



Guide to  
environmentally-sound  
large sporting events

# Green Champions

*in Sport and Environment*

## Publishers

German Federal Ministry for the  
Environment, Nature Conservation  
and Nuclear Safety

German Olympic Sports Confederation

## Editorial note

„Green Champions in Sport and Environment“ is published by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety and the German Olympic Sports Confederation. The many examples of good practices that it contains therefore relate to action taken in Germany. They demonstrate that a number of measures have already been implemented at large sporting events and are therefore feasible. Comparable initiatives have also been taken in other countries. The German examples of good practice are merely representative.

Moreover, the recommendations for action put forward in the guide are implementable in every country. They apply – taking into consideration respective local conditions – to a Football World Cup in Germany as well as to a World Cup in South Africa, to Gymnastics World Championships in Stuttgart as well as to World Championships in London, and to a marathon race in Berlin as well as to one in New York.

The guide is aimed, above all, at the organizers of large sporting events. It is also directed, however, at national and international sports associations, since these set the framework through the demands they make on events, through contracts with sponsors and through their competition rules. Organizers can only operate within these limits, and this applies also to the development and implementation of environmental concepts. The guide wishes, in particular, to encourage sports associations to examine how the framework for environmentally favourable large sporting events can be further improved.

In order that there be even more green champions in sport and environment in the future, national and international sports associations should also link the awarding of events to ecological demands. This guide offers sports associations practical support and a great deal of advice on the laying down of ecological standards for event organizers and host cities.

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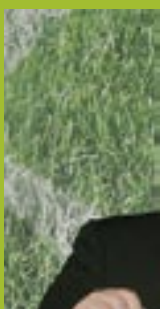
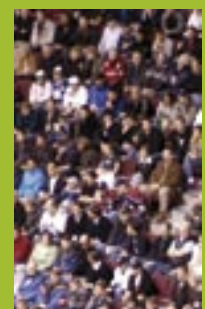
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German Federal Minister  
for the Environment,  
Nature Conservation  
and Nuclear Safety  
**Sigmar Gabriel**



## Foreword

Large sporting events each year attract millions of spectators. 154 such events took place in Germany in the year 2005 with a total of 25.6 million spectators and 530,000 participants. These events are an important economic and image factor for the respective venue, region and, as in the case of the 2006 FIFA World Cup, the host nation as a whole. They are therefore of great importance for trade and industry, organizers and promoters, sports associations and sponsors.

Sporting events are getting bigger and bigger, so that the negative effects associated with them are growing. These also concern the environment. Thoughtlessly discarded rubbish, noise, but also increased emissions of greenhouse gases and air pollutants from journeys undertaken by visitors and participants, the use of land and materials for the construction and modernization of sports facilities and courses, as well as the high consumption of energy and water during the event all have an adverse effect on the environment.

This guide, which has been prepared by Öko-Institut and the German Sport University Cologne on behalf of the German Federal Environment Ministry, is intended to reduce such harmful effects and to provide those responsible for applications for large sporting events and their planning and organization with advice on the organization of environmentally beneficial events. Numerous practical examples offer advice on the development of a custom-made environmental concept for sporting events.

Previous experience shows that measures to protect the environment often lead to a win-win-situation. Through relatively simple measures – such as good heat insulation, for example – savings in energy consumption can be achieved that reduce costs for operators of sports facilities and at the same time benefit the environment.

An environmental concept not only enhances the sporting achievements and cultural integration of a large sporting event, it also ensures its environmental compatibility. The best example of this was the 2006 FIFA World Cup, which, with the help of "Green Goal" – and thus the voluntary involvement of the Organizing Committee as well as host cities, stadiums and World Cup partners – was the first large climate-neutral sporting event.

