

04 Environmental protection across the Group

Briggs Hamilton as the environmental manager at the BMW plant Spartanburg, South Carolina in the U.S. promotes environmentally friendly manufacturing. Here is just one example: Since 2006, the "Landfill Project" has been helping the plant cover a major share of its energy requirements with methane gas from a nearby landfill.



The BMW Group strives to increase production on a continuous basis while consuming ever fewer resources in the production process. To achieve this, the BMW Group has been using certified environmental management systems since 1996 to coordinate and optimise environmental protection issues, which also positively impacts resource consumption. By anticipating and integrating environmental protection ideas into all business processes, the BMW Group has realised added value both ecologically and economically.

This commitment is based on the International Declaration on Cleaner Production from the United Nations' Environmental Programme of 2001. The BMW Group signed this declaration and has hereby obligated itself to make preventative environmental protection the model for its own production processes. The 1993 environmental guidelines adopted by the group are based on the Charter for Sustainable Development of the International Chamber of Commerce.

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bmwgroup.com/responsibility

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unep.fr/pc/cp/declaration/trnslatn.htm

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“The BMW Group, through their continuing commitment to sustainable environmental practices, has proven to be a corporate environmental leader in South Carolina.”

Bob King, Deputy Commissioner for Environmental Quality Control, South Carolina Department of Health and Environmental Control

Company environmental protection at the BMW Group began many years ago. In 1973, the first environmental manager went to work; at the time this was a unique position in the industry. With certification of all its own production plants according to ISO 14001 by 1999, the company has systematised its environmental protection efforts globally. In the course of the product and market initiative, new production sites, such as those in Thailand and China were also integrated into the environmental management. Across the globe, the clean production philosophy is in place, whereby the production processes at the BMW Group are to be designed such that they have as little impact on the environment as possible. The BMW Group's efficient resource management reduces its emissions e.g., CO₂ or solvents, avoids or

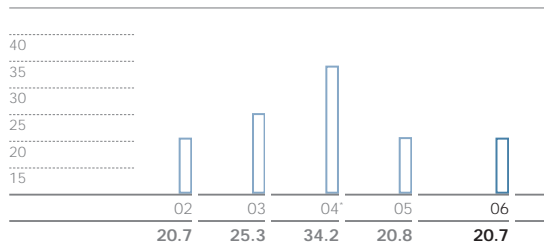
individual plants as well as specialists from the central environmental protection department. The expertise centres develop reference systems for their respective subject areas, analyse successes and challenges at individual sites, and examine what can be gleaned from these experiences and applied to other sites within the company's global production network.

In addition, the BMW Group has increased its efforts to set the course in the early stage of a project for greater resource efficiency and improved environmental protection. The sooner these steps are taken here, the greater the leverage in favour of resources and the environment, in many cases. For this reason, the environmental protection experts at the BMW Group today are already involved in the preparation stage for decisions concerning investment and projects. In this manner, the BMW Group achieves an effect similar to compounded interest. The more effectively resources are protected and the earlier any negative environmental impact is avoided, the greater the advantage is at the end of the day for the environment and the company.

At the same time, the group also ensures that the environmental performance evaluation is optimised at its suppliers and transportation service providers. Thus, the transportation logistics are also included in the environmental protection measures. Beyond the confines of its own plants, the BMW Group obligates its suppliers and service providers to comply with social standards as well as verifiable, systematic environmental protection. **▶ Page 92 et seqq.**

Investment in environmental protection

in euro million



Information excludes major investments for production sites of BMW AG in Germany.
*The rise in 2004 resulted from the overall and environmental protection investments in the construction of the BMW plant Leipzig, Germany.

recycles waste, reduces wastewater and uses energy efficiently. This way, the company was able to make great strides in the past years.

