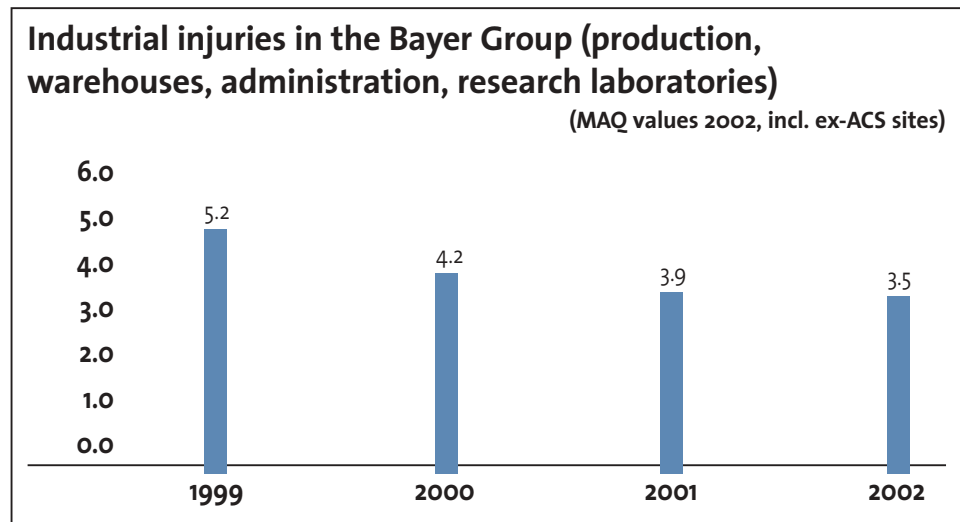
Decline in the number of industrial injuries The number of industrial injuries in the Bayer Group in 2002 was 667, which was the lowest number ever recorded. This is the result of training courses, investment and regular dialog and discussion with employees. It is our objective to continue to considerably reduce the number of injuries. This will only succeed, however, if considerable effort is devoted to the issue of safety. The Bayer Chemicals subgroup has already devised measures and targets in this regard. In order to enable the development of best practice in reducing the number of injuries across the Bayer Group as a whole, subgroups and service companies will be sharing their experiences in seeking to reduce the injury figures.

In accordance with internal Group statistics (Bayer Recordable Incident), an industrial injury is deemed to have taken place if any reported incident gives rise to at least one day's absence from work. The day of the accident itself does not count. Injuries are recorded irrespective of whether there is a legal obligation to notify the authorities. Trends in injury statistics are evaluated by means of the MAQ (Million Working Hour Quota), which comprises the number of industrial injuries for every million hours worked. Trends in the severity of injuries are tracked by means of the USQ (Injury Severity Quota), which denotes the number of days of absence for every million hours worked.

The table contains the absolute figures relating to injuries to Bayer staff, along with the applicable quotas for previous years. During the period from 2000 to 2002, the number of injuries per million hours worked fell by approximately eight percent.

Industrial injuries to Bayer staff at production sites (without ex-ACS sites)					
	1998	1999	2000	2001	2002
Industrial injuries (>= 1 day of absence)	1,285	1,227	888	711	667
Industrial injuries per million hours worked (MAQ)	6.4	6.6	4.8	4.3	4.4
Days of absence due to industrial injuries	15,557	13,728	14,458	9,953	9,470
Days of absence per million hours worked (USQ)	78	74	79	60	62

The graph shows the corresponding MAQ value for all the Bayer sites (production, warehouses, administration, research laboratories). The ex-ACS sites have already been incorporated into the 2002 figures. Our aim across the subgroups and service companies is to learn from one another's experience to achieve best practice in reducing our injury statistics.



Industrial injuries to contractor staff

Our commitment to accident prevention and health applies in equal measure to all who work at Bayer's sites. This includes employees of contractors, who are also required to comply with our Group-wide safety rules. In selecting contractors, we pay particular attention to the reputation of contractor companies for ensuring that safety standards are adhered to.

Number of injuries to contractor staff reduced by almost 32 percent During the period under review, a reduction of almost 32 percent was achieved in the number of injuries to contractor staff at our production sites. Our aim is intensify even further our efforts to record and reduce such injuries in future.

Industrial injuries to contractor staff at Bayer production sites

	2000	2001	2002 Bayer	2002 including ex-ACS sites
Industrial injuries (>= 1 day of absence)	349	276	206	214
Industrial injuries per million hours worked (MAQ)	10.4	8.9	7.1	6.0

The years under review, 2001 and 2002, unfortunately saw the deaths of two Bayer employees and two contractor employees.

Fatal accidents

	1998	1999	2000	2001	2002 Bayer	2002 including ex-ACS sites
Bayer employees	3	3	3	2	0	0
Contractor employees	2	0	1	1	1	0

In 2001, the driver of a dump truck suffered fatal injuries at our site in Rustenburg, South Africa: While using his truck to pick up large stones, a pipeline was breached which then hit him. As a result, he was caught between the seat and the steering column of the dump truck and suffered fatal injuries. Another Bayer employee was killed in a traffic accident at the Bayer China Company Ltd. A third fatal incident occurred at our site in Brunsbüttel and involved an employee of a contractor, who was electrocuted while carrying out installation work.

In 2002, a fatal accident occurred at La Wantzenau in the Alsace region of France, in which a single-person work platform fell to the ground during installation work, probably as a result of supports that were insufficiently secured. The contractor employee using the platform fell three meters and landed so badly that he later died of his injuries.

All four incidents are somewhat atypical of the type of incidents that occur in the chemical industry.

Transportation incidents

Transportation of Bayer chemicals safer than ever A decrease of around 51 percent in the number of transportation incidents has been recorded since 1998. While a total of 41 such incidents were recorded in 1998, the equivalent figure for 2002 came to only 20. As the vast majority of our products are transported by road, any incidents are most likely to occur while using this mode of transport and this is reflected in the statistics. It is gratifying to note that the number of incidents involving chemical leakage decreased in 2002 by over 69 percent when compared with the previous two years.

Transportation incidents are defined as incidents that occur during the distribution of our raw materials, intermediates and products, insofar as we are directly responsible for the transportation or insofar as it was commissioned by us. Incidents that were the responsibility of our suppliers and customers are therefore not included in the incident statistics. The table contains information relating to the transportation incidents that occurred from 1998 onwards, according to the type of transportation used. Transportation incidents are another area in which we will be further improving our recording systems in future.

Total number of transportation incidents

Number of transportation incidents according to CEFIC* guidelines						
	1998	1999	2000	2001	2002	2002 Ex- ACS sites
Road	38	25	26	16	18	5
Rail	1	1	2	0	1	1
Internal waterways	1	0	2	1	0	0
Sea	0	0	2	0	0	0
Air	0	0	1	0	0	0
Pipeline	1	0	0	1	1	0
Total number	41	26	33	18	20	6

* CEFIC = European Chemical Industry Council

Transportation incidents involving chemical leakage (Bayer Group)*					
	1998	1999	2000	2001	2002
Road	15	5	21	16	7
Rail	0	1	2	0	0
Internal waterways	1	0	2	1	0
Sea	0	0	0	0	0
Air	0	0	1	0	0
Pipeline	0	0	0	1	1
Total number	16	6	26	18	8

* Transportation incidents involving chemical leakage were not recorded separately at ex-ACS sites.

In recognition of the fact that chemical production processes involving a high turnover of materials and energy can impact on the ecosystem, Bayer supports the principles of sustainable, future-proof production and designs its processes in such a way that the environment is not affected any more than necessary.

Use of raw materials

Main raw materials for the production process

In 2002, acetone, acrylonitrile, benzene, butadiene, cyclohexane, ethylene oxide, phenol, propylene oxide, styrene and toluene were the most commonly used basic organic chemicals in terms of volume. This “top ten” alone accounted for a total of 3.8 million metric tons, with a value of €2.1 billion.

In terms of inorganic raw materials, the Bayer sites’ requirements in 2002 were as follows:

- 1.3 million metric tons of common salt for chlor-alkali electrolysis to recover chlorine, sodium hydroxide solution and hydrogen chloride. Excess hydrogen from this process is sold.
- 400,000 metric tons of nitric acid, most of which is used in MDI/TDI (methylene diisocyanate/toluene diisocyanate) production.
- 310,000 metric tons of ammonia, large quantities of which are fed into caprolactam production (a preliminary stage in the production of polyamide 6.6).
- 250,000 metric tons of sulfur, of which 50,000 tons is used for Bayer’s own production of sulfuric acid.

Sustainable raw materials in the production process

Wherever possible, technically feasible and economically viable, Bayer makes use of sustainable raw materials, although these do not play a major role in the overall substance balance sheet.

The following sustainable raw materials are used:

- Balsam resins, cellulose and its derivatives, fatty acids and alcohols
- Substitute fuels from municipal, non-industrial waste, wax and other stearates
- Lignin sulfonates, oils and fats, castor oil
- Thickening agents, fragrances, aromas and flavorings
- Casein, sugar and its derivatives, starches, citric acid.

We also work with our customers to develop products designed to promote the use of sustainable raw materials, including polyurethane/natural fiber mat composites with flax and sisal for car door trims and roof liners.

Raw materials for energy generation

Energy generation is an area in which we have undergone fundamental changes since the early 1990s. While in 1992 Bayer was still producing some 83 percent of its own energy requirement in the form of electricity and steam, the level of in-house generation had fallen to just 58 percent by 2002, with the remaining 42 percent being procured externally.

The statistics for the energy actually being generated internally are equally striking. Back in 1992 we produced 120 petajoules (1 petajoule = 10^{15} joules) of energy from fossil fuels, compared with only 67 petajoules in 2002.

In 2002, only 49 percent of the total energy generated internally by Bayer was obtained through the consumption of fuels, namely approximately 1.5 billion cubic meters of natural gas, 500,000 metric tons of coal and 100,000 metric tons of liquid fuel. The remaining energy was generated through the recovery of heat from industrial processes or from waste incineration at Bayer's own sites.

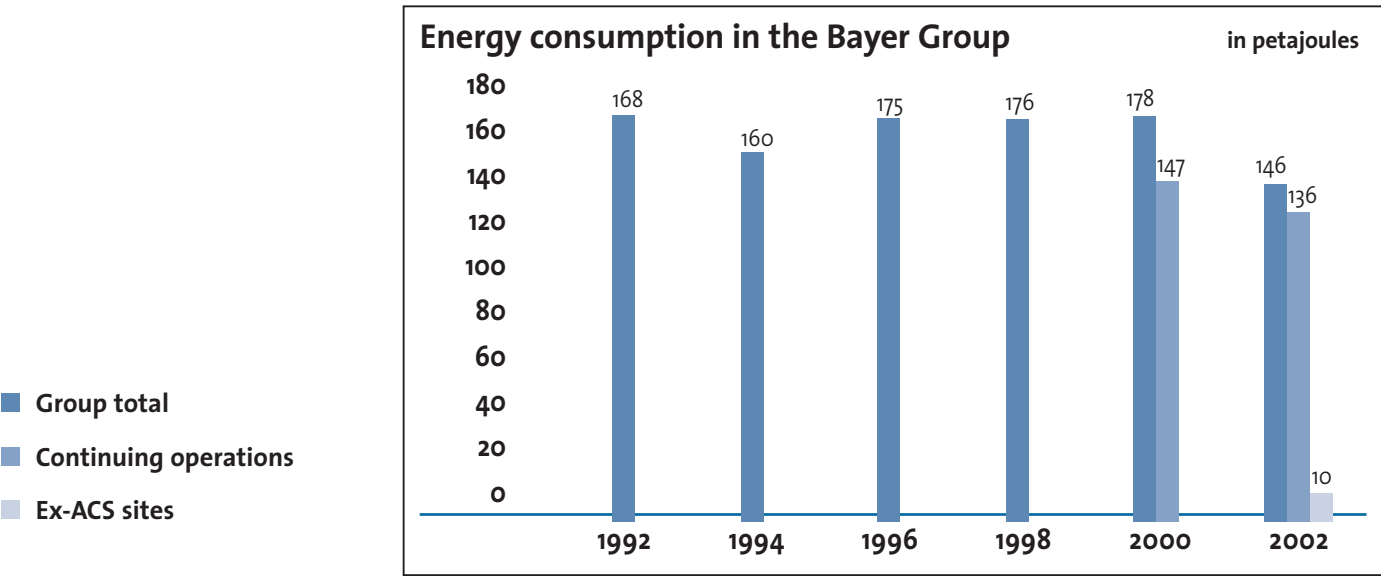
Renewable energies

To ensure future generations have an environment worth living in, our use of energy in the long term will need to be more efficient. Sustainable energy forms such as water power, biomass, biogas, wind and solar energy can only make a small contribution. Wherever the use of renewable energies is technically and economically viable, we support this commitment insofar as we are able to do so.

Our Brazilian site in Porto Feliz is contributing to the use of renewable forms of energy. In 2002, 247 terajoules (1 terajoule = 10^{12} joules) of energy were recovered from chippings from the local timber processing industry.

Energy consumption

Energy consumption down a further 7.5 percent since 2000 The energy balance sheet for the 168 Bayer sites analyzed for this report remains positive. Despite a rise in production, energy consumption for continuing operations has fallen by 7.5 percent since 2000 to 136 petajoules per year, with energy efficiency (energy requirement per production volume) improving by 13 percent.



The Bayer sites' primary energy requirement for continuing operations has also fallen significantly since 2000 – down 22 percent in the case of natural gas and 12 percent in the case of coal. This reduction is partly attributable to the external procurement of energy. Use of waste heat has also been improved by 25 percent.

Energy consumption in the Bayer Group according to type of energy

(1 petajoule = 1 thousand trillion joules = 10^{15} joules)

Energy source	Unit	1992	1994	1996	1998	2000	2000 continuing operations	2002	Change in %	2002 ex-ACS sites
Natural gas	petajoule/a	81	75	81	74	71	62	48	-22.0	*
Liquid fuels	petajoule/a	15	15	9	9	5	4	4	0.5	*
Coal	petajoule/a	24	18	20	21	17	17	15	-12.0	*
Externally procured electricity	petajoule/a	25	28	31	35	39	33	35	5.5	*
Waste heat utilization e.g. from waste incineration	petajoule/a	20	21	22	23	21	10	12	25.0	*
Steam production (external supplier)	petajoule/a	3	3	11	14	24	22	22	1.8	*
Total	petajoule/a	168	160	175	176	178	147	136	-7.5	10
Production volume	million met. tons/a	10.3	10.9	11.8	13.1	15.5	11.7	12.5	6.2	0.3
Energy efficiency	petajoule/ million met. tons	16.3	14.7	14.7	13.4	11.4	12.5	10.9	-13.0	33.3

* These data were not recorded at the ex-ACS sites.