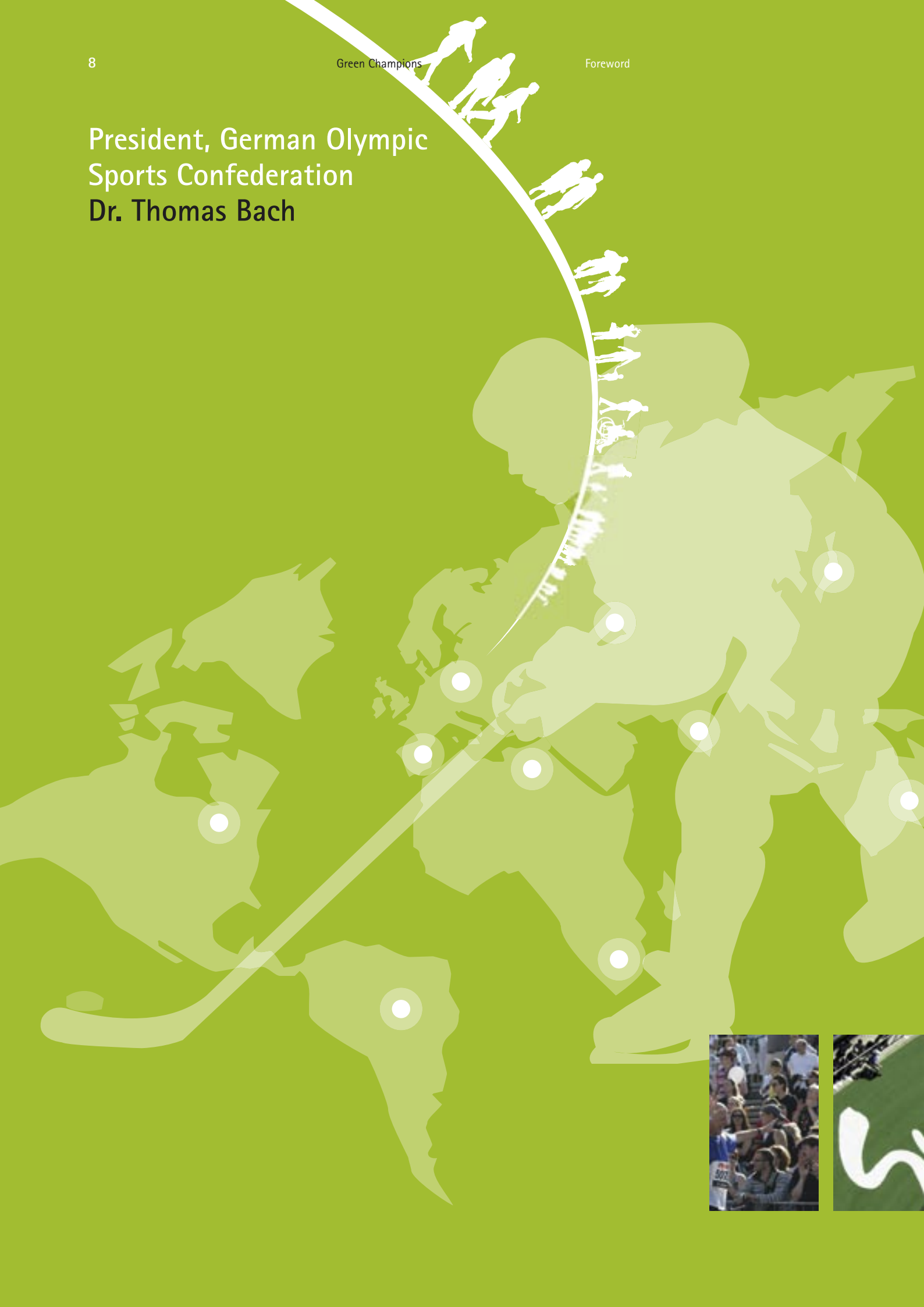


The exemplary and multiplier function that sport and, above all, top sportsmen and -women have for many people should not be underestimated. I therefore very much hope that environmentally-sound large sporting events will also contribute to the sensitization of visitors for everyday ecological issues. In this spirit I wish you great success with your next large sporting event.