To improve upon current environmental protection measures, the BMW Group is blazing new trails far beyond company environmental management. One extremely successful approach entails learning from and sharing experiences made at the production sites. The BMW Group institutionalised Best Practice Sharing across the group with expertise centres on topics such as water, waste, energy and emissions, and including environmental experts from the

04.1 Environmental protection management

Environmental management systems set standards. From 1996 to 1999, the BMW Group has certified its plants in accordance with the international environmental management standard ISO 14001. This was followed by certifications of the central area of the production department in 2002, for the assembly plant in Thailand in 2004, and in 2006 for the Joint Venture started only two years before in China. The new BMW assembly plant in India, which was opened in March 2007, is slated for certification according to the ISO 14001 standard by 2008. All plants are audited externally in accordance with this standard every three years in the course of the matrix certification. In addition, the sites in Germany and Austria voluntarily submit to an annual inspection in accordance with the "Eco Management and Audit Scheme" (EMAS II), which is a European standard that exceeds the ISO standard. Since 2006, the operation of the Research and Innovation Centre (FIZ) in Munich is also validated according to EMAS II.

Number of deviations within the environmental management system detected during external audits:

0

Aside from these external audits, numerous internal inspections are carried out on a regular basis. Once a year, the internal system audit checks the functional capability of the entire environmental management system. The potential for improvement detected by the internal and external audits is recorded and taken care of systematically with an intranet tool. Focus areas for individual plants in the BMW Group are hereby identified and the measures required for this are developed accordingly.

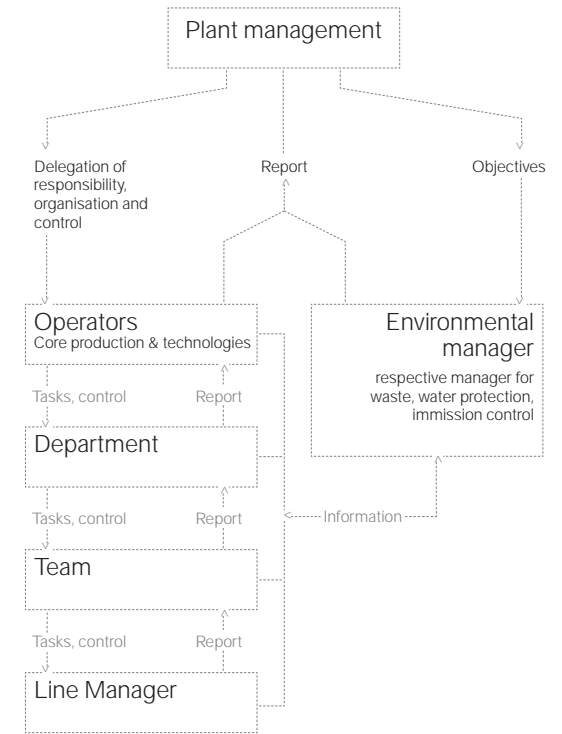
Company environmental protection in the BMW Group functions in cooperation with the central environmental protection department under the direction of the group agent for environmental protection and those responsible for environmental protection at sites worldwide. Employees at the central office attend to partial strategies for environmental protection and comprehensive tasks. Furthermore, each plant has for environmental protection issues its own officer or team who is also responsible for the application and further development of the environmental management system on site.

Using certified environmental management systems, the BMW Group today controls in its global production network all factors that impact the environment and resource consumption significantly. Thus environmental effects are uniformly monitored, managed and systematically reduced across the globe. In this manner, the company is attaining continual, systematic and above all noticeable improvement in environmental protection.

Guidelines and indicators for integrated environmental protection. Beyond the relevant legal requirements, additional internal requirements derived from the company's environmental guidelines also apply to the environmental management system at the BMW Group. Employees, whose work impacts the environmental efforts of the BMW Group, are educated on a regular basis about the environmental management system and environmental topics. These training courses were further developed in 2006 specifically for target groups including executives, operators and planners.

To attain the objective of constantly improving the accomplishments in environmental protection, each year the experts responsible in each plant of the

Environmental management organisation at the production sites



BMW Group develop their respective environmental protection programme. The environmental indicator is used to check if the accomplishments in environmental protection are being improved at the sites. As a result, the water and energy consumption, the quantity of wastewater produced, emissions from volatile organic compounds (VOC), CO₂ emissions as well as the quantity of waste for each unit produced are determined in each plant each month. The monthly values are aggregated to one annual value and compared to the average of the prior year. In this manner, it is possible to determine whether or not the effects of production on the environment have changed in the six individual categories. For a comprehensive survey across the group, an average value is calculated from the individual values and compared with the value of the prior year. **i** > Page 92 et seq.