The shifts in the use of individual types of energy can also be attributed to fluctuations in the respective raw material prices.

If the former Aventis CropScience sites are included in the energy balance sheet, the Bayer Group's total annual energy requirement is 146 petajoules per year. Due to the relatively low production volume in ACS business (0.3 million metric tons per year), energy efficiency falls to 11.4 with the inclusion of ex-ACS sites, which corresponds to the Group figure for the year 2000.

Far-reaching measures have been taken over the past few years to ensure that valuable water resources are used carefully and water pollution avoided.

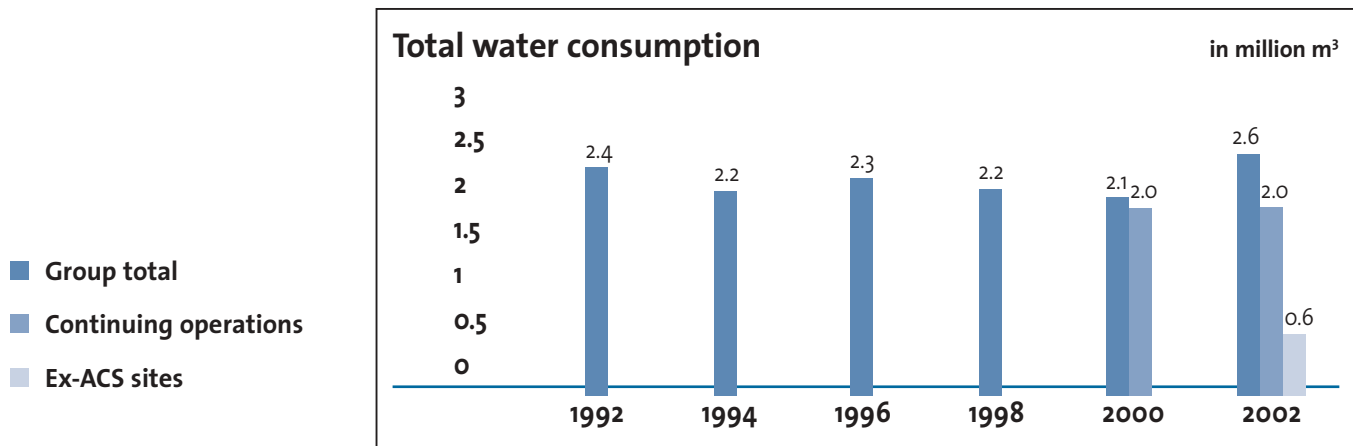
Water consumption reduced by more than 16 percent since 1992 Water consumption at the Bayer sites, for example, fell by more than 16 percent to 2.0 million cubic meters per day between 1992 and 2002 despite a rise in production. Most of this water (85 percent) is used as cooling water. A mere 15 percent of the water used is fed into production processes and sanitary installations. Polluted process effluent and sanitary wastewater are treated in our treatment plants before being fed back into the environment. In fact, the water taken from the Rhine by Bayer AG’s Lower Rhine sites is in some parameters less polluted when discharged after treatment than when it was originally drawn from the river.

Water consumption and use in the Bayer Group						in millions of cubic meters/day		
	1992	1994	1996	1998	2000	2000 continuing operations	2002	2002 ex-ACS sites
Total water consumption	2.4	2.2	2.3	2.2	2.1	2.0	2.0	0.6
Cooling water	2.0	1.9	1.9	1.8	1.7	1.7	1.7	— *
Process effluent and sanitary wastewater	0.33	0.32	0.35	0.35	0.32	0.27	0.29	— *

* These data were not recorded at the ex-ACS sites.

Major Bayer sites that require a lot of water – such as those in the Lower Rhine region – generally meet their needs from naturally occurring sources such as rivers, harbor waters or the sites’ own wells. The four sites that consumed the most water in 2002 were Leverkusen and Krefeld-Uerdingen in Germany, Antwerp in Belgium and Sarnia in Canada. Leverkusen and Krefeld-Uerdingen rely on the Rhine to fulfil their water requirements, while Sarnia is supplied with water from the St. Clair river and Antwerp uses the brackish water from its harbor. Throughout the whole of the Bayer Group, less than four percent of water requirements are met from the public drinking water supply.

It is frequently the case that the surrounding area can also be supplied with drinking water from our sites. Our subsidiary Wolff Walsrode, for example, supplies drinking water to the local community from its Industrial Park in Bomlitz in Lower Saxony, Germany.



Water pollution control

Chemical oxygen demand of Bayer wastewater down a further 25 percent since 2000

Bayer is also making further advances in the area of water pollution control, as evidenced, for example, by the chemical oxygen demand (COD) sum parameter, which has fallen by approximately one quarter in continuing operations since 2000 and by as much as 77 percent compared with 1992. This fall also encompasses changes that arose as a result of divestments. Taking into account the former Aventis CropScience sites, the COD pollutant load per year is only one metric ton higher.

With regard to the proportion of adsorbable organic halogen compounds (AOX), the sum parameter in this case for continuing operations fell from 40 to 38 metric tons per year between 2000 and 2002.

Our aim, over and above adhering to the statutory requirements as a matter of course, is to ensure that the quality of the water that we return to the environment is at least as high as that of the water we have drawn from it. The remaining pollutant loads at the Bayer sites fell again during the period under review – partially due to the sale or closure of sites but also, in part, due to improved production and treatment processes.

COD, AOX and salt loads									
	Unit	1992	1994	1996	1998	2000	2000 continuing operations	2002	2002 ex-ACS sites
COD	1,000 t/a	74	66	57	48	32	23	17	1
AOX	t/a	150	130	128	112	73	40	38	— *
Dissolved inorganic salts	million t/a	1.3	1.3	1.2	1.4	2.0	1.6	1.5	— *

* These data were not recorded at the ex-ACS sites.

Many of the substances that have generated criticism over past decades are organic chlorine-containing compounds. AOX as a sum parameter reveals nothing about the potential actual toxicity of the substances that are discharged. Individual documentation is required, which we provide at our sites in accordance with the local regulations. For this reason we will no longer be documenting the AOX sum parameter in future.

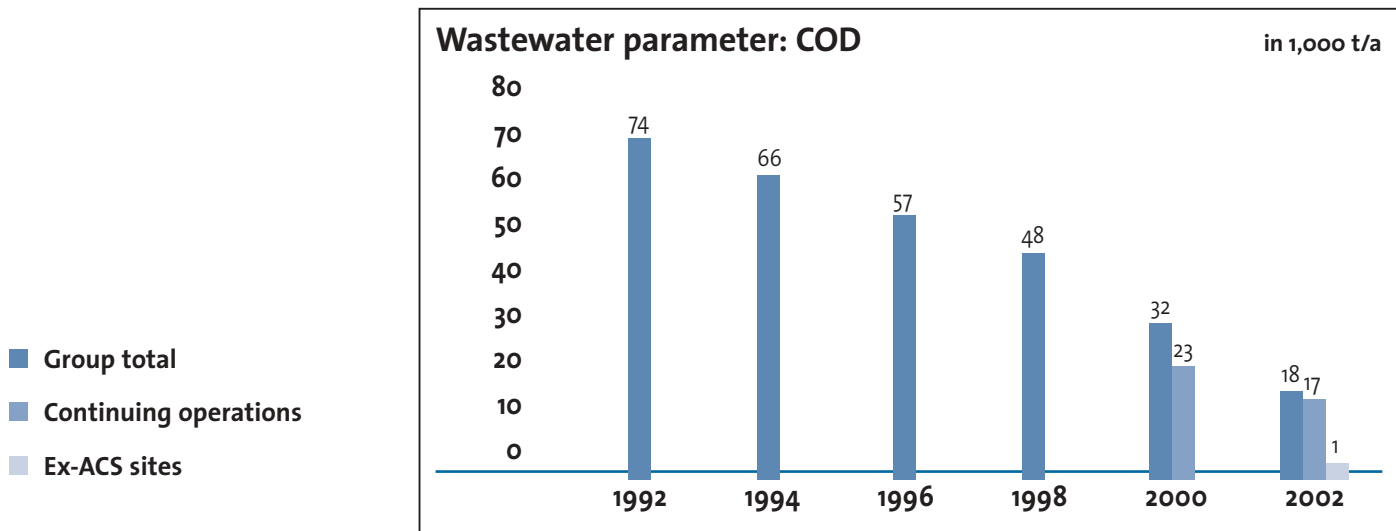
COD, AOX and dissolved organic salts

The **chemical oxygen demand (COD)** is a measurement of the total organic substances contained in water, including those substances that are difficult to break down. The COD reading gives the amount of oxygen required to oxidize all of the organic substances contained in the water. In the form of a sum parameter, the COD reading can be used to assess the degradation performance of a wastewater treatment plant. COD degradation rates of between 90 and 95 percent can be achieved.

An excessively high level of organic substances in natural waters is not desirable as organic substances in water are generally decomposed by organisms, using up oxygen in the process. Depending on the level of pollution the oxygen present in the water is used up.

AOX stands for adsorbable organic halogen compounds (X = chlorine, fluorine, bromine, iodine), in other words compounds that are toxic or have poor biodegradability.

The wastewater parameter “dissolved inorganic salts” refers to all chloride and sulfate salts discharged into receiving waters.



Heavy metals

As part of our work to record HSE data we monitor the concentration of heavy metals in our wastewater in accordance with the recommendations of the European chemical association CEFIC. We have been able to record further reductions in this area. At those sites where operations are being continued, all emissions of heavy metals fell further during the period under review. Overall, we discharged approximately 50 percent less heavy metal in 2002 than in 1992.

Heavy metal discharges into receiving waters							in t/a
	1992	1994	1996	1998	2000	2000 continuing operations	2002
Cd (cadmium)	0.3	0.1	0.2	0.2	0.2	0.16	0.08
Cr (chromium)	25	10	9	9	6.2	6.2	5.0
Cu (copper)	17	12	13	11	12	8.2	6.4
Hg (mercury)	0.07	0.04	0.05	0.05	0.08	0.07	0.03
Ni (nickel)	13	9	10	9	7	6.8	5.0
Pb (lead)	4	4	3	3	2	1.5	1.0
As (arsenic)	— *	— *	— *	— *	0.7	0.5	0.45
Zn (zinc)	— *	— *	— *	— *	14	12.9	11.4
Total (heavy metals)	59	35	35	32	42	36.33	29.36
Contribution of ex-ACS sites							0.64
Sum total							30.00

* These values were not recorded in the period under review.

The proportion of the Bayer Group's emissions of heavy metals (Cd, Cr, Cu, Hg, Ni, Pb, As, Zn) attributable to the former Aventis CropScience sites was, at 0.64 metric tons in 2002, approximately two percent of the Bayer Group's total emissions.

**Clear fall in
mercury
emissions**

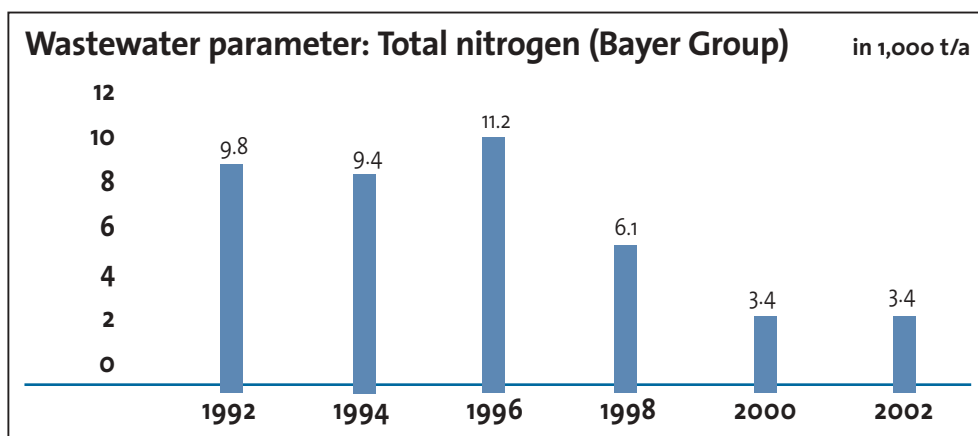
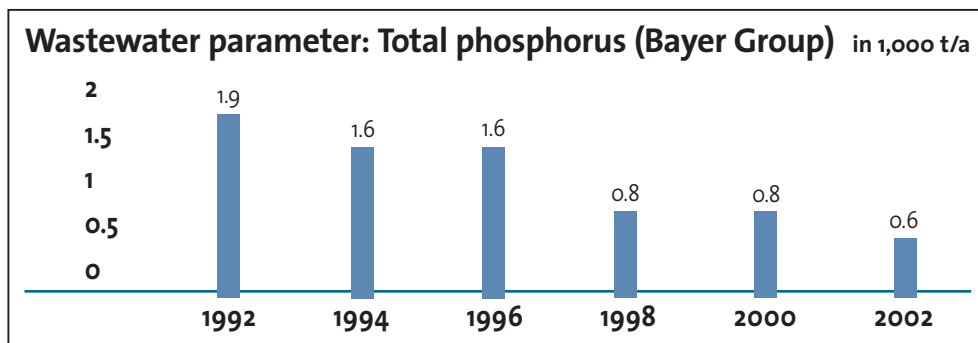
The Group has also significantly reduced (by 53 percent) its discharge of mercury into its wastewater, one of the contributing factors being the refitting of the chlor-alkali electrolysis plant at Bayer's Dormagen site which now operates on the basis of state-of-the-art membrane technology. The Group target for 2004 of discharging less than 30 kilograms of mercury per year into wastewater was almost achieved in 2002, with a discharge of just 33 kilograms of mercury.

Nutrients

Surplus amounts of nutrients such as nitrates, ammonium nitrogen or phosphates can cause overfertilization (eutrophication) when discharged into receiving waters. It is therefore one of Bayer's aims to reduce nutrient discharges as far as possible. The table below shows our results in this area during the period under review. Phosphorus discharges fell by one quarter compared with 2000. Overall, Bayer has cut nutrient discharges by approximately 66 percent since 1992.