*Sigmar Gabriel  
German Federal Minister for the  
Environment, Nature Conservation  
and Nuclear Safety*



President, German Olympic  
Sports Confederation  
**Dr. Thomas Bach**





# Foreword



German sport has long been a reliable partner for environmental protection and nature conservation. The ecologically compatible organization of large sporting events will increasingly become a matter of course for many event organizers and sponsors, and, especially since the Olympic Games in Sydney, large sporting events will also be judged by their environmental standards. Not without reason were the International Olympic Committee and its president Jacques Rogge awarded the environmental prize "Champions of the Earth 2007" of the United Nations Environment Programme UNEP.

Sustainability is of key importance for the planning and organization of large sporting events. Attention is therefore focused on the subsequent use of sports facilities and, in particular, aspects of environmental

protection. Large sporting events – both professional and mass sports' events – involve land use, refuse, traffic problems and noise as well as increased energy demand.

This guide is intended to support the environmentally compatible planning and organization of large events and contains, for this purpose, numerous practical measures and suggestions. These can help to protect the environment, reduce costs and also set a good example.

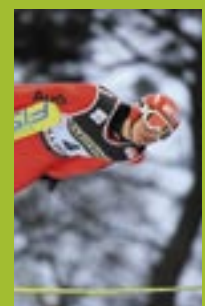
I trust that this guide will be widely read and readily implemented.

A handwritten signature in black ink, which appears to read "Dr. Thomas Bach". The signature is written in a cursive style.

*Dr. Thomas Bach  
President, German Olympic Sports  
Confederation*



# With the environment on the starting line



## With the environment on the starting line

Cologne Marathon, Hockey World Championship, Formula 1, Kieler Woche, Biathlon World Championships, Table Tennis European Championships, Olympic qualifying events: The list of sporting events that inspire millions of fans year after year is long. Each year in Germany alone there are around 150 large sporting events – at one or several venues, one-off and recurring events. They take place in stadiums as well as in sensitive natural areas and attract some 25 to 30 million visitors each year. Many fans seek close contact to the stars of the respective sports; others prefer the bustle and excitement surrounding competitions.

Large sporting events have become an important economic factor for organizers and promoters, sports associations and sponsors. They often have budgets of several million euros at their disposal and generate added value and jobs. Not least, they are a tourist attraction and image factor for the respective region, sports venues and the country as a whole. As a result, the image of sport is changing. The time has passed when the contest or competition was the event; sporting tournaments have increasingly become spectacular events with activities, games, exhibitions and shows surrounding actual sporting competitions.



## Departure point

### When sport leaves its mark

In 2005, 154 large sporting events – excluding *Bundesliga* football games – took place in Germany; that is, events with a daily total of more than 10,000 spectators or 5,000 participants. Large sporting events include all World and European Championships. The largest crowds in 2005 were recorded at marathons (20%) and motor sports and cycling events (18% respectively). These three disciplines attracted more than three-quarters of the total 25.6 million visitors. Sailing, triathlons, ski alpine racing and golf, on the other hand, played a comparatively minor role among sporting events. Sport is omnipresent, taking place indoors, on the road and in the countryside. 45% of all large sporting events in 2005 took place in stadiums, indoor facilities and on motor sport circuits, 33% on the roads and just under 25% in the countryside.

Large sporting events therefore have an inevitable adverse effect on the environment. Sports tournaments have increasingly become huge events, and now often have a greater impact on the environment than in the past. Rubbish simply thrown away, noise, roads jammed with parked cars and large strips cut through forests and meadows are the seamy side of many large events. There are also effects that are not immediately noticeable: increased emissions of greenhouse gases and air pollutants from journeys to and from venues, the use of land and materials for the construction and development of new sports facilities as well as the great demand for energy and water.