Deciding with foresight. Learning from the best.

Systematising environmental protection by using certified management systems is just one step – albeit a fundamental one – on the way to continually improving achievements in environmental protection across the entire production network. However, this is not enough for the BMW Group. It goes one step further when managing resources and protecting the environment.

In this way, ecological aspects are taken into account even in the early stages of investment decisions. Moreover, the idea of Best Practice Sharing is developed further and above all institutionalised. One thing is certain – not all sites in the BMW Group can always have the same level of success when it comes to factors regarding environmental protection. New environmental technologies and processes are often implemented in the course of a pending plant remodelling in a manner that conserves resources. In this way, the production network of the BMW Group continually generates best practices, from which the other sites can profit and learn. In the expertise centres for water, energy or waste within the environmental protection organisation, the respective experts systematise and analyse the best examples from the individual plants and attempt to apply them as much as possible to the entire production network.

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Achievements.

- Certification of the Joint Venture BMW Brilliance Automotive Ltd. in 2006 according to ISO 14001.
- Investment of euro 20.7 million in company environmental protection in 2006.
- Certification of the high level of quality and environmental protection at the BMW Group by auditors from the TÜV Group (German Technical Inspectorate) at various audits in 2006. Some processes were highlighted as exemplary.

Challenges.

- Actively integrate suppliers and sub-suppliers into the environmental protection network.
- Further involve the dealerships of the BMW Group globally with the environmental protection measures of the group.
- Certify assembly plants in Kaliningrad (Russia) and Chennai (India) according to ISO 14001 (planned by 2008).

04.2 Energy consumption and emissions

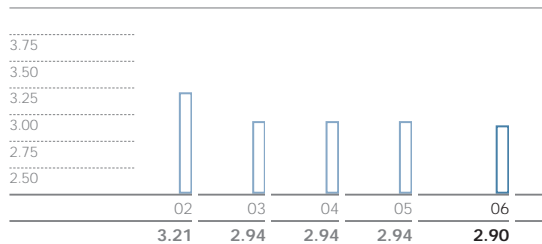
Awards.

- The U.S. Environmental Protection Agency (EPA) distinguished the BMW plant Spartanburg as “Energy Partner of the Year 2007” for obtaining its energy supply of methane gas from the local landfill.
- Bavarian energy prize 2006 for the public works in Munich, Germany and the BMW Group for the ground water cooling system project in the BMW Group Research and Innovation Centre.

Emissions reduction using improved energy efficiency is a high priority for the BMW Group. In this area, the company has already achieved much success. The energy consumed per unit produced now is 2.90 MWh, which is 26 % lower than ten years ago. This can be traced to numerous energy-saving measures in the entire production network. Nearly every plant in the BMW Group has an energy research group developing energy-saving options for their respective site.

Innovative measures for low energy consumption. The latest approach of significantly reducing the energy consumed below the level already achieved is the project “Energy management and strategy” started in 2006. The objectives are to

Energy consumed per unit produced
in MWh/unit



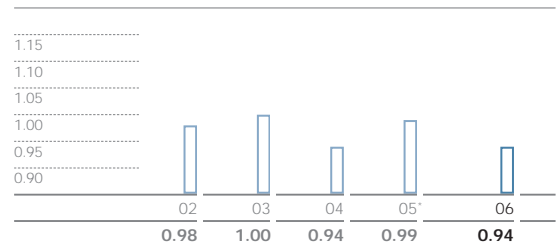
reduce the amount of energy consumed, to create more exact energy requirements forecasts, to use alternative energy reasonably and to reduce the pollutants output. By the end of the project in 2013, these objectives are to be attained by holding employee action days at various sites, through concepts for energy-saving buildings and increased use of combined heat and power generation.

Energy and heat are generated using combined heat and power generation facilities, which have a significantly higher level of efficiency (80 %) than conventional power generation (approx. 35 %). This method is in place at the plants at Dingolfing, Landshut, Regensburg, Steyr, Oxford, Spartanburg, and in the Munich Research and Innovation Centre

Every kilowatt hour that the BMW Group saves through intelligent process planning and more effective technologies means fewer emissions and better protection of resources and climate. Since purchasing energy and capturing emissions are also tied to considerable costs, it is also possible to attain a measurable economic gain for the BMW Group by saving energy.