Nutrient discharges of the recently acquired Aventis CropScience sites scarcely affect our Group's overall figures, accounting for between three and four percent of the total amount.

Wastewater parameters: Phosphorus and nitrogen (Bayer Group)						in 1,000 t/a
	1992	1994	1996	1998	2000	2002
P _{tot} (total phosphorus)	1.9	1.6	1.6	0.8	0.8	0.6
N _{tot} (total nitrogen)	9.8	9.4	11.2	6.1	3.4	3.4
Sum of P _{tot} and N _{tot}	11.7	11.0	12.8	6.9	4.2	4.0



Gases of relevance to the climate

Carbon dioxide
emissions from
Bayer sites
down 12 percent
since 2000

Bayer has been committed to climate protection for many years now. Despite a rise in production output of around seven percent, the Group’s direct carbon dioxide emissions from continuing operations fell by around 12 percent between 2000 and 2002. Direct emissions of all greenhouse gases, grouped together as “carbon dioxide equivalents,” fell eleven percent over the same period. In 2002, the specific carbon dioxide equivalent, which expresses these direct emissions in relation to production output, was 16 percent lower for continuing operations than in 2000.

This means that in 2002 the Bayer Group already exceeded its target of a 50 percent reduction in direct greenhouse gas emissions by the year 2010 (compared with 1990). The Group-wide figure for the reduction in direct emissions of greenhouse gases was 59 percent. Alongside the sale of affiliated companies and subsidiaries and plant closures, the transfer of a power station to a utility company and its simultaneous conversion from being coal-fired to being fired by highly efficient gas turbines also contributed to this result. As well as being more economic, this transfer was also responsible for greater energy efficiency and, correspondingly, reduced consumption of resources and lower emission levels. Meanwhile, our energy efficiency improvement measures, such as the switch from mercury-cell to membrane processes in our chlor-alkali electrolysis operations, have played a major part in the reduction of indirect climate-relevant emissions. At Bayer AG in Germany an even more ambitious target of a 53 percent reduction was set. Direct greenhouse emissions at the sites of Bayer AG have been reduced by a total of 66 percent.

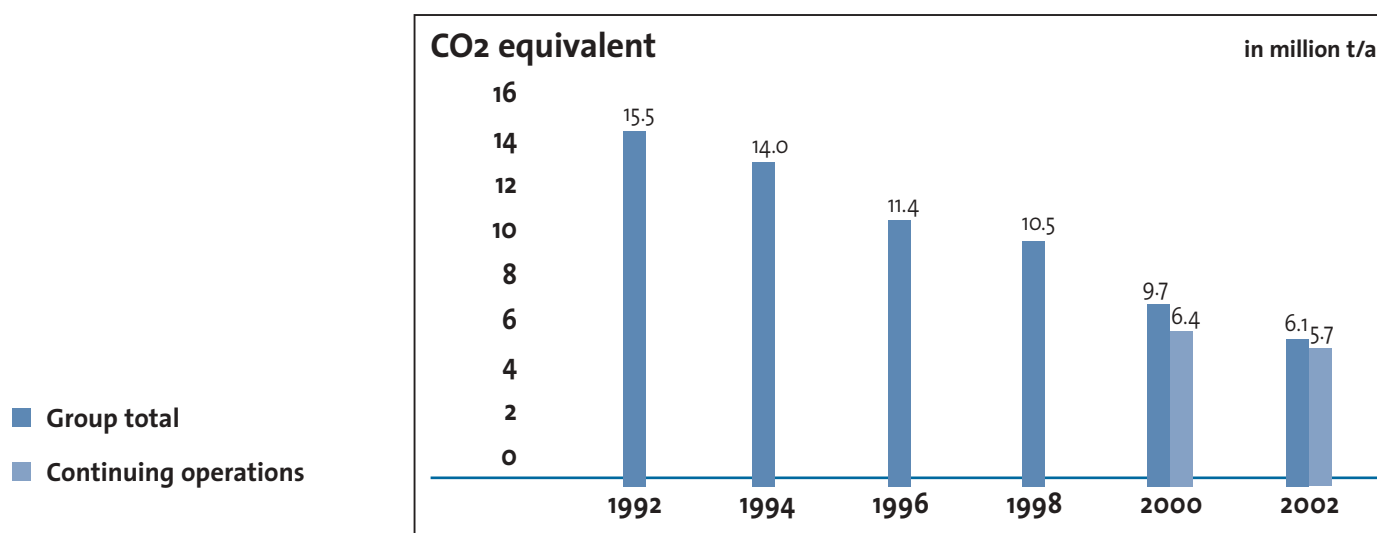
“Greenhouse gas” is the term used by experts to refer to gases thought to influence the warming up of the Earth’s climate. Carbon dioxide – the “basic gas” – has been assigned a warming potential of GWP 1 (GWP = Greenhouse Warming Potential). Other greenhouse gases are deemed to be carbon dioxide equivalents and the GWP indicator is used to describe the level of the assumed impact on the climate compared with carbon dioxide. As far as the Bayer Group is concerned, the only greenhouse gas of major significance is carbon dioxide itself.

The table below shows the amounts of greenhouse gases that we ourselves have released directly during our energy generation and production processes.

Emissions of climate-relevant gases in accordance with the Kyoto Protocol CO₂ equivalent and specific CO₂ equivalent

	Unit	1990	1992	1994	1996	1998	2000	2000 continuing operations	2002
Carbon dioxide	mill. t/a	10.1	10.5	9.4	9.6	9.6	9.2	5.9	5.2
Methane	t/a	–	–	–	–	–	–	60	60
Dinitrogen monoxide	1,000 t/a	15.9	16.0	14.7	5.7	2.7	1.5	1.5	1.5
Partially halogenated hydrofluorocarbons (HFC)	t/a	–	–	–	45	45	33	33	33
CO ₂ equivalent	mill. t/a	15.0	15.5	14.0	11.4	10.5	9.7	6.4	5.7 (6.1*)
Production volume	mill. t/a	10.1	10.3	10.9	11.8	13.1	15.5	11.7	12.5
Specific CO ₂ equivalent		1.49	1.50	1.28	0.97	0.80	0.63	0.55	0.47

* Value includes ex-ACS sites.



The ex-ACS sites accounted for 0.4 million metric tons of carbon dioxide emissions in 2002. Overall, the Bayer Group was responsible for a total of 6.1 million metric tons of direct greenhouse gas emissions in 2002.

Ozone-depleting emissions

Bayer has made a commitment to monitor its use of substances that have a damaging effect on the Earth's ozone layer. Emissions of these substances have been dramatically reduced over the past few years. By recording comprehensive data for substances with the potential to destroy the ozone layer (see table on page 94), we are ensuring that our action goes beyond that required under the Protocol introduced at the CFC Conference held in Montreal in 1987.

Ozone is a natural gaseous component of the Earth's atmosphere occurring in varying concentrations in the different layers of air. In the stratosphere, ozone forms a protective barrier against the sun's damaging ultraviolet rays. As a result of complex chemical reactions in the atmosphere, chlorofluorocarbons (CFCs), brominated halon gases and various different chlorinated hydrocarbons (solvents, carbon tetrachloride, methyl chloride and others) with varying potential to cause damage can all contribute to the depletion of the ozone layer.

To compare the damaging effect of substances on the ozone layer, a specific ODP or ozone depletion potential is assigned to these substances, using a method that is similar in nature to the carbon dioxide equivalent method. The reference substance in this case is trichlorofluoromethane (CFC-11) which is given the ODP value of 1. On this basis the CFC-11 equivalent for direct emissions from the Bayer sites is 38 metric tons.

With a CFC-11 equivalent of 22 metric tons, it is chloromethane that makes up the largest share of emissions of substances with ozone depletion potential.

Emissions with ozone depletion potential (Bayer Group in 2002)			in t/a
	Quantity	OPD value	CFC-11 equivalent
Trichlorofluoromethane	~ 2	1.00	2.00
Dichlorodifluoromethane	~ 11	0.82	9.02
Chlorodifluoromethane	~ 32	0.03	1.09
Methyl chloride (chloromethane)	1,100	0.02	22.00
Bromomethane	~ 2.5	0.37	0.93
Tetrachloromethane	0.2	1.20	0.24
Chlorodifluoroethane	35	0.086	3.01
CFC-11 equivalent			38.29

We will be continuing within the Group to monitor ozone depletion potential in future on the basis of the GRI indicator list (EN-9) so as to work towards a reduction in the pollutants released into the atmosphere.

Further significant air emissions

Volatile organic compounds

Emissions of volatile organic compounds – summarized in the VOC sum parameter – fell by 13 percent at Bayer between 2000 and 2002 based on the Group's continuing operations.

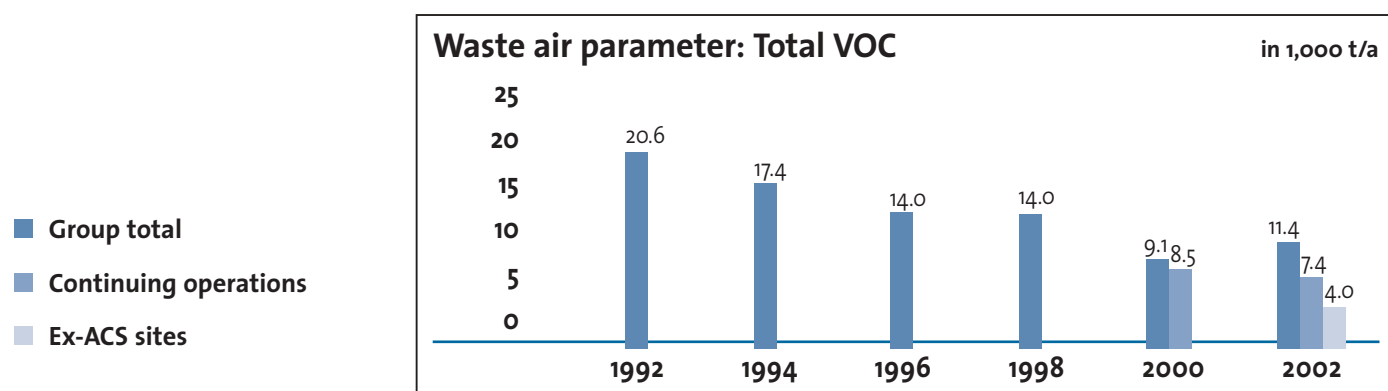
In addition to the VOC sum parameter, we have also listed some substances separately in the table.

The company has achieved a clear improvement in ABS emissions (acrylonitrile, 1,3-butadiene, styrene). Our target in this area was to cut emissions by 2004 to less than 250 metric tons per year. During the period under review we already achieved a reduction from 443 to 272 tons per year, ensuring that we can reach our target by the end of 2004.

Emissions of volatile organic compounds

	Unit	1992	1994	1996	1998	2000	2000 continuing operations	2002 ex-ACS sites	
VOC	1,000 t/a	20.6	17.4	14.0	14.0	9.1	8.5	7.4	4.0
BTXE (benzene, toluene, xylenes, ethylbenzene)	t/a	780	748	266	215	170	160	152	*
ABS (acrylonitrile, 1,3-butadiene, styrene)	t/a	685	540	373	440	443	395	272	*
Important organic chlorine solvents (chloromethane, dichloromethane, trichloromethane, tetrachloro- methane, 1,2-dichloroethane)	t/a	1,742	1,606	2,167	1,391	628	626	1,140	*

* These data were not recorded at the ex-ACS sites.



We are not satisfied with the development recorded with regard to organic chlorine solvents. This rise in emissions is due to the use of chloromethane in rubber production at Bayer's sites in Sarnia and Zwijndrecht. However, reduction measures are planned.

The 38 newly integrated Aventis CropScience sites add some 4,000 metric tons per year to the Group-wide figures for VOC emissions.

Volatile inorganic compounds

Sulfur dioxide target for 2004 already undershot at Bayer sites in 2002

As with the volatile organic compounds (VOC), volatile inorganic compounds (VIC) also contain air pollutants, emissions of which we are endeavoring to reduce too. Sulfur dioxide emissions have already been greatly reduced: The 2004 target of 5,000 metric tons of sulfur dioxide was achieved and actually undershot as early as 2002. The considerable expansion of Bayer CropScience's activities that occurred with the acquisition of Aventis CropScience did, however, increase sulfur dioxide emissions again, to a total of 7,400 metric tons per year in 2002, with the result that we must now review our 2004 target in light of the Aventis acquisition.