### Voluntary action counts

Environmental protection, nature conservation and climate protection at large sporting events are based, as a rule, on the voluntary activities and enhanced direct responsibility of all participants, for many of whom this is the actual incentive. In the past there have been a number of exemplary sporting events, which were specifically planned and conducted in an environmentally compatible way. They included the FIS Nordic World Ski Championships 2005 in Oberstdorf and the FIS Alpine World Ski Championships 2003 in St. Moritz, where the organizers took care to ensure that ski pistes cut through less-sensitive regions. In Oberstdorf, the German Railway provided special trains and shuttle buses during the World Championships to reduce private road traffic. The 2006 FIFA World Cup broke new ground for greater environmental protection in sport. It was the first Football World Cup with a comprehensive environmental and climate protection concept. Thanks to "Green Goal", almost 20% less potable water was consumed, the majority of stadium visitors travelled by public transport and quantities of waste in stadiums were reduced. In addition, greenhouse gases brought about by the World Cup will be compensated in the coming years by means of climate protection projects in developing countries.

### Win-win-situation through environmental protection

Previous experience shows that environmental protection in sport results in real win-win-situations, since both the environment and event organizers benefit from energy savings and waste avoidance. Those who separately collect and recycle waste save resources. Those who use rainwater instead of potable water or who optimize the insulation of buildings reduce the costs of water and energy. This way, relatively simple and inexpensive action can achieve noticeable effects, and this not only in the short term but also over many years.

Environmental protection pays for itself. With increasing oil and gas prices, for example, capital expenditure on efficiency technology and renewable energy pays itself off within a few years. Comprehensive environmental management – for instance in the operation of sports facilities – provides the greatest long-term benefit. Such a management system is based on a network of technical and organizational measures, which are continually developed and optimized.

Pro-active measures in sport also point the way to the future:

- | Large events fulfil an exemplary and multiplier function for smaller events.
- | Large events can be a communications platform for environmental topics and sensitize visitors for ecological matters, also in everyday life.
- | Large events can also improve the image of event organizers, sponsors, sports associations and regions.



# Ecological effects of large sporting events

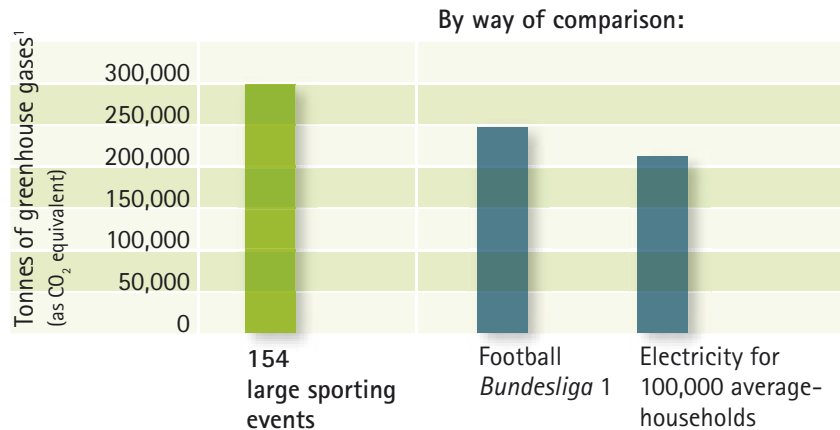
## Climate protection

Greenhouse gases arise not only as a result of the sporting event itself. Emissions from accompanying events are of ever-increasing importance. At the Kieler Woche, for instance, 90% of all visitors come for the festival and not for the sailing regatta. At the World Games in Duisburg the figure was 70%. By far the greatest share (around 95%) of greenhouse gas emissions in 2005 resulted from the transportation of athletes, teams and visitors. A further 3% arose from the production of consumed energy and 2% from construction work required for the event.

Emissions can be reduced through various measures, but they cannot be wholly avoided. Sporting events can, however, have a neutral effect on the climate in so much as unavoidable greenhouse gas emissions from a particular event can be compensated by climate protection elsewhere. This was achieved for the first time with a major sport at the 2006 FIFA World Cup in Germany. Greenhouse gas emissions from the World Cup in Germany will be compensated in the coming years through projects in India and South Africa. Similar projects are planned for future large sporting events, such as the 2012 Olympic Games in London.