(FIZ). At the FIZ, the ground water cooling system is also used for an environmentally friendly climate control. A ground water cooling system involves using groundwater near the surface to cool parts of buildings, thereby saving 8,000 MWh of electricity and 5,000 tons of CO₂ each year. The BMW plant Spartanburg covers 63 % of its energy requirements using the methane gas from a local landfill. The previously unused methane gas from the landfill is now used as an energy supply, thereby reducing the need for natural gas. Overall, about 59,000 tons of CO₂ can be avoided each year in the Spartanburg area as of 2007. Thereby 53,593 tons of CO₂ were saved in 2006. Using rotating air-to-air heat exchangers in the ventilating systems, the BMW Group is able to reclaim heat in the European plants from the exhaust

CO₂ emissions per unit produced
in t/unit



* The increase is due to a change in the energy mix.

air, which is another free source of energy, thus saving up to 70 % of the energy requirements for heating. In December 2006, in the recently built BMW Welt in Munich, Germany, the second solar energy facility of the BMW Group (after a smaller facility at the Leipzig plant) was started up. It covers an area of 6,100 m² and produces up to 824 kW.

Also when using its IT technologies, the BMW Group has an eye on energy efficiency, thus lowering CO₂ emissions. For example, the company uses the latest Intel processors, is reducing the number of servers and is asking employees to switch off computers when not in use. The results translate into savings about 50,000 MWh power annually and the trend is moving upwards.

Achievements.

- Construction and commissioning of new combined heat and power generation facilities in the Landshut and Steyr plants in 2006.
- Successful participation of the BMW Group's European sites in the European emissions trading system. In 2006, the company also did not exhaust all emissions allowances.
- Savings of 53,593 tons CO₂ in the BMW plant Spartanburg by using methane gas from a local landfill in 2006.

Challenges.

- Continue to reduce direct and indirect CO₂ emissions per vehicle produced.
- Reduce by about 5 % the energy consumed per vehicle produced in 2008.

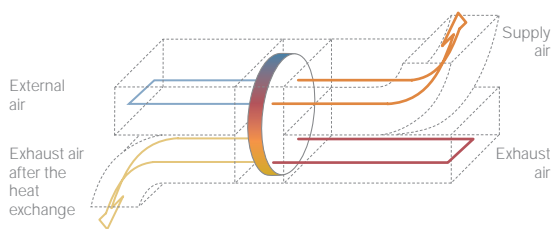
Solvent emissions and chemical consumption radically reduced.

The BMW Group's focus at all sites is on water-based paints with low-solvent content. Furthermore, the powder-based paint technology is used for the last coat of paint in the BMW plants Regensburg, Dingolfing and Leipzig. This does not require any water or solvents, and it utilises almost all of the material used with close to no residue. The conventional clear-paint technologies also saw significant improvements. The BMW plant Munich, for example, is 25 % below the legally prescribed limits for solvents (VOC). Also the integrated painting process – this process omits one of the four coats of paint – introduced in May 2006 at the MINI plant Oxford, reduces the use of solvents. Overall, the BMW Group reduced its solvent emissions

paint. This will reduce the solvents in the exhaust air by 85 %. The objectives are similarly ambitious in the foundry at Landshut. Since autumn 2006, the synthetic resin binders for producing the grit required for the founding process have been replaced one after another by near odourless and low-emissions mineral binders. This will pave the way for a first-ever odourless foundry. The BMW Group is currently the only automobile manufacturer in the world using this technology, which reduces the percentage of organic components in the exhaust air by 98 %, for highly complex engine components such as crankcases and cylinder heads. Thanks to this technology, it is very likely that the elaborate exhaust air cleaning equipment can be switched off completely in the long term. **i > Page 94 et seq.**

Heat recovery

Heat recovery from exhaust air reduces energy requirements by up to 70 %.



in the last ten years by more than half of 2.04 kg per unit produced in 2006.