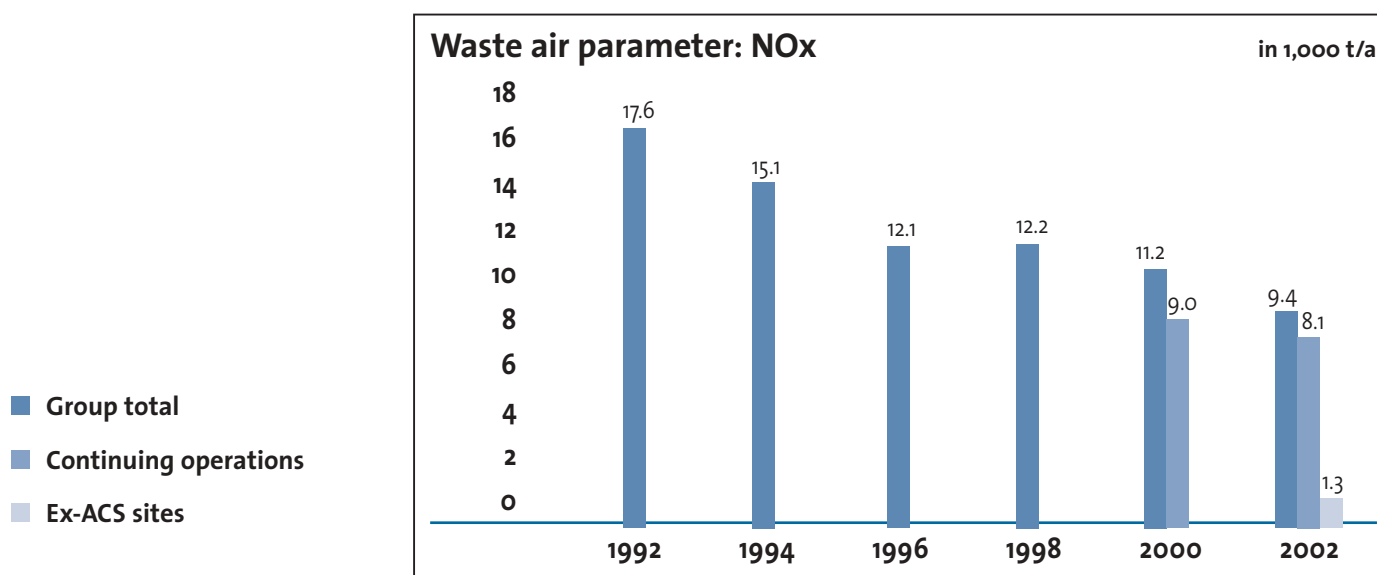
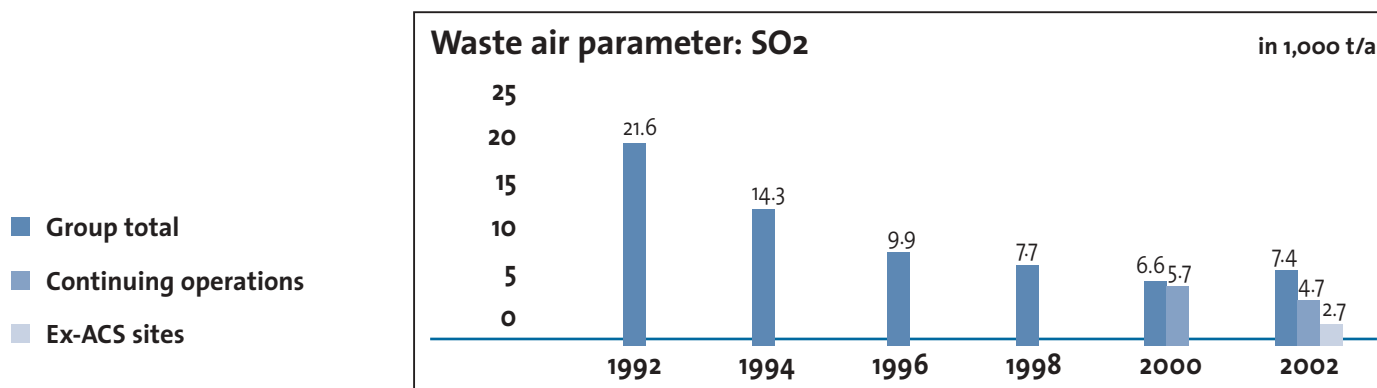
We continue to devote a great deal of attention to nitrogen oxide emissions and are aiming to achieve a further reduction (7,500 metric tons in 2004) by modernizing our production operations. The Group balance sheet for 2002 shows an annual nitrogen oxide output of 8,100 metric tons, increasing to 9,400 tons per year if the ex-ACS sites are also included.

The key individual substances included in VICs – sulfur dioxide, nitrogen oxides and carbon monoxide – are mainly produced from energy generation using fossil fuels. Sulfur dioxide emissions depend to a large extent on the sulfur content of the fuels used. Coal and oil contain varying concentrations of sulfur, which can result in fluctuations due to the source of energy selected. Natural gas is actually inherently sulfur-free but the addition of odorants to give the product a smell for safety reasons results in the presence of sulfur-containing compounds (mercaptans). Some of our production processes also release sulfur dioxide and nitrogen oxides.

All direct VIC emissions associated with energy generation have been cut thanks to the legal transfer of our steam and electricity power stations to a utility company outside the Group (outsourcing, divestment). However, the targets stipulated in 2001 were also based on specific reduction projects to improve processes at our headquarters in Leverkusen and at our site in Antwerp, Belgium.

Major inorganic emissions								in 1,000 t/a
	1992	1994	1996	1998	2000	2000 continuing operations	2002	2002 ex-ACS sites
Sulfur dioxide (SO ₂)	21.6	14.3	9.9	7.7	6.6	5.7	4.7	2.7
Nitrogen oxides (NO _x , excluding N ₂ O, calculated as NO ₂)	17.6	15.1	12.1	12.2	11.2	9.0	8.1	1.3
Carbon monoxide (CO)	10.9	9.2	11.4	9.3	3.8	3.6	3.0	*
VICs (excluding CO ₂ , SO ₂ , NO _x , CO)	1.4	1.3	1.4	1.3	1.1	1.0	1.2	*
Sum of above parameters	51.5	39.9	34.8	30.5	22.7	19.3	17.0	*

* These data were not recorded at the ex-ACS sites.

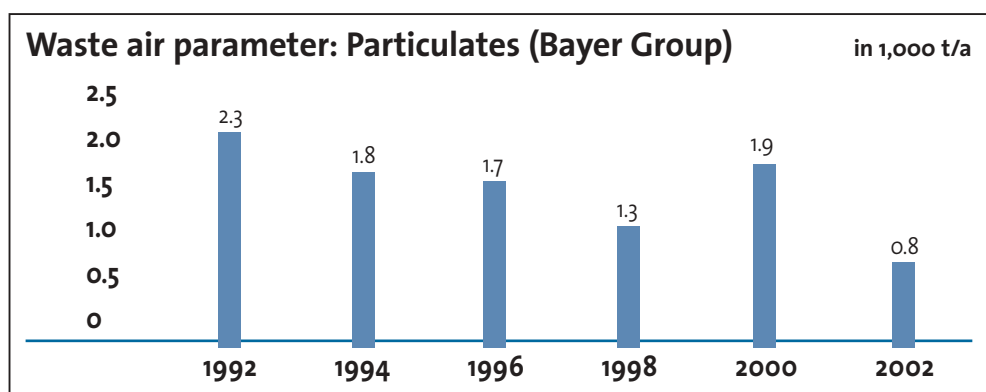


Bayer has made a commitment to make its emissions data directly accessible to the responsible State Environmental Office (StUA) by electronic data transfer from 2005 onwards. This will affect several hazardous waste incinerators and power stations at the Bayer Chemical Parks in Leverkusen, Dormagen and Krefeld-Uerdingen. In future, all relevant parameters – half-hour values and average daily values – will be transmitted electronically to the StUA every day. In addition, an annual report will be compiled and the emissions situation will be published once a year in the media.

Through this ruling Bayer complies with a framework agreement between the German Chemical Industry Association and the government of North Rhine-Westphalia. This agreement allows companies to decide whether they want to publish the data on the internet or automatically via electronic data transfer.

Particulates

The target set for 2004 of reducing particulate emissions to at most 1,500 metric tons per year was achieved by the Bayer Group in 2002 and actually improved on to the tune of 700 metric tons. The major contribution to this trend came from the Brazilian site in Camacari, where particulate emissions were practically eliminated as a result of the closure of the polymerization plant in 2002. While the acquisition of Aventis CropScience did lead to a renewed increase in particulate emissions of 14 percent, Bayer will nevertheless still achieve its self-imposed target by the end of 2004.



Particulates are emitted by the combustion installations used for energy generation as well as in production processes when, for example, pneumatic conveyors are used to transport solid granules.

Waste volumes

Most of the solid waste produced is generated in the production areas of the Bayer Chemicals and Bayer Polymers subgroups. Over the past ten years, we have succeeded in greatly reducing waste levels in these areas, success that is particularly well illustrated by the amount of waste produced in relation to product volumes. While only 48 kilograms of waste (4.8 percent) needed to be disposed of for each metric ton of product produced in 2002, the equivalent figure in 1992 had been almost three times as high, at 123 kilograms. Overall, Bayer has achieved a 61 percent reduction. The downward trend is also clearly evident when continuing operations for the years 2000 and 2002 are considered.

The ongoing principle in terms of waste management is the maximum reduction or recycling of production residue. The methods used to achieve this include the ongoing development of our production processes, the targeted selection of raw materials and, quite generally, the choice to opt for high-quality products with a long service life.

In addition to our production waste we also register all other types of waste such as household waste, sewage sludge and construction waste products (building site waste, rubble, excavated earth, broken-up road surface materials). Construction waste was included as a distinct category in its own right for the first time in our 2002 data compilation. Due to restructuring measures we had a relatively high proportion of construction waste in 2002 for the Group as a whole at approximately 400,000 metric tons. Our Camacari site in Brazil alone accounted for some 100,000 tons of rubble and excavated soil due to closures and renovation of the polymerization operations.

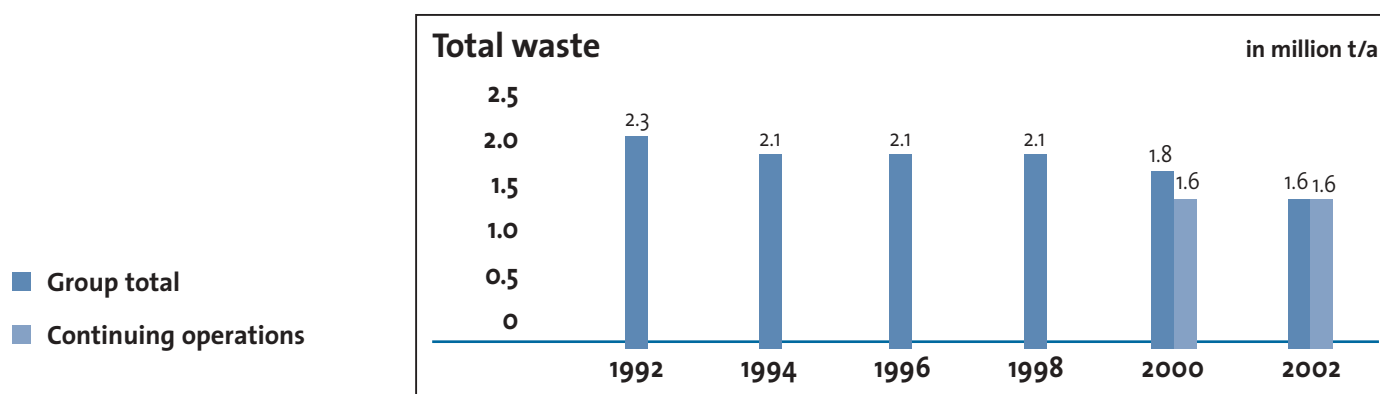
Waste products that we take over from outside the Group for disposal purposes are also included in the figures. These include municipal waste and, to an increasing extent, waste produced by the companies operating from within our chemical and industrial park sites. The rise

in the volume of this waste is also partly due to the sale of operations to other companies that make use of our central waste management facilities. Once such example is EC Erdölchemie GmbH, where Bayer divested its 50 percent stake. Waste from this company – in the region of 100,000 metric tons per year – is now recorded as external waste.

Waste data 1992 – 2002 (Group totals in millions of metric tons/year)

	1992	1994	1996	1998	2000	2000 continuing operations	2002
Waste from (chemical) production	1.27	1.10	1.05	1.10	0.76	0.72	0.60
Other waste	1.02	0.98	0.86	0.86	0.86	0.64	0.30
Construction waste	–	–	–	–	–	–	0.40
External waste (taken on by Bayer sites for disposal)	0.02	0.04	0.14	0.11	0.15	0.24	0.31
Total waste including waste from third parties (total)*	2.3	2.1	2.1	2.1	1.8	1.6	1.6
Waste from production process/ Production volume in %	12.3	10.1	8.9	8.4	4.9	6.1	4.8

* Value includes recycled waste and waste from third parties.



The annual figures for the newly acquired ACS sites, at approx. two percent, scarcely affected waste levels in 2002.

Types of disposal

Some 60 percent of our waste was landfilled during the period under review, with 26 percent being incinerated and 14 percent recycled. In other words, compared with 2000, a greater proportion of waste was landfilled and incinerated while recycling levels dropped. More than half of the waste that is incinerated (53 percent) is used for thermal recovery.

Final fate of waste as a percentage of solid waste disposed of				
	1996	1998	2000	2002
Landfilled	47	50	47	60
Incinerated	17	14	19	26
Recycled	36	36	34	14
Disposed of externally	23	31	26	19

One reason for the decrease in recycling lies in the larger volume of construction waste. This could no longer be put to the same use as a replacement construction material, in the construction of landfill sites, for example, as there was no longer any need for the building materials in question and some of the waste products were contaminated and unsuitable for reuse.

Approximately four-fifths of the waste for disposal is disposed of by Bayer internally using its own landfill facilities. The remainder (19 percent) is sent to external disposal companies. This figure has been consistently reduced between 1998 and 2002, which is testimony to the performance and capacity of our own disposal facilities, which are increasingly also being used by our contractual partners, particularly in the chemical parks.

Data recording 2003

The main changes regarding reporting for 2003 compared with the previous year relate to the improved data collection based on subgroup structure at the respective sites and the additional inclusion of sites other than production bases which have warehouse facilities, offices and research laboratories. Previous data compilation encompassed 168 production sites across the world, grouped geographically. Using the new method, 444 sites grouped according to geographical location and also according to subgroup have been included in the survey.

The result is a revised set of HSE performance data including definitions, known as HSE key performance indicators. Particular attention has been paid to ensuring that these definitions are internationally comprehensible and unambiguous.

Our 12 key indicators relating to social issues, transport safety, environmental emissions and use of raw materials describe those areas to which we attach particular importance. We will be setting ourselves targets in these areas and providing regular progress reports and will allow ourselves to be measured against these targets. The HSE key performance indicators will be used to manage our achievements in this area.