The 154 large sporting events in Germany in 2005 brought about around 300,000 tonnes of greenhouse gases, not taking into account the overnight stays of visitors or catering. This is roughly equivalent to the emissions arising in the production of the electricity consumed annually by 140,000 average households.

Comparison of greenhouse gas emissions of large sporting events in 2005 (Source: Öko-Institut/German Sport University Cologne)



<sup>1</sup> Excl. overnight stays and catering.

**Roland Baar**

Bronze medallist at the 1992 Olympic Games and silver medallist at the 1996 Olympic Games in rowing "eights"

*"We should present ourselves at all European and world championships as a country, which is not only very friendly towards visitors, enthusiastic about sports and a perfect organizer, but also as a country that sets an excellent example in environmental protection."*



## Transport

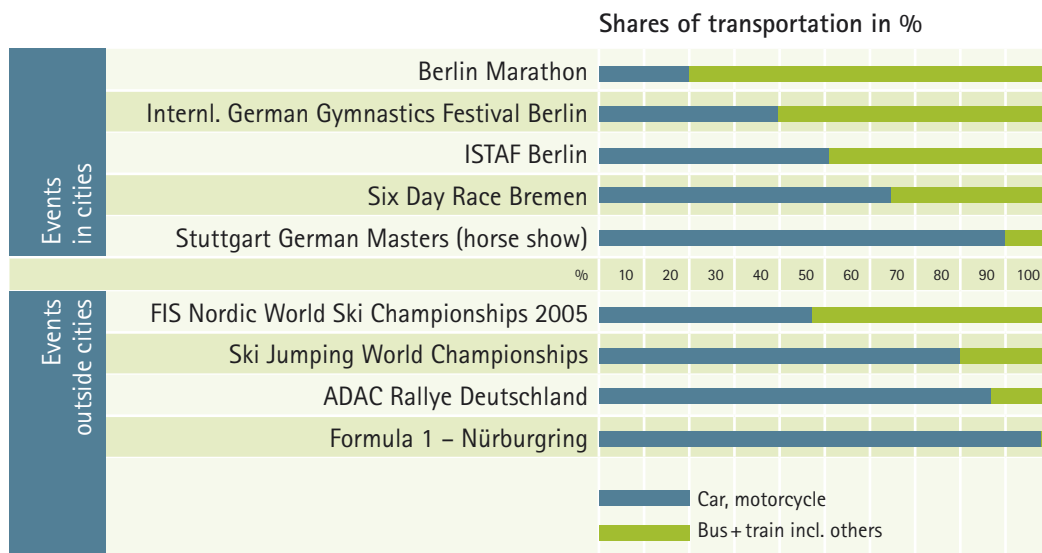
With many large sporting events, journeys made by athletes, teams and visitors to and from venues have a considerable adverse effect on the environment. Transport was responsible for around 90% of the greenhouse gases of all large sporting events in Germany in 2005. Beyond that, air pollutants, traffic noise and roads jammed with parked vehicles are often the cause of nuisance to local residents. There are remedies, however, such as convincing visitors to travel to venues by public transport, on foot or by bicycle, extending bus and rail services, creating "park & ride" facilities and offering attractive special tickets. Organizers have made positive experiences with the so-called "CombiTicket", which, in addition to admission to the event,

also entitles the holder to free use of all local public transport services. This "CombiTicket" encouraged many visitors to the FIFA World Cup in the summer of 2006 to leave their car at home and make use instead of long-distance and local rail services.