The BMW plant Landshut, Germany, where plastic components are produced, was faced with a special challenge for the painting technology. To date, there was no standard-compliant technology of applying environmentally friendly water-based clear paints to plastic components. For about five years, the specialists at Landshut concentrated on finding a way to use water-based clear paint also in the plastics paint shop. In cooperation with the paint industry, this demanding project was successfully completed at the end of 2006. By autumn 2007, the final surface paint using solvent base will be switched to a water-based clear paint after the primer and base coat

04.3 Protecting resources and nature conservation

Achievements.

- Start of production with no wastewater generated in the plant at Steyr at the start of 2007.
- Reduction of process wastewater from 0.76 m³ in 2005 to 0.67 m³ in 2006 for each vehicle produced.
- Increase of recycling quota to 79.3 % for the waste generated in the German plants in 2006. Taking into account the steel scrap generated in the pressing plants, increase of the waste recycling quota of the German plants to almost 95 %.

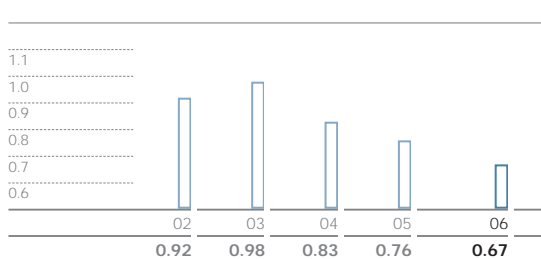
Challenges.

- Introduce the waste information system (ABIS) also at the plants in Goodwood, Thailand and India by 2008.
- Implement the idea of production with no wastewater generated at other sites.

To manufacture an automobile, water is required for numerous processes such as painting, mechanical production or cooling. As a rule, the BMW Group only uses as much ground water as can be reproduced naturally. Conversely, wastewater from BMW Group plants may only be output after a defined pre-treatment and only in amounts that do not overtax natural decomposition. According to the water guidelines that apply across the group, the natural water cycle may only be impacted to the least extent possible. The water management strategy focuses on a sustainable water supply, the careful use of materials hazardous to water, as well as groundwater protection.

Sustainable handling of water. Wherever possible, the BMW Group uses the nearest water source

Process wastewater* per unit produced
in m³/unit



* The indicators for process wastewater refer to the wastewater generated in the production process.

of all, namely its own wastewater. By utilising closed water cycles, the process water is reused during the production. In the plants, for example, analytical monitoring and exact chemical apportioning is used to increase the time of exposure and to avoid premature exchange of water. Water is recycled in the paint shop, in the vehicle washing-bay or for the leak test of finished vehicles.

In the BMW plant Steyr, all production wastewater is reused as of the beginning of 2007. Thanks to a novel combination of various membrane techniques,

It is the very stuff of life. However, it is an increasingly rare resource. 40 % of the world's population lives in countries where water is in short supply. For this reason, the water supplies of the earth will have to be handled more carefully than ever in future. The BMW Group is applying this basic principle systematically with its strategy for water management.

all production wastewater is conditioned here and fed back into the production process. This saves the plant about 30 million litres of water a year – almost as much as a town with a population of 750. Additional fresh water is only used to compensate for losses, such as due to evaporation.

In turn, as little fresh water as possible is taken from the drinking water network. For the water supply, checks are carried out to see whether the requirements can be covered by groundwater or surface water. To keep an eye on the impact for the groundwater system, the plants in Berlin, Leipzig and Munich use a digital groundwater model. Each year, the BMW Group reduces the amount of water used in the production process. For each new vehicle, the



For many years now, the BMW Group has already been separating the waste generated in the plants according to the type of material and then has this recycled or disposed of.

process wastewater has fallen by more than 25 % since 2002.

Consistently avoiding waste. The “less is more” philosophy is applied at the BMW Group when handling waste from production and administration. The highest priority is reducing waste by preventing it. If that is not possible, then the material recycling option is checked before alternatives such as energy recovery are considered. If this is also not possible, waste must be disposed of as per the legal requirements; this is the least desirable choice, ecologically speaking.