Focus on 12 HSE key performance indicators from the areas of

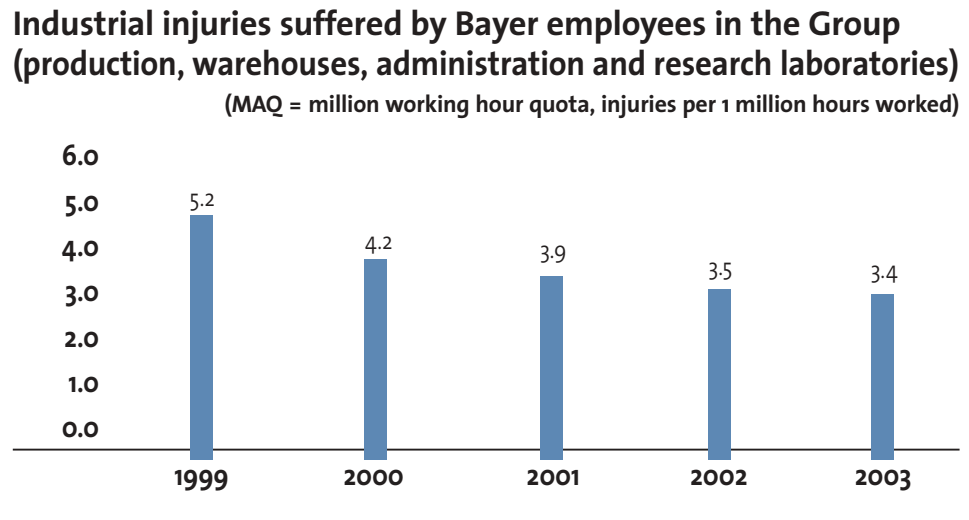
- Social issues
- Transport safety
- Environmental emissions
- Use of raw materials

Accident statistics

Reducing the number of accidents is one of our key goals. We report **the injury rate of our employees resulting in at least one day's absence from work** in the form of the MAQ, which represents the number of industrial injuries resulting in absence from work for every million hours worked. We have, however, extended the group of employees included in this calculation. While in the past contractors, part-time employees and employees on fixed-term contracts were excluded, it is now the case that all contractors who report directly to Bayer line managers, part-time employees and employees with fixed-term contracts are included in the figures. Yet despite this extension of the group of employees covered, we have succeeded in achieving a slight reduction in the injury rate for the Group as a whole compared with the previous year, down from 3.5 to 3.4. Targeted campaigns on the part of the subgroups and service companies, such as Bayer Chemicals' 1000-Day Program, have made a major contribution to this result.

Additionally, for the first time, we are reporting on injuries to Bayer employees that may not result in absence from work but do result, for example, in the employee being assigned light duties or requiring medical treatment. The combined parameter is known as the **reportable injury rate of Bayer employees**. Only when we succeed in reducing this statistic too, will we be able to reduce the number of injuries resulting in absence from work in the long term. The first value calculated per million working hours is 7.2, which is 2.1 times as high as the rate for lost time injuries.

For the first time in 2003 we have prepared these figures on a worldwide basis based on data compilation at site level through the sub-groups and service companies.



Environmental incidents and incidents causing damage

To date, only those incidents have been recorded that have required a report to be submitted to the authorities in accordance with local regulations. For this reason only limited comparison of individual results across the Group as a whole was possible.

For 2003, however, we have classified environmental incidents and incidents causing damage into three levels according to three Group-wide uniform definitions. Incidents that can be allocated to the first two levels are then reported in the form of the key performance indicator **“major environmental incident.”** By doing so, we demonstrate that our sense of responsibility goes beyond the statutory requirements. At the same time, this parameter is not only recorded at our production sites but at all 444 Bayer Group sites, since environmental incidents and incidents causing damage can also occur in warehouses or research laboratories, for example. In total, there were 21 major environmental incidents in the Group in 2003, plus 117 incidents classed as belonging to level three i.e. with a lower environmental or damage impact.

Environmental incidents and incidents causing damage in the Bayer Group					
	1999	2000	2001	2002	2003
Reportable environmental incidents	68	69	47	53	
Incidents causing damage	6	7	1	4	
Major environmental incidents (levels 1 + 2)					21
Environmental incidents (level 3)					117

The figures for environmental and damage-causing incidents from previous years can only be compared to the 2003 figures to a limited extent. The higher figures for 2003 do not indicate an increase in the number of incidents but are the result of the new definition and recording structure.

This parameter has been recorded using the definition provided by the European Chemical Industry Council (CEFIC) as in previous years, but, for the first time, the 2003 figures encompass all of the Group's sites and not just production facilities. Overall, the number of transportation incidents rose slightly from 26 to 28. However, all of the incidents related to road accidents.

Number of transportation incidents according to CEFIC* guidelines						
	1998	1999	2000	2001	2002	2003
Road	38	25	26	16	23	28
Rail	1	1	2	0	2	0
Internal waterways	1	0	2	1	0	0
Sea	0	0	2	0	0	0
Air	0	0	1	0	0	0
Pipeline	1	0	0	1	1	–
Total number	41	26	33	18	26	28

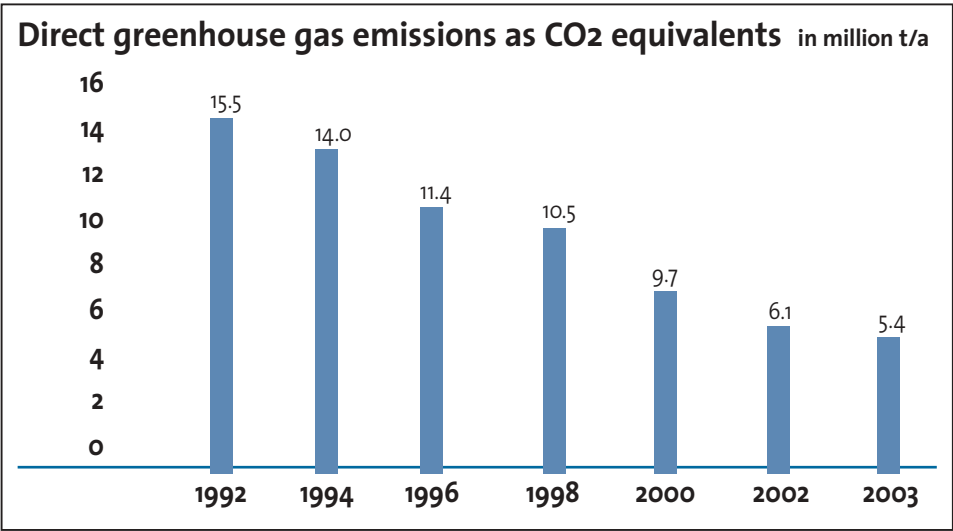
* CEFIC: European Chemical Industry Council

The manufacture of our products causes emissions to be released into the air and waterways and creates waste materials that cannot currently be recycled. Our aim is to continually work to minimize these emissions and to responsibly handle hazardous waste whose production is unavoidable. It is therefore important to our company that we pursue an active management approach in this area using key performance indicators. These environmental KPIs are recorded only at our production sites as these are the only sites with a significant impact in this area.

Emissions into the air

Emission of greenhouse gases

Climate protection requirements and the terms of the Kyoto Protocol are something to which we adhere to well in excess of the statutory requirements. This is why we are striving to reduce direct emissions of greenhouse gases further. During 2003, we again achieved an eleven percent reduction in these emissions compared with the previous year, expressed as CO₂ equivalents. Both at the sites of Bayer AG and at those of the Group as a whole direct emissions of gases of relevance to the climate have fallen by over 60 percent.



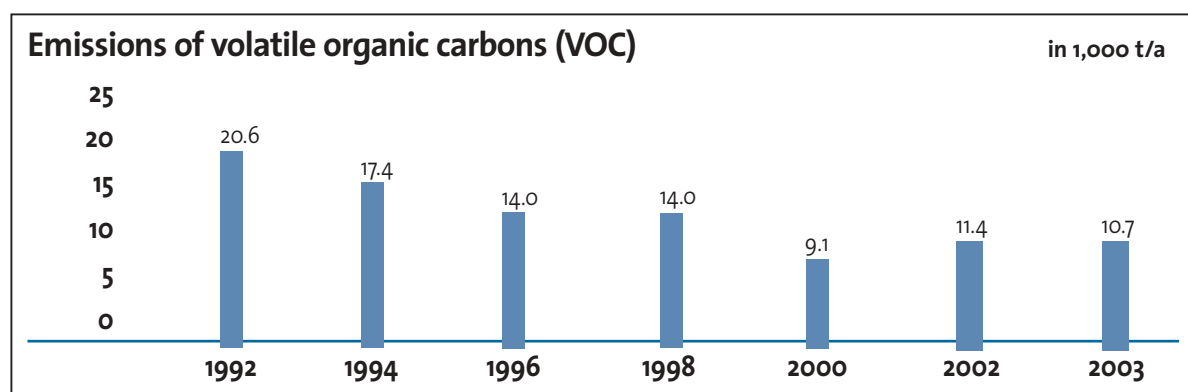
This means that the Bayer Group had already exceeded its target of a 50 percent reduction in direct greenhouse gas emissions by the year 2010 (compared with 1990) by the end of 2002. Alongside the sale of affiliat-

ed companies and subsidiaries and plant closures, the transfer of a power station to a utility company and its simultaneous conversion from being coal-fired to being fired by highly efficient gas turbines also contributed to this result. As well as being more economic, this transfer was also responsible for greater energy efficiency and, correspondingly, reduced consumption of resources and lower emission levels. Meanwhile, our energy efficiency improvement measures, such as the switch from mercury-cell to membrane processes in our chlor-alkali electrolysis operations, have played a major part in the reduction of indirect climate-relevant emissions.

This results in the following picture: Despite an increase in production since 1990 of 16 percent, emissions of greenhouse gases relevant to the climate fell by over 60 percent, as a consequence of the measures described.

Emissions of volatile organic carbons (VOC)

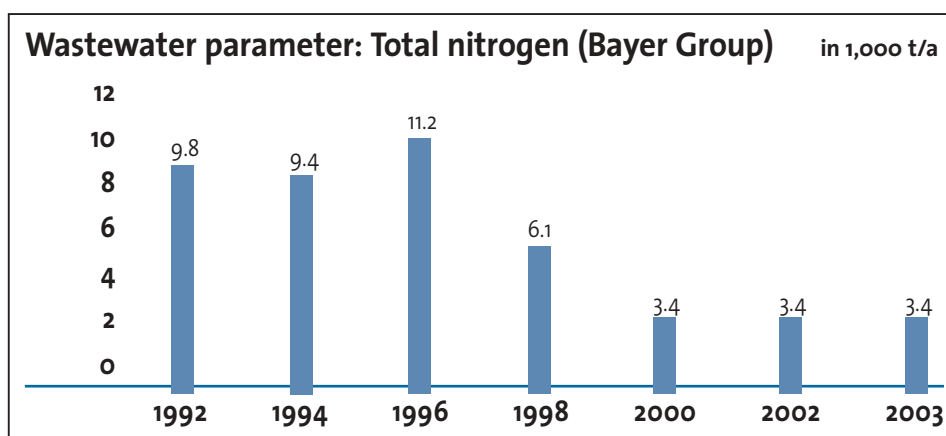
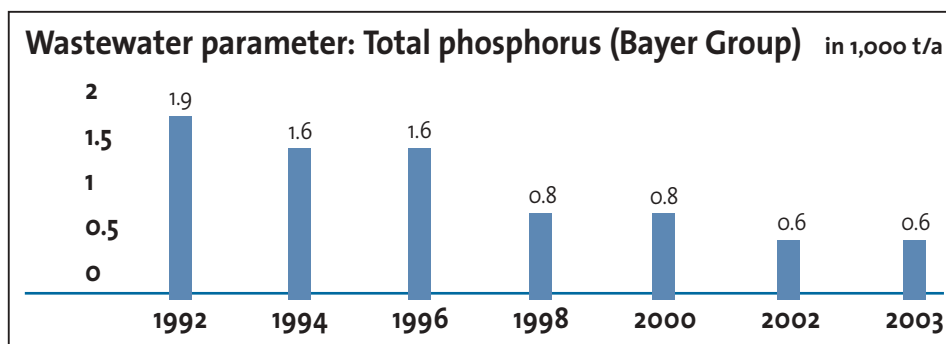
In addition to the ongoing reduction of greenhouse gas emissions, we strongly believe in the need to reduce emissions of volatile organic compounds (VOC), which impact ozone levels. As a result of the acquisition of Aventis Crop Science and the related expansion of our activities, the VOC emissions figure rose between 2000 and 2002 from 9,100 t/a to 11,400 t/a. During 2003 a reduction of six percent to 10,700 t/a was achieved.



Emissions into water

The emission of nutrients (nitrates, ammonium nitrogen or phosphates) can cause overfertilization of receiving waters. This is why we are working to make ongoing reductions to discharge levels. During 2003, there was no measurable change compared with the previous year in terms of the discharge of nutrients.

Wastewater parameters: Phosphorus and nitrogen (Bayer Group)							in 1,000 t/a
	1992	1994	1996	1998	2000	2002	2003
P _{tot} (total phosphorus)	1.9	1.6	1.6	0.8	0.8	0.6	0.6
N _{tot} (total nitrogen)	9.8	9.4	11.2	6.1	3.4	3.4	3.4
Sum of P _{tot} and N _{tot}	11.7	11.0	12.8	6.9	4.2	4.0	4.0