**The 25.6 million visitors to large sporting events in 2005 accounted for emissions of around 210,000 tonnes of greenhouse gases; that is, 8.0 kilograms per visitor. Travel on the part of some 500,000 competitors gave rise to total emissions of around 60,000 tonnes, which correspond to about 100 kg per person. This high figure is due, above all, to air travel to and from Germany by international competitors.**

The share of visitors who travelled to venues in 2005 with their own cars varied noticeably from one sport to another: Over 85% of visitors to the Nürburgring or to the ADAC Rallye Deutschland travelled with their own cars or motor bikes; by contrast, only 20% and 40%, respectively, travelled by car or motor bike to the German Gymnastics Festival and the Berlin Marathon. This shows that spectators are not always prepared to respond positively to specific appeals and offers. Event organizers who invest time and money in environmentally compatible transport concepts need to consider two questions: Are visitors at all interested? And does a public transport network exist that is designed, or can be expanded to handle large passenger flows?

Main means of transport for travel to and from sporting venues (Source: Öko-Institut/German Sport University Cologne analyses)



## Ecological effects of large sporting events

### Energy

No sporting event can do without energy and heat. Energy is mainly required for the operation of sports facilities – such as floodlighting in stadiums – and temporary facilities. The degree of economic and efficient use of energy determines, in part, the emissions of a particular event and the resulting costs; it also determines whether the event has made a contribution to climate protection. Electricity and heat should be produced in such a way that adverse effects on the environment are kept to a minimum. The list of possibilities is long. Heat, for example, can be produced with low-energy condensing boilers or biogas. Electricity can be supplied by photovoltaic plants or hydroelectric power plants. Past experiences with large sporting events show that there is a range of savings and efficiency potentials, which can only be exploited, however, when the planning of measures takes place in good time. Investment in an environmentally sound energy supply at a later stage is only possible up to a certain point.

**The overall energy demand of the 154 large sporting events in 2005 amounted to about 16 million kWh, and the demand for heat to just under 8 million kWh. Energy consumption per event worked out, on average, at about 100,000 kWh.**

The energy consumption of large sporting events is largely dependent on the type of sports facility, the discipline and the duration of the event. In stadiums, arenas and in-door facilities electricity and heat are required. In the case of outdoor events the demand for electricity is generally restricted to simple applications, such as lighting, sound systems and data processing. Additional demand for electricity arises for catering. With certain types of sports there is specific energy consumption, including fuel consumption for racing cars in motor sport, electricity for snow cannons for skiing events, heat for heating pitches in football stadiums and electricity for cooling plants at ice-skating rinks.

### Waste

Roads and public areas littered with rubbish, overflowing waste bins as well as discarded food and merchandising products characterize the scene after many large sporting events. Waste is therefore often at the centre of public discussion. Moreover, the topic of waste provides the interface between ecological objectives and the individual spectator, since spectators are responsible for a large proportion of accumulated rubbish. Spectators must therefore always be involved in the planning of appropriate action.

**The 154 large sporting events in 2005 produced a total of approximately 3,000 tonnes of waste. On average, each event had to dispose of some 19 tonnes of waste, or 6 tonnes per day. Waste per capita amounted to around 200 grams.**

The largest quantities of waste arose, as a rule, in the feeding of visitors. A considerable proportion of accumulated rubbish is often accounted for by flyers, give-aways and merchandising products. Wastes also arise in non-public areas (hospitality), for example in kitchens and kiosks, in organizational areas and in media facilities, not least through the provision of temporary facilities such as tents, mobile kitchens and kiosks. A whole range of relevant and proven measures is available to cope with the problem of waste. These include waste separation, returnable beakers and all activities that preclude the occurrence of waste.