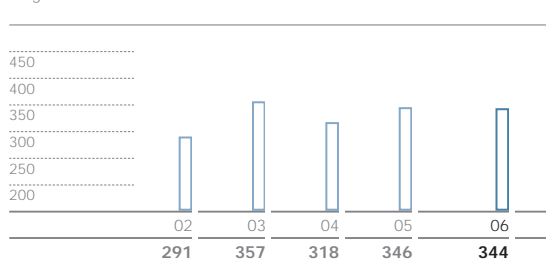
To avoid creating waste, you first have to know when, where and what kinds of waste are generated in which amounts. The BMW Group obtains this information using its electronically supported waste information system (ABIS), which systematically documents all waste streams in most plants as of 1997. Today, ABIS is used in all but three of the 23 plants worldwide – Goodwood (Great Britain), Rayong (Thailand) und Chennai (India) will follow at the start of 2008.

For decades, the BMW Group has had waste separated everywhere according to the type of material at the point of origin. Via the plants' own disposal centres, these are then transferred to external service providers for recycling or disposal. Since 1997, all

Number of indigenous trees that have been planted on the grounds at the plant in Leipzig:

2,200

Waste per unit produced
in kg/unit



disposal routes and waste management enterprises have been systematically audited by the environmental department.

At all sites of the BMW Group, reusable packaging is generally preferred over disposable packaging, provided it makes sense economically and ecologically. Today, most of the material flow in the production network is dealt with using reusable plastic containers. This reusable packaging is in circulation at almost all suppliers. This way it was possible in the last few years to reduce considerably the percentage of packaging material that is disposable. | > Page 96 et seq.

>> Nature conservation. The BMW Group attempts to maintain the natural state and biodiversity around their sites as much as possible. Sometimes, it is even possible to increase biodiversity, for example by converting lawns into natural meadows, planting indigenous trees and shrubs, and planting vegetation on roofs. In order to be able to quantify the consequences for flora and fauna, the area is evaluated with the so called "ecological preservation of evidence" at the BMW Group prior to any construction or change of use. From this appraisal, the company derives protective or compensatory measures, if required. Also, the preservation of evidence is repeated at regular intervals to register changes in the biodiversity and to be able to react to them.

A current example of this systematic observation and evaluation of biodiversity is the BMW Group's testing centre at Miramas in the south of France. The area covering 475 hectares is located in the Crau, a landscape of prime ecological value. As early as 2002, subareas of the testing grounds were mapped and evaluated by experts. Before construction and expansion work was begun in 2006, the biologists returned. Their report certified that the BMW Group has been a responsible steward of the land, which is still valuable ecologically despite the industrial usage. In future, an improved land use management in the Crau should help protect rare and endangered native species such as the Crau Grasshopper, the Little Bustard and the Ocellated Lizard. Developments and extensions to the track will be relocated with priority to sections of the testing grounds that are less valuable ecologically. An Enduro testing ground was laid out such that valuable land was protected and the major portion of the track runs through an area that is less important from the perspective of protecting endangered species and nature conservation.

04.4 Efficient transportation logistics

As a company that operates across the world with a global production network, the BMW Group naturally moves large quantities of materials and products. To keep the transportation-related environmental stress to a minimum, all commodity flows are constantly being analysed and optimised from procurement to delivery. Here, intelligent transportation logistics extract the most from transportation services with a minimum of environmental stress.

Minimise the environmental impact of logistics.

All transportation flows of the BMW Group are planned and controlled by the employees of the logistics planning and transportation logistics. They organise the supply of the production sites with materials and components, the delivery of spare parts and accessories to the sales operations, and the distribution of the new vehicles. That corresponds overall to a transportation capacity of about 13.7 billion ton-kilometres per year. The logistics strategy of the BMW Group results in exactly defined environmental objectives as well as process descriptions for the operative implementation in planning and purchasing. All relevant indicators and compliance with the annual objectives can be tracked exactly using the reporting on sustainability in logistics.

BMW plant Spartanburg, activity-related billing was introduced in July 2007 for the U. S. market for the first time. In future, transport agents will be only remunerated for the volume transported, thus they automatically have an incentive to plan the transportation services efficiently. In South Africa, transportation trials with module systems, which enable better container utilisation, were carried out over several months. The switch to this module system for high cube containers will be carried out in three steps by the end of 2007 and will lead to measurable savings in packaging, fuel consumption and transports.