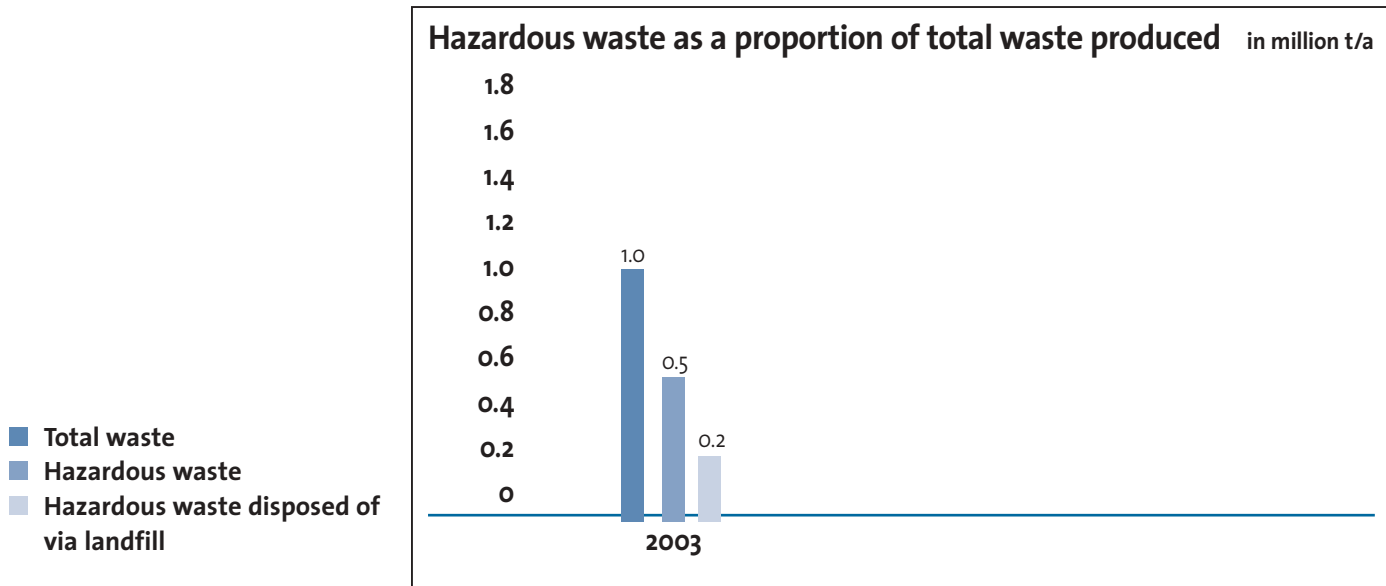
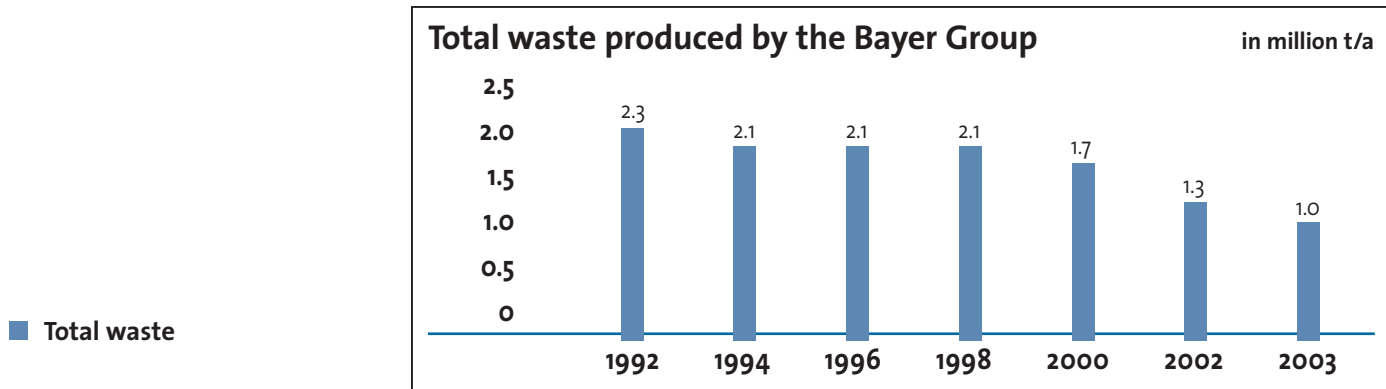
Waste management

Total volume of hazardous waste production

Our reporting with regard to waste has been developed greatly. Crucially important in this regard is the volume of hazardous waste that is produced. It is important to us that we reduce the level of hazardous waste to a minimum and that we handle and dispose of this waste responsibly so that no risk is posed to humankind or the environment. This is why we are reporting the volume of hazardous waste produced for the first time. During 2003 hazardous waste accounted for 50 percent of total waste produced in the Group. The total level of waste produced by the Bayer Group fell by 23 percent.

Total volume of hazardous waste disposed of at landfill sites

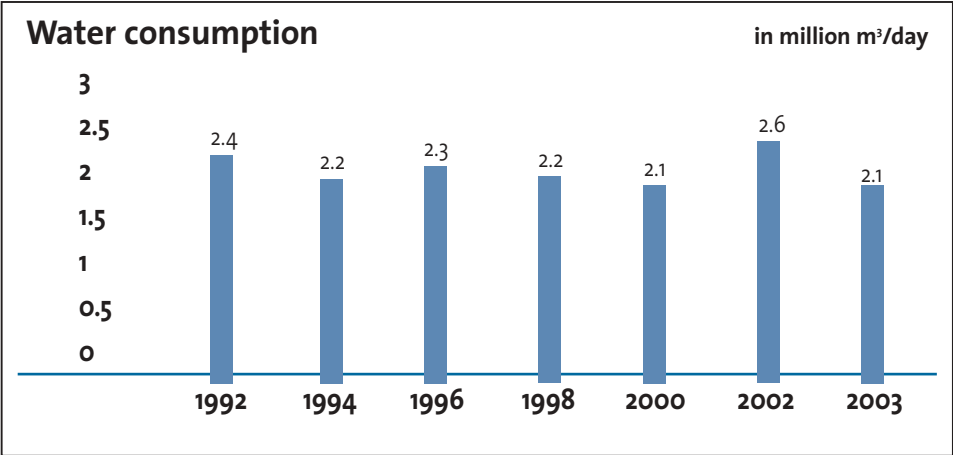
To date we have only reported the total volume of waste disposed of at landfill sites. For the first time, we are reporting the volume of hazardous waste disposed of via landfill facilities. Our aim is to reduce the total volume of hazardous waste requiring disposal via landfill, thereby taking on board our long-term responsibility for the environment. The volume of hazardous waste disposed of in this way in 2003 was 20 percent of the total waste produced.



Conserving water and energy is a key priority at Bayer, which is why we are permanently striving to reduce our water and energy consumption levels.

Water consumption

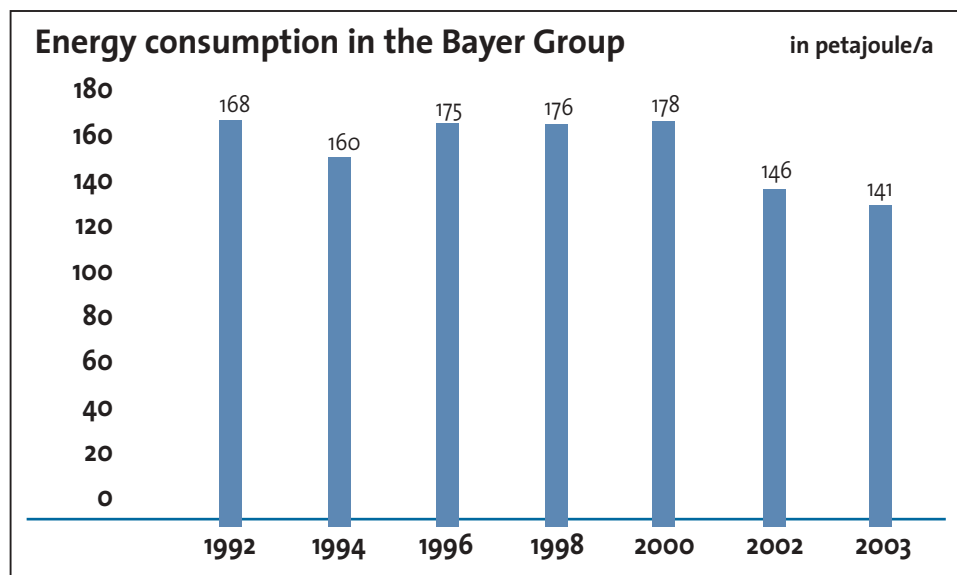
Only one percent of the Earth’s total water supply is fresh water. In a bid to draw attention to the scarcity of this resource, the UN declared 2003 to be the International Year of Freshwater. Compared with the previous year, the Bayer Group succeeded in reducing its water consumption by 19 percent in 2003. The greatest contribution to this reduction was made by the BCS subgroup.



Energy consumption

Energy consumption always involves the use of a natural resource. This is why we are striving to cut our energy consumption levels further. During the year under review we were able to achieve a three percent reduction in our energy use.

Through this worldwide improvement the total energy consumption in the Bayer Group has fallen since 1992 by some 15 percent. At the same time, emissions of greenhouse gases have been reduced worldwide by 60 percent. Alongside the sale of affiliated companies and subsidiaries and plant closures, the transfer of a power station to a utility company and its simultaneous conversion from being coal-fired to being fired by highly efficient gas turbines also contributed to this result as did numerous measures to improve energy efficiency (see also p. 107).



Sustainable development objectives

TABLE OF CONTENTS

→ Introduction	
→ The Bayer Group	
→ Bayer HealthCare	
→ Bayer CropScience	
→ Bayer MaterialScience	
→ Bayer Chemicals	
→ Bayer Business Services	
→ Bayer Technology Services	
→ Bayer Industry Services	
→ Glossary	
→ More on the children’s pictures	

You can also call up particular sections of the document. Please click on the desired heading in the table of contents.

For many years already, Bayer has set itself objectives against which it allows itself to be measured. In the 2001 Sustainable Development Report we documented the objectives, that we had set in all areas of the company. In the following pages you will read whether we have achieved the targets we set ourselves and you will be able to find out which objectives we have set ourselves for the future. The sustainable development objectives of the subgroups and service companies make up the sum of our Group objectives. As explained in the section on data recording for 2003 we shall continue to develop these objectives on the basis of our key performance indicators for environmental emissions, use of raw materials, safety and social issues. No new objectives were set for Bayer Chemicals since this subgroup will be combined with some businesses of Bayer MaterialScience to form the independent company Lanxess. This will be floated on the stock exchange in 2005 and will then be responsible for developing and pursuing its own corporate policy.



In-Sung Cho, Korea, aged 6

"The birds in the air and the animals in the fields should always be able to live well."

→ More on the children's pictures



Objectives from 2001

A (second) self-evaluation of HSE management systems is to be implemented at all sites by 2002, that evaluation to include an action plan for continuous improvement until the next self-evaluation/audit

All relevant Bayer production sites are to be evaluated by qualified outside auditors by 2004

To reduce direct emissions of climate-relevant gases, Bayer AG is committed to a 53 percent cut in emissions by 2010 (compared with the base year 1990): additionally, efforts are in place to identify further potential for reductions throughout the Group

By continuing to pursue a systematic safety management program, the aim is to reduce work-related injuries by 50 percent by 2004

By continuing/further developing cooperation with contractors in the area of occupational safety at Group sites, the aim is to improve accident levels for these external companies

Status at end of 2003

The evaluation has been completed and the results have been passed to the subgroups for further action. Each subgroup is currently establishing its own integrated, cross-site HSE(Q) management system based on the present system’s components.

This objective is still being pursued. As part of the reorganization of the Bayer Group into independent subgroups, further development of the HSE(Q) systems falls initially within the scope of the subgroups (see above).

The objective for 2010 has already been achieved at the German sites. At the German sites and across the Group as a whole, direct emissions of climate-relevant gases have been reduced by considerably more than 60 percent compared with 1990.

By the end of 2003 work-related injuries had declined considerably. A variety of tools and activities are being applied to achieve this goal e.g. Bayer Chemicals’ 1,000-Day Program to become accident-free within 1,000 days and Bayer Industry Services’ program for improved safety and health protection targeting all its employees.

In 2003 improvement of workplace safety for contractors was achieved at quite a number of sites. Here, too, a variety of tools and activities continue to be applied to reduce the number of accidents and injuries to a minimum, e.g. at the Lower Rhine sites and Brunsbüttel through:

- Inspections of construction sites and bases together with the responsible employers’ accident liability insurance association (e.g. for metal industry, construction industry etc.)
- Exchange of experience with the responsible representatives of contractors on causes and necessary action following accidents.

<p>By continuing to pursue a systematic safety management program, the aim is to achieve further major reductions in reportable incidents by 2004</p> <p>As part of an International Council of Chemical Associations (ICCA) program, Bayer is establishing harmonized, internationally recognized data records with tests and assessments (published on the internet as part of the OECD Existing Chemicals Program) for about 70 HPV products</p> <p>The Eco-Check is to be further developed as an instrument for quality-based portfolio management as part of sustainable corporate development and open dialog both internally and with the public</p> <p>The strategic orientation of the business groups regarding sales products with critical toxicological and ecotoxicological properties should be subjected to systematic debate</p> <p>The development of sustainable products is to be promoted systematically</p> <p>The Group-wide system to identify and record transportation incidents is to be expanded in order to ensure continuous improvement in the safe transport of our products</p>	<p>A variety of tools and activities are being applied to this end e.g. continuous improvement of the safety concept for production units, the installation of suitable safety barriers and the implementation of safety audits and discussions.</p> <p>Between the years 2000 and 2002 the number of reportable incidents fell by 25 percent. With the introduction of key performance indicators in 2003 the Bayer-internal definition for reportable incidents was modified and harmonized across the whole Group (see p. 105). A direct comparison between the figures for 2003 and those for 2002 is therefore only possible to a limited extent.</p> <p>By the end of 2003, reports on 20 substances, for which Bayer was the lead company, had been completed under the OECD's ICCA program. Another nine substance reports were compiled by consortia in which Bayer participated.</p> <p>The Eco-Check method has been and is being successfully applied in the subgroups to assess a variety of products and technologies. In addition, it has been presented, and discussed, both internally at Bayer and externally at a variety of venues (e.g. econsense, the 2nd German-Japanese Expert Seminar about Product and Production Integrated Environmental Protection in Osaka (PIUS), the Sustainable Product Design Forum). With the reorganization of the Group and the associated changes to the portfolio we have further developed our methodology and adapted it to the new requirements.</p> <p>A cross-business-area committee regularly discusses this issue. Where necessary, project groups are formed to look into specific subjects and products in greater detail.</p> <p>The results are given in detail on pages 23 – 28.</p> <p>A new management system for the evaluation of transport incidents (TUMAS) was introduced on a trial basis in 2002, initially at Bayer AG only. In 2003, it was taken over as a standard system.</p>
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<p>Consistent Responsible Care target management, the intensive exchange of best practices and support of Responsible Care coordinators at affiliate companies are to be applied to support the continuous improvement process</p>	<p>Within the new Bayer structure Responsible Care (RC) has been given a firm basis through RC Commitments by the subgroups and service companies and through the appointment of RC coordinators. There is a company-wide exchange of experience among RC representatives. A continuous improvement process in the fields of health, safety and environmental protection is a fundamental objective. The subgroups and service companies set and track their own separate RC targets. In addition, at our German chemical and industrial parks annual agreements are concluded with the partner companies located there on RC site objectives.</p>
<p>Conversion of chlor-alkali electrolysis from a mercury-cell process to a membrane process should result in a clear reduction in mercury loads in wastewater from 75 kg/a (2000) to < 30 kg/a (equates to a 60 percent reduction). Mercury levels should be significantly cut as early as 2004</p>	<p>The switch to the membrane process is taking place gradually. The goal was almost achieved in 2002 when the mercury load was 33 kg. In 2003, the target was unfortunately not achieved by some margin as a result of an individual incident at one site during the cleaning of a wastewater sewer. We expect to achieve our target of < 30 kg in 2004 as we have already reached an advanced stage in the conversion of the electrolysis plants.</p>
<p>By means of a second nitrification/denitrification stage at the wastewater treatment plant in Leverkusen, the aim is to achieve a 20 percent reduction in the nitrogen loads recorded at the plant outlet by 2004</p>	<p>This goal was achieved when the second nitrification/denitrification stage came on stream in 2002.</p>
<p>Using various technical measures (especially at Antwerp and Leverkusen) and by means of outsourcing and relocating production to modern plants, emissions of acid gases are to be reduced further by 2004: Sulfur dioxide 6,600 → 5,000 t/a Nitrogen oxides 11,200 → 7,500 t/a</p>	<p>At the Bayer sites the 2002 target of a maximum 5,000 metric tons sulfuric acid was easily achieved in 2002. Through the considerable expansion of Bayer CropScience's activities with the acquisition of Aventis CropScience total sulfur dioxide emissions increased again to 7,400 metric tons in 2002, however. Through targeted measures we were able to cut back sulfur dioxide emissions in 2003 to 5,900 metric tons. The target for nitrogen oxide emissions was already achieved in 2003.</p>
<p>Acrylonitrile, butadiene and styrene emissions are to be cut from 443 t/a (2000) to 250 t/a (2004), equating to a 44 percent reduction</p>	<p>Since 2000, emissions have fallen to 279 t/a, a considerable decrease.</p>
<p>Appropriate process improvements and production relocation measures at various Group sites will be used to reduce particulate emissions from 1,900 t/a (2000) to 1,500 t/a (2004)</p>	<p>Emissions have been reduced substantially since 2000; the goal was already achieved in 2002 by a considerable degree. In 2003 the value was 900 t/a.</p>

