

Sustainable development objectives

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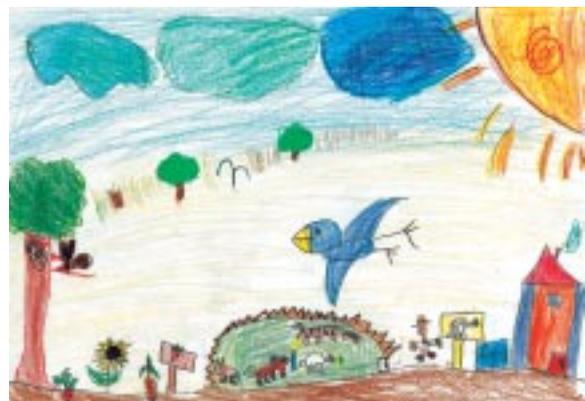
For many years already, Bayer has set itself objectives against which it allows itself to be measured. In the 2001 Sustainable Development Report we documented the objectives, that we had set in all areas of the company. In the following pages you will read whether we have achieved the targets we set 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>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>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>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>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>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>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>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>This goal was achieved when the second nitrification/denitrification stage came on stream in 2002.</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>Since 2000, emissions have fallen to 279 t/a, a considerable decrease.</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>
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<h2>New objectives for 2003/2004</h2>	<h2>Activities</h2>
<p>Improve product safety in regard to environmental aspects</p>	<p>Investigate and monitor the environmental impact of our retail products.</p>
<p>Increase drug safety</p>	<p>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.</p>
<p>Strengthen consciousness for prevention</p>	<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.
<p>Strengthen the control mechanisms for drug safety</p>	<p>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.</p>
<p>Development of a new drug to treat malaria</p>	<p>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

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.

Development of the method has been successfully concluded.

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)

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.

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 hydroxypropylmethylcelluloses (HPMC) as formulation aids for foodstuff, cosmetic and pharmaceutical products (Walocel® HM).</p>

Objectives from 2001	Status at end of 2003
<p>Baypure® biodegradable complexing agents</p>	<p>Market introduction has taken place, with further expansion of production in 2003 owing to high demand for Baypure® CX.</p>
<p>Replacement of nitro and polycyclic musk fragrances with macrocyclic musk fragrances</p>	<p>The relevant business is no longer part of the Bayer Group.</p>
<p>Switch from animal to plant-based raw materials for flavorings</p>	<p>The relevant business is no longer part of the Bayer Group.</p>
<p>Recycling of refractory metals</p>	<p>Recycling rate over period 2001–2003 over 50 percent (relative to raw material use).</p>
<p>Felt-free treatment of wool</p>	<p>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.</p>
<p>Waterproofing of leather</p>	<p>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.</p>
<p>Enzyme-based textile processing chemicals</p>	<p>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>
<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

Intensification of technical vehicle controls

Intensification of dialog

Integration of Responsible Care in training and further education

Activities

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.

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.

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:

- 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

Individual responsibility linked to handling of resources – resource management

Reduction in work-related accidents

Introduction of an HSEQ management system for BTS

Activities

Strengthening of sense of responsibility in handling resources, energy and BTS property to reduce consumption and avoid waste.

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.

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 Profiteam, 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.

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

Stakeholders are defined as parties that have direct or indirect contact with a company in a societal context. They include stockholders, employees, customers and governments. The company attempts to consider and harmonize the various interests and requirements of its stakeholders.

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.