Using transport that is ecologically advantageous. For the transports, the BMW Group prefers that means of transportation with the lowest emis-

Percentage of the BMW Group's vehicles that left the plant in 2006 via rail:

55.4%



About 77% of the production material, the spare parts and the finished vehicles of the BMW Group were transported by sea in 2006.

Here, it is evident that the BMW Group links more transportation capacity with continually less ecological impact. This reduction is made possible by numerous individual coordinated measures. One important measure is minimising the material transports, which for example is implemented in the European plants by a new transportation concept: Instead of the conventional plant supply according to regionally defined service provider responsibilities, transportation orders are now placed with service providers bundled according to volume. This increases the utilisation of the lorries, lowers transportation costs, and decreases empty drives. In the

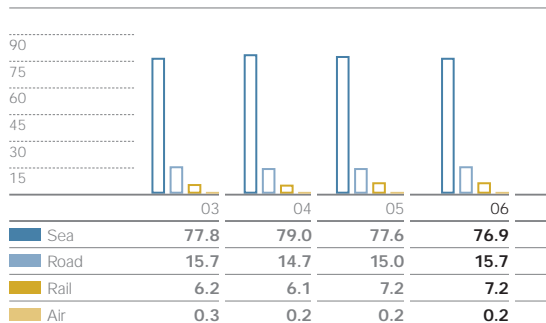


Almost all plants of the BMW Group are linked to the rail network. More than half of the new vehicles leave the BMW Group's plants via train.

sions. Accordingly, the shipping of goods via air freight is avoided as much as possible. Road traffic is eased by choosing ports near the plants as the point of origin for ocean transports. For the vehicle transportation from the plants to the ports and sales operations, the BMW Group prefers to use railways. In 2006, 55.4% of the BMW and MINI brand cars left their place of manufacture via rail. The year before, it was 54.1%. In individual plants, this number even reaches 90%, such as in Graz. In the BMW plant Dingolfing, it is 69%; in the BMW plant Rosslyn in South Africa, 70% of the vehicles leaving the plant via rail.

Avoiding transport packaging. Up to now, vehicles were protected from the elements and transit-related damage during transport by adhesive film, protective covers or wax. After an environmental performance evaluation concluded that a closed transport or an open transport with subsequent cleaning of the vehicles is much more environmentally friendly, the BMW Group is in the process of successively phasing out its surface protection for automobiles. In 2006, 53.4 % of the vehicles from the BMW Group were delivered without surface protection; in the year before, it was 42.5 %. Since the start of the project in 2004, this has dramatically reduced the use of solvents and chemicals. Furthermore, about 5,000 tons of CO₂ emissions were prevented. These result during the manufacture, application, de-waxing and

Percentage of transport used
in %



Inbound material (Germany, UK), spare parts shipping (Europe) and car distribution (global), measured in ton-kilometres.

recovery of the surface protection. A vehicle delivery without surface protection with subsequent cleaning results in 80 % fewer CO₂ emissions.

A similar study, led to new, environmentally safe packaging for shipping motorcycles at the site in Berlin; this consists of corrugated cardboard (instead of plywood) or sturdy steel. The latter solution is reusable and lasts for up to eight years while conserving the company's resources and the environment at the same time. **i > Page 98**

Achievements.

- Since the beginning of 2007, deliveries to the markets in the UK and Spain made by the BMW plant Leipzig are mainly via rail.
- Start of the new transportation concept for the material supply in Europe in 2006. This increases efficiency in the utilisation of trucks. Furthermore, contractual obligations for service providers to use only lorries according to the latest European emission standard.
- Decrease of 3.5 % in 2005 to 2.6 % in 2006 of the especially CO₂ intensive air freight percentage for material shipments from Europe to the overseas plants.

Challenges.

- Further increase the currently high percentage of 55.4 % for shipments made by rail when shipping vehicles from the plants.
- Influence the respective product and process design early on in order to optimise packaging and transport volume.

04.5 Sustainability in the supply chain

Company environmental protection can only be “holistic” if it really covers all the links in a production chain. For this reason, the BMW Group aims to establish high environmental standards also with its approx. 3,000 suppliers and service providers.