New objectives for 2003/2004	Activities
Improve product safety in regard to environmental aspects	Investigate and monitor the environmental impact of our retail products.
Increase drug safety	Development of software to generate hospital discharge letters with the objective of minimizing the occurrence of adverse drug reactions and thus supporting safe use of therapeutic drugs.
Strengthen consciousness for prevention	<ul style="list-style-type: none">• Bayer HealthCare in Argentina is collaborating with the Argentinean Heart Foundation to conduct a campaign aimed at increasing awareness of cardiovascular risk.• BHC's Biological Products Division is supporting a project initiated by the World Federation of Hemophilia (WFH), an international organization for hemophilia patients, with the objective of establishing improved, uniform global standards for laboratory tests in hemophilia therapy centers.
Strengthen the control mechanisms for drug safety	In addition to the existing Critical Action Committees at divisional level, a BHC Critical Action Committee will be established for critical issues concerning the product safety of human pharmaceuticals and medicinal products.
Development of a new drug to treat malaria	Bayer and the "Medicines for Malaria Venture" (MMV), a WHO initiative financed by the World Bank and private foundations, have signed an agreement to develop a new malaria drug. Under the terms of the cooperation agreement, Bayer will develop the product and WHO/MMV will be responsible for monitoring distribution through the public health systems in developing countries. Bayer will supply the drug distributed in this way. The price in this market segment will be set to ensure that all parts of the population in developing countries that are affected by malaria can receive treatment. Bayer will market the drug in industrialized countries. Clinical testing has already started.

<p>Continuation of the optimization of an in vitro model to reduce the number of animal studies</p> <p>Increase diabetics' personal responsibility for their management by introducing the Ascensia® blood glucose meter and disseminate the measures derived from the results of STOP-NIDDM (Study to Prevent Non-Insulin-Dependent Diabetes Mellitus)</p>	<p>Work will continue on the development of an apparatus-based process for the comparative investigation of the tendency of active substances to crystallize in body fluids; the overall aim is to reduce the number of animal studies that need to be carried out.</p> <p>Development of the method has been successfully concluded.</p> <p>In order to support diabetic patients in their efforts to manage their condition, Bayer HealthCare launched the easy-to-use "Ascensia®" blood glucose meter in the third quarter of 2003 as the ideal complement to its range of products for diabetics. The meter can take blood from the finger tip or, alternatively, from the forearm, abdomen, or thigh, and measure the level of glucose exactly. STOP-NIDDM (Study to Prevent Non-Insulin-Dependent Diabetes Mellitus) showed that it is extremely important to measure blood glucose, particularly after meals. The new study also documents a 49 percent reduction in the risk of developing cardiovascular disease and a 91 percent reduction in the risk of suffering a heart attack in patients who took Glucobay®. In addition, there was a reduction in the risk of developing high blood pressure, and Glucobay® also improved blood lipid values. The findings confirm the importance of regularly monitoring the patient's blood glucose level. The new meter is a great help in ensuring that the diabetic patient eats a balanced diet which is optimized to prevent late complications of the condition.</p>
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Objectives from 2001

Bring to market maturity and launch Bayrepel®, the new Bayer active ingredient in the Autan® product family, an active substance with superior efficacy and a more favorable risk profile in children

Analysis of the potential environmental impact of pharmaceutical active ingredients and their degradation products during development

Promotion of health care through health education and improved consumer information concerning the topic of antibacterial resistance

Safeguarding the supply of Bayer's tropical drugs Germanin® and Lampit®

Status at end of 2003

Numerous scientific studies have confirmed that the active ingredient in Autan, Bayrepel®, provides effective protection against insect bites. Unlike conventional substances, Bayrepel® does not damage materials and has a neutral odor; its outstanding tolerability means that it can even be used on children from the age of two. The product has been launched. The entire Autan® product family was divested in 2002/2003.

All development substances are investigated systematically by Pharma for biodegradability and ecotoxicity and the findings documented. As part of a collaboration project with the Swiss Federal Institute of Technology in Zurich (ETH), for example, a doctoral candidate co-sponsored by Bayer investigated the effects of drug products on the environment.

In response to the growing global resistance to antibacterial substances, Bayer AG has started an international scientific education campaign called LIBRA. The campaign also involves international experts and opinion leaders. The objective is to promote the correct and responsible use of antibiotics all over the world. There is also an internet site at www.librainitiative.com featuring constantly updated material.

In November 2002, Bayer and the WHO concluded an agreement on the donation of Bayer's drug Germanin® (active ingredient: suramin) to combat African sleeping sickness. Bayer has agreed to provide the WHO with the drug at no charge for an initial period of five years.

As a further aspect of Bayer's social commitment to eliminating African sleeping sickness, the company is supporting studies intended to lead to extension of the indication for its drug Lampit® (active ingredient: nifurtimox). Several studies featuring various dose strengths for the treatment of sleeping sickness have already been completed.

Availability of Lampit® has been safeguarded by restarting manufacture of this drug in El Salvador.

New objectives for 2003/2004

- Introduce a knowledge information system for recipes, hazardous goods and safety data for Bayer CropScience’s products to provide globally consistent specifications and material safety data sheets
- Develop and introduce new crop protection products with reduced application rates
- Continue the gradual replacement of formulations in WHO (World Health Organization) class I
- Continue developing attractive bait formulations
- Improve application methods for the control of termites

Objectives from 2001

- Replacement of crop protection products by new combinations requiring lower application volumes
- Development of crop protection products with a favorable toxicological profile, faster degradation in soil/water and high selectivity – so called “reduced-risk” products under the registration system in the United States
- Development of active ingredients with a favorable ecotoxicological profile
- Early deployment of crop protection products to avoid expensive and time-consuming frequent spraying later in the vegetation period
- Development of methods (“closed system”) to make handling safe for the user and thus to reduce the burden on the environment
- Expansion of the herbicide range by products with targeted action against weeds combined with selectivity for many major crops

Activities

- Develop and implement a QHSE knowledge information system for global use by Bayer CropScience and its customers.
- Expand the use of sulfonylurea-containing products (MaisTer®, Atlantis®, etc) in some crops.
- Introduce new products and new formulations.
- Launch new bait formulations for insects, which currently are not managed in this fashion.
- Launch Premise® perimeter (band) treatments, which significantly reduce the spray volume / active ingredient content required.

Status at end of 2003

- Akteur® has replaced carbofuran in sugar beet seed pelleting in Germany already.
- Approval of the reduced-risk fungicide trifloxystrobin (FLINT® etc) has been granted in the United States. Additionally the herbicide mesosulfuron has received reduced-risk status for the registration process in the United States.
- Approval of Calypso® has already been granted in more than 40 countries.
- Treatment of cotton seed with small volumes of Gaucho® has been successfully introduced.
- Special drums and Micromatic valves have been introduced on banana plantations to ensure complete emptying and rinsing of crop protection drums and to avoid exposure of the user through the closed system approach.
- Tacco® (licensed to Spiess) has been introduced in Germany.

New objectives for 2003/2004

Work safety: Reduction in accidents/injuries

Environment: Reduction of emissions into the water, air and soil

Development of a Group-wide integrated HSEQ management system

Use of polymers for flexible and economic solar energy applications

Activities

Reduction in accidents/injuries through a rigorous safety management system applying various instruments, e.g.

- System-supported accident recording and reporting procedures,
- Systematic development of a safety organization covering all employees,
- Documentation of ongoing hazard investigations and assessments,
- Implementation of “near-miss” programs and “blue spot campaign” (labeling potential danger areas) to improve identification and across-the-board elimination of sources of accidents.

Continuous improvement in the reduction of wastewater emissions (amount and load) from production units and Bayer MaterialScience sites, e.g. through targeted process optimization projects.

Further reduction in waste in production units.

Further reduction in gas emissions detailed in Kyoto protocol – long-term reduction.

Consolidation of the health, safety, environment and quality management systems, based, among other things, on the global principles of Responsible Care and sustainable development, into a single global management system for Bayer MaterialScience AG.

Status: By March 2004, more than 90 percent of Bayer MaterialScience AG’s sites and organizational units in Europe, the Middle East, Africa and Asia subject to the new integrated quality management system were certified according to DIN EN ISO 9001 (matrix certification).

The use of thermoplastic polyurethane as the encapsulation material in the continuous production of flexible solar modules yields integrated functionality. This, coupled with the weight reduction achieved by substituting polycarbonate sheet for glass, allows the use of solar energy devices in new applications.

<p>Development of new raw materials for coatings with significantly reduced emissions of volatile organic compounds (VOC)</p>	<p>Bayer's two-component waterborne polyurethane technology cuts the amount of volatile organic compounds released into the atmosphere while achieving durability and aesthetic standards previously only possible using solventborne coatings. Bayhydrol®/Bayhydur® raw materials for waterborne coatings are used in a growing range of applications, such as industrial and wood finishes, floor and automotive coatings, adhesives and paper applications.</p>
<p>Further development of Makrolon® polycarbonate as a glazing material in the automotive industry</p>	<p>Development of coatings to enable the use of Makrolon® polycarbonate as a replacement for glass in automotive glazing. Improved safety behavior and weight reduction are two of the advantages of Makrolon®. Other positive features of Makrolon® as a material for automotive glazing are greater flexibility in design and easier integration of functional parts.</p>
<p>Broadening the field of applications for metal-plastics hybrid technology</p>	<p>By combining the individual strengths of metal and plastics, hybrid technology allows the production of lightweight parts with high static and dynamic stability and the potential to integrate functions. The technology for front-ends is already in place with various automotive companies such as AUDI or Ford. Other applications are set to follow. Compared to all-metal solutions, hybrid technology means lower weight and fewer manufacturing steps (e.g. welding), giving clear overall savings in terms of the energy expended during manufacturing and later use of the parts. Recycling simply involves separating the metal from the plastic mechanically.</p>
<p>Development of new rigid insulating foams to reduce the energy consumption of domestic appliances (refrigerators and freezers)</p>	<p>Bayer MaterialScience has set up a number of projects with a view to increasing the insulating efficiency of rigid polyurethane foams. The intention is to continuously improve the already good insulating properties and exceptionally beneficial processing and final properties of rigid polyurethane foams.</p>

Objectives from 2001

Development of plastics for use in automotive engineering, sparing use of resources and considerable energy savings

Improved raw materials for environmentally compatible vehicle tires: Development and testing of tire rubbers with optimized polymer structure and of new types of crosslinking agents

Development of special-purpose elastomers with improved temperature properties for environment-friendly vehicle motors

Greater use of high-temperature elastomers with reduced fire risk

Energy-saving construction using polyurethane rigid foam insulating boards

Status at end of 2003

Projects for car roof modules featuring a combination of film and continuous strand reinforced polyurethane or polyurethane sandwich structures are being pursued with partners in the industry with the aim of saving on weight and material. The initial results of prototype testing with a view to future series production have been encouraging. Bayer MaterialScience is also working on other concepts and technologies in this area of automotive engineering.

Market trials with Vulcuren® initiated highly positive customer response. Market introduction began at the beginning of 2004.

Two new Therban® grades with improved low-temperature properties i.e. higher sealing power also at lower temperatures (reduced oil leakage) have been introduced (Therban® LT grades). Further improvements in aging resistance are increasing the service life of products in some applications (Therban® HT technology) and also open up new fields of application for Therban®. The XT technology is making it possible to produce toothed belts with a reduced space requirement and an improved performance, which is making itself felt, for example, through lower fuel consumption in the engine. It is planned to introduce PT (Process Technology) grades, which save energy in processing.

Levapren® FRNC (fire-resistant non-corrosive grade) is being used in various vehicle projects. The FRNC concept is still being tested for automotive engineering applications (fuel lines).

Bayer MaterialScience is engaged in the ongoing development of polyurethane heat insulation in the building sector, for example composite thermal insulation systems using rigid polyurethane foam.

<p>Development of low-solvent paint and coating systems based on Bayhydrol®/Bayhydur® components and powder coatings based on Crelan®/Rucote®</p>	<p>Waterborne two-component polyurethane coatings have been introduced into the market for finishing wood and plastics, as floor and wall coatings and as transportation coatings. The target is to develop new applications for these products, especially in the automotive topcoat segment. This requires optimization of waterborne two-component polyurethane coatings in respect to their processing properties, a further reduction in solvent emissions and extremely high quality requirements. The development of new Bayhydrol® and Bayhydur® components represents a clear step in this direction. Furthermore, a concept to streamline the mixing and application technology has been developed.</p> <p>Powder coatings are used without the addition of solvents. The acquisition of Rucote® (binder) enables us to participate with all crosslinking technologies. This product together with Crelan® (crosslinker) makes us a systems supplier of PU powder coating technology.</p>
<p>Development of sprayable, recyclable, peel-off films for protecting vehicles during transportation</p>	<p>For the first time in the world, the sprayable peel-off film was introduced on the production line of an automotive manufacturer. The technology was established through the optimization of the Bayhydrol® component and the application technology.</p>
<p>Development of biocide-free antifouling coatings</p>	<p>The antifouling effects identified in extensive field trials were not sufficient to satisfy the technical milestones. The project was abandoned at the end of 2002 given the lack of short- or medium-term realizability.</p>
<p>Development of thinner packaging films for foodstuffs</p>	<p>Successful launch of thin packaging films (C2oP), substituting films of 33 percent greater thickness and also possessing technical advantages.</p>
<p>Development of high-quality chemical products based on cellulose, a renewable raw material</p>	<p>Market presentation of new high-purity hydroxypropyl-methylcelluloses (HPMC) as formulation aids for foodstuff, cosmetic and pharmaceutical products (Walocel® HM).</p>

Objectives from 2001	Status at end of 2003
Baypure® biodegradable complexing agents	Market introduction has taken place, with further expansion of production in 2003 owing to high demand for Baypure® CX.
Replacement of nitro and polycyclic musk fragrances with macrocyclic musk fragrances	The relevant business is no longer part of the Bayer Group.
Switch from animal to plant-based raw materials for flavorings	The relevant business is no longer part of the Bayer Group.
Recycling of refractory metals	Recycling rate over period 2001–2003 over 50 percent (relative to raw material use).
Felt-free treatment of wool	Work on the felt-free treatment of plasma-treated wool is complete. At the moment a production unit for this innovative and virtually wastewater-free processes is being set up at a wool processor in Germany.
Waterproofing of leather	A new two-component waterproofing system for leather which can be fixed in the leather without the addition of heavy metals was introduced in 2002 under the trade names of XERODERM® P-AF and S-AF, with the market responding positively.
Enzyme-based textile processing chemicals	The market introduction of the BAYLASE® product range was highly successful and the product range is being steadily expanded. The ecological benefits (low water consumption, complete biodegradability) have been achieved in full.
<p>* Bayer Chemicals – with the exception of H.C.Starck and Wolff Walsrode – is to be combined with some of Bayer MaterialScience’s operations to form a new independent company Lanxess, which is to be floated on the stock exchange by the beginning of 2005. The company will be responsible for setting its own sustainable development objectives.</p>	

New objectives for 2003/2004	Activities
Intensification of technical vehicle controls	Reduction, through suitable measures, in rejection quota of vehicles belonging to carriers employed by Bayer on the grounds of being in a technically unsatisfactory state.
Intensification of dialog	Open house day involving all Chemical Park partners and the local community. Increased communication of Responsible Care activities (measures and projects) and educational offers in the Bayer media “direkt,” “aktuell” and “Bayer News Channel,” on the intranet and in the daily press.
Integration of Responsible Care in training and further education	Continuation and optimization of the training and educational program for Responsible Care, environmental protection and occupational safety. Intensive support for the Responsible Care philosophy in training and further education through: <ul style="list-style-type: none">• Implementation of the Responsible Care training objectives embedded in the restructured training curriculum.• Strengthening of the personal sense of responsibility towards Responsible Care of all trainees.• Continuation of Responsible Care projects in the training departments.

New objectives for 2003/2004	Activities
Individual responsibility linked to handling of resources – resource management	Strengthening of sense of responsibility in handling resources, energy and BTS property to reduce consumption and avoid waste.
Reduction in work-related accidents	Targeted staff training and further education in matters of day-to-day occupational and plant safety through safety discussions and pertinent safety lectures. Establishment of a BTS occupational safety committee. Systematization of occupational safety on construction sites and statistical recording of accidents in projects.
Introduction of an HSEQ management system for BTS	Drafting of HSEQ guidelines and instructions. Certification according to ISO 9001/2000 involving further BTS organizational units.

New objectives for 2003/2004

Implementation of an HSEQ management system for BIS

Realization of the 2003 Responsible Care campaign “Individual Responsibility” and 2004 campaign “Resource Conservation” at the Bayer sites Leverkusen, Dormagen, Elberfeld, Brunsbüttel, Krefeld-Uerdingen and Bitterfeld

Further reduction in accident/injury statistics

Get contractors involved in Responsible Care objectives of the respective sites. The aim is to cooperate closely with contractors working at Group sites to help them achieve an improvement in accident/injury figures

Improvement of incident management

Activities

- Establishment of a uniform HSEQ management system for BIS which incorporates already existing certifications and accreditations.
- Achievement of certification to ISO 9001/2000 and ISO 14001 in relevant areas.

Publication of (annual) leaflets/posters incl. demonstration of work/travel accidents and suggestions for improvements; realization of a Bayer AG wide competition for production facilities incl. Bayer Chemical Park partners at these sites; realization of operational measures (e.g. daily 5-minute discussions, systematic recording of near-misses and obvious sources of errors, plant-internal training, introduction of Prof-iteam, an IT-supported reporting system for hazards at the workplace, RC commitment signed by the employees, bringing the subject of hazards and transport safety home to employees); intensive information/communication incl. use of Responsible Care intranet site that is accessible across the Group and to Chemical Park partners; RC internet site; presentation of RC at open house days.

Reduction in number of accidents at work and on the way to/from work of BIS employees compared to 2002 through systematic safety management.

- Inspection of construction sites and bases together with the responsible employers’ accident liability insurance association (e.g. engineering and metal association, construction association).
- Exchange of experience with the responsible individuals of the contract partners following incidents to establish causes and necessary action.

Specific practices with the involved communities and departments.

Dialog at Bayer

Information shapes acceptance

Communication is very important for Bayer because it shapes the way we are seen by our employees and society as a whole. The Bayer Group therefore gives equal priority to providing timely and extensive information for employees, stockholders, financial analysts, the media and the general public alike.

Many people only know the chemical industry from media reports so they find it hard to imagine what we actually do at our sites. The chemical and pharmaceutical industry and modern biotechnology are a source of hope and expectation but they also provoke fear and concern. Bayer is aware of the need to explain to people as clearly as possible what it does, why it does it and what implications its work might have. Personal contact is essential to create trust: Talking to one another and learning to understand one another is essential to reduce misunderstandings. We pay special attention to showing the general public how seriously we take our responsibilities in all areas of our operations. That includes social as well as economic and ecological responsibility. We use a variety of communication methods to help us achieve this goal:



World Business Council for Sustainable Development



■ Through almost daily news releases and regular news conferences we keep the media informed of all major events and developments in the Bayer Group. Modern methods of communication such as the internet enable us to provide extensive and up-to-date information. In addition, our employees worldwide are kept informed via our in-house intranet. A full overview of the Bayer Group and its global activities can be found on the internet at www.bayer.com

■ The Bayer Communication Center ("BayKomm") in Leverkusen, Germany, which was opened in 1991, is the heart of our communication activities. Being open to the wide variety of opinions about the chemical and pharmaceutical industry is fundamental to our approach. Consequently, BayKomm was specifically designed as a forum for

discussion and encounter. The 1,350 square meter exhibition area is divided into eight sections centering on specific topics: "Sport – Leisure," "Building/Construction/Home," "Transportation," "Information Technology," "Safety and Environmental Protection," "Health Care," "Nutrition" and "Bayer: Names – Figures – Facts." Every year Bayer welcomes about 140,000 visitors from Germany and abroad to BayKomm. The meeting rooms, bistro and, last but not least, the exhibition area, provide an ideal platform for informative discussions, debates, experimental lectures and slide shows.

■ Many of Bayer's sites hold regular open house events so that local inhabitants can find out more about issues of interest to them. In September 2003 Bayer welcomed some 85,000 people to the open house

days held at twelve sites throughout Germany.

■ Regular publications such as "direkt," a magazine for employees and the local community, the magazines published by our subsidiaries for their employees and customers, our R&D

magazine "research," our company magazine "report," our annual report and stockholders' newsletter and the present 2004 Sustainable Development Report provide a range of information for the general public on the Bayer Group.

Bayer has been a member of the global chemical industry's Responsible Care initiative from the beginning, is a founder member of the United Nations' Global Compact and the econsense Sustainable Development Forum, sponsors the United Nations Environment Programme (UNEP) and is a member of the World Business Council for Sustainable Development (WBCSD). Bayer is included in a variety of ethical investment indices such as the Dow Jones Sustainability World Index and the Advanced Sustainable Performance Index (ASPI) for the euro zone and in the ethical investment funds managed by the Norwegian insurer Storebrand.



Glossary

AOX

Abbreviation for adsorbable organic halogen compounds; X stands for the halogens fluorine, chlorine, bromine and iodine. The sum of these organic halogen compounds, determined by a standardized procedure and calculated as the chloride content, is an indication of the degree of pollution of a water course. Organic halogen compounds are toxic and/or have poor biodegradability

Audit

A systematic investigation designed to establish whether the relevant activities (e.g. environment-related activities in the case of an environmental audit) and the resultant effects comply with the planned requirements. It also examines whether these requirements are met and whether they are appropriate for achieving the intended goals.

Biological wastewater treatment

Process for breaking down organic substances by microorganisms in special treatment plants. Microorganisms are capable of breaking down organic substances in surface waters: Wastewater treatment plants make selective use of this natural process.

BMBF

Abbreviation for the German Federal Ministry of Education, Science, Research and Technology.

BTXE

Abbreviation for the aromatic hydrocarbons benzene, toluene, xylene and ethylbenzene.

COD value

Abbreviation for chemical oxygen demand.

This value, determined by a standardized procedure, indicates the degree of contamination with organic compounds in a water course.

Corporate citizenship

The term signifies the role of the company as a “citizen” of a country and city, and also as a “global citizen.” Rules for global citizenship are given, for example, in the *Global Compact*.

Corporate governance

Responsible corporate management and monitoring aimed at increasing the value of a company.

Corporate social responsibility

Umbrella term for the social dimension of sustainable management and the readiness to take on responsibility in the social sphere. Depending on the size of the company, degree of internationalization and range of products, responsibility can be on a local, regional or global scale.

Denitrification

Process in which special bacteria are used to break down nitrate, releasing nitrogen (N₂) as found in air. By-products of denitrification are laughing gas (N₂O) and nitric oxide (NO).

DIN/ISO 14001

International standard for environmental management systems. Companies formulate their own, internal environmental protection objectives, set up environment programs to attain these objectives and develop an appropriate environmental management system which should cover all environmental protection activities and be documented in an environment manual. Certification is awarded following inspection by independent auditors.

DIN 33922

German standard which prescribes how environmental reports intended for the public are to be presented.

Eco-efficiency

In 1992, the World Business Council of Sustainable Development (WBCSD), of which Bayer is a member, introduced the term “eco-efficiency” as a strategic concept for companies. The term is defined by the WBCSD as follows: “Eco-efficiency is reached by the delivery of competitively priced goods and services that satisfy human needs and bring quality of life, while progressively reducing ecological impacts and resource intensity throughout the life cycle, to a level at least in line with the Earth's estimated carrying capacity.”

Ecology

(Greek: oikos = household, logos = reason)

The science of interactions between organisms and their environment.

Emissions

Solid, liquid and gaseous substances released into the environment as a result of chemical, industrial and even biological processes. Emissions also include noise, heat and radiation.

European Regulation on Eco-Audits (EMAS = Environmental Management and Audit System)

Companies may set up a voluntary environmental management system and issue environmental statements to the public detailing their achievements in the field of environmental protection. The companies are inspected by authorized environment auditors and, if they meet the requirements, are entitled to use the EU Eco-Audit label. Applies only in Europe.

Fair disclosure

Corporate principle according to which all stockholders and important target groups are informed in the same way about the company.

Global Compact

Joint initiative of the United Nations and selected major companies relating to human rights, working conditions and environmental protection in businesses. Bayer was one of the 45 founding companies.

Global Reporting Initiative (GRI)

An international initiative resulting in the drafting of guidelines for the compilation of environmental and sustainable development reports.

HSE

International abbreviation for health, safety and environmental protection.

Kyoto Protocol

In 1997, the parties to the United Nations Framework Convention on Climate Change agreed, among other things, on the reduction of certain gases such as carbon dioxide which are thought to have a negative effect on the Earth's climate.

MAQ

Yardstick for recording the frequency of occupational accidents: The number of injuries leading to at least one day of absence for every million working hours performed.

NGO

Abbreviation for non-governmental organization.

Nitrification

Process in which ammonia is oxidized with special bacteria known as "nitrificants" to form nitrate.

Petajoule

Unit of work, energy and heat (1 joule = 1 Watt x seconds = 0.2239 calories; 1 petajoule = 10^{15} joules).

Resource productivity

Efficiency of use of raw materials and energy.

Responsible Care

Global initiative launched in Canada in 1985 by the chemical industry to promote continuous improvements in health, safety and environmental protection. Bayer committed itself to this initiative in 1994 together with the Association of the German Chemical Industry (VCI).

Stakeholders

The stakeholder principle entails the consideration of a company within its full social context and the attempt to harmonize the various claims of the different interest groups. In addition to stockholders, the main stakeholders are staff, customers and the state.

Sustainable development

According to the definition of the World Commission on Environment and Development (WCED), "sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (Brundtland Commission Report 1987).

Toxicity

The poisonousness of a substance.

UNEP

Abbreviation for the United Nations Environment Programme.

USQ

Yardstick for recording the severity of accidents which reflects the number of work days lost for every million working hours performed.

VIC/VOC

Abbreviation for volatile inorganic compounds/volatile organic compounds.

The sum of volatile inorganic/organic compounds in the air, determined by a standardized procedure.

WBCSD

Abbreviation for the World Business Council for Sustainable Development.

Visions of the future

In our 2001 Sustainable Development Report experts such as Kofi Annan, Secretary-General of the United Nations and winner of the Nobel peace prize, Weera Sakultab, Director-General of the Department of Environmental Quality Promotion in Thailand, and Prof. Ernst Ulrich von Weizsäcker, Founding President of the renowned Wuppertal Institute for Climate, Environment and Energy, outlined their visions for sustainable development.



Mellina Albuquerque Nascimento, Brazil, aged 10

In the 2004 issue we present the visions of some of the people who are most affected by sustainable development because it directly affects their future: children and young people around the world.



Julia Dobler, Germany, aged 5

As “experts on the future,” we asked them to show us their visions of tomorrow’s world. This report shows what we consider to be the best of the hundreds of pictures we received. They should be an additional incentive for us to help create a livable and lovable world for them and all subsequent generations.

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