High standards for suppliers and partners. As of spring 2003, the domestic and international purchasing conditions of the BMW Group contain exact guidelines on environmental responsibility. They obligate suppliers to design the related components as per the state-of-the-art technology so that emissions are reduced during the production, usage and recycling stages. When manufacturing each component, energy and raw materials are to be used efficiently. For this reason, each partner is urged to draw up a certified environmental management system according to the established standards ISO 14001 or EMAS II. Alternatively, smaller suppliers may furnish proof of individual management systems and that they have systematised environmental protection in their production.



About 3,000 suppliers and service providers work with and for the BMW Group in accordance with high social and ecological standards.

Aside from environmental responsibility, the BMW Group also requires from its suppliers and service providers that they assume social responsibility. For this reason, the purchasing conditions also include the prohibition of child labour and forced labour, discrimination and bribery as well as the implementation of a suitable management system for occupational health and safety. Here, the BMW Group is guided by the globally recognised standards of the International Labour Organisation (ILO) and the principles of the Global Compact.

The purchasing conditions are binding for all existing and new suppliers to the BMW Group. The selection of the suppliers is tasked to a multi-disciplinary

team, which is located in the Munich central office. Experts from the purchasing, logistic, development and quality management areas evaluate the concepts suggested by the suppliers, in addition to costs and quality aspects, also in view of social and environmental risks. The selection of suppliers also includes an evaluation of the concepts suggested against the backdrop of the protection of resources. Criteria for this include the weight of the components or the resulting mechanical frictional losses with drive components.

Suppliers are selected according to sustainability criteria. New suppliers are tested using a “Questionnaire for supplier selection”, which also asks about the social and ecological performance



To optimise the environmental friendliness of components, the BMW Group is in constant dialogue with its suppliers.

of the supplier. Attendant to the product design process, environmental questions on the planned production process of the new parts are taken into account with risk management for purchased parts in conjunction with existing suppliers. Aside from checking environmental management certificates, the BMW Group requires its suppliers to provide extensive data on resource consumption, the contents used and their risk potential. Using this data, it is possible to create environmental performance evaluations for specific parts and processes, identify any room for improvement, and obligate suppliers to implement an environmentally optimised design and production for new components. **▶ Page 98**

Provided infringements against the criteria agreed upon are detected, then the experts for environmental protection, recycling and purchasing from the BMW Group will first attempt to find together with the suppliers the reasons for these irregularities. Should the supplier fail to implement satisfactory measures, an escalation process is triggered which may lead to the change of suppliers.

In this manner, the BMW Group commits its direct suppliers (first-tier suppliers) to conform to reliable and uniform environmental protection and social standards. At the same time, the BMW Group expects from its suppliers a corresponding examination of those suppliers with whom the BMW Group has no direct business relationship (sub-contractors). When submitting an offer, each new supplier must therefore confirm that sub-contractors are checked regularly for compliance with quality, environmental and social standards and thus can reliably control the risks of its own supply chain.

Especially in the emerging markets, where environmental protection efforts trickle down only slowly to medium and small suppliers, the BMW Group supports its suppliers in establishing environmentally friendly production methods. Since 2000, BMW South Africa has informed its suppliers using a coaching programme on the environmental protection standards in force and the economic advantages which arise from environmentally responsible production. The result: The percentage of suppliers with a certified environmental management system increased from about 10 % in 2000 to 93 % at the end of 2006.

To maintain this status at the suppliers, the product and process auditors from BMW South Africa regularly inspect the environmental management systems and facilities of all suppliers of major components. The objective is, in the face of continually new suppliers and expiring certificates, to ensure a constantly high environmental standard at the suppliers.

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Achievements.

- Successful implementation of current requirements from the EU End-of-Life Vehicle Directive by the BMW Group in conjunction with its suppliers in 2006.
- Control and optimisation of the environmental friendliness of the BMW Group's components along the supply chain. For this, there were transmissions and expert evaluations of over 30,000 data sets for serial parts in 2006 alone.

Challenges.

- Increase random inspections of the compliance with social and environmental standards at suppliers in regular visits.
- Develop suitable indicators for early detection of deviations and room for improvement.
- Due to globalised procurement and cost pressure, first-tier suppliers are increasing looking to suppliers from the emerging markets. This requires mechanisms that also secure the sub-contractor management of the BMW Group's suppliers and enable this to be checked.