### Birgit Fischer

Several times Olympic gold medallist, German Sportswoman of the Year in 2004

*“Skimming across water in a boat offers a very special view of riverside landscapes. Through this quiet form of movement the perception of nature is more intensive, becoming a lasting and refreshing experience of an exceptional kind. To help preserve this opportunity for relaxation I'm involved in various environmental projects and am also patroness of the 'Naturathlon'.*

*The objective of the 'Naturathlon' is to demonstrate how sport can be conducted in a manner compatible with nature. With large sporting events it has to be carefully examined how the impact on nature through the construction of sports facilities and the organization of events can be kept to an absolute minimum. Nature-compatible building materials and the latest energy-saving technology should be used without fail.”*



## Use of materials

The construction of sports venues makes use of all kinds of materials. This applies to the construction or modernization of stadiums, racing circuits and indoor facilities, but in particular to the erection of so-called temporary facilities. Tents, stands and media facilities are erected solely for the event, and are later dismantled. It is therefore all the more important to limit the use of building materials as far as possible. This protects the environment, reduces costs and minimizes waste. Of more importance is the choice of materials. Durable or re-usable building components or structures, which can be easily repaired and require little maintenance, are environmentally sound. Materials should only be used that can be later recycled or disposed of in an environmentally compatible way. Regenerative raw materials, such as wood, recycled building materials (chipboard from recycled wood) and recycled-plastic products have a sound ecobalance.

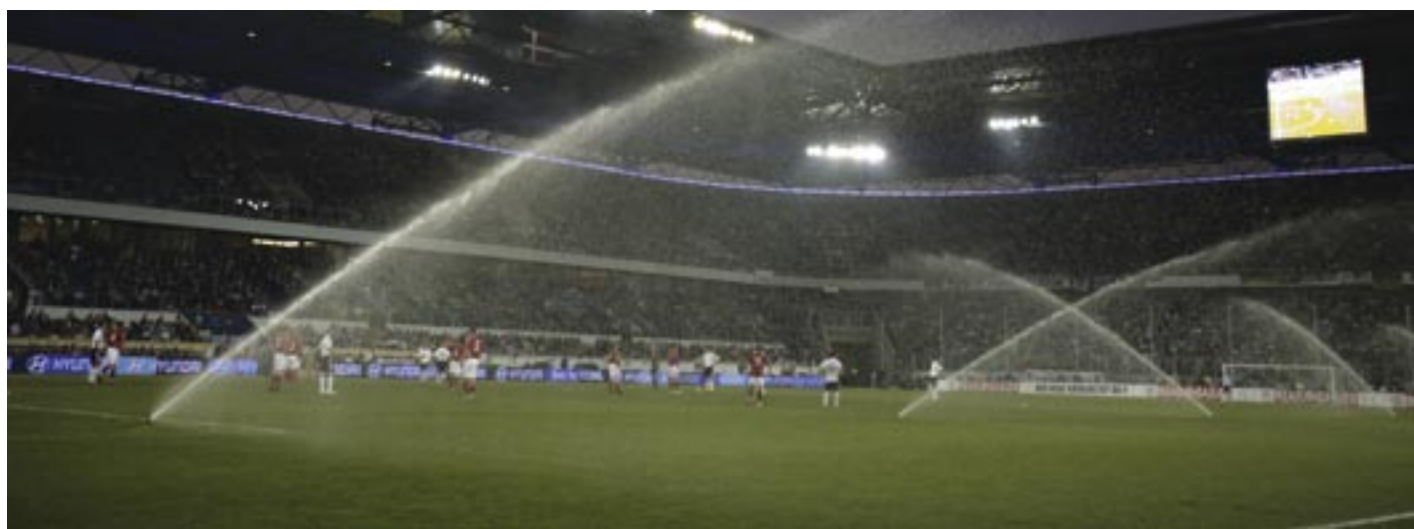
## Water/Wastewater

Water is a valuable resource that is indispensable for sporting events. Responsible treatment of water is therefore an essential component of environmentally compatible sporting events. The reduced use of potable water is an important but not the only aspect. Modern water management also includes the use of rainwater, the infiltration of precipitation and all measures that protect water bodies and groundwater from contamination.

*The 154 large sporting events in 2005 consumed around 90,000 cubic metres of water. A large sporting event consumed, on average, about 580 cubic metres of water, or 190 cubic metres per day. The average per-capita consumption of water of all large sporting events amounted to about 6 litres.*

Valuable potable water can be replaced by rain-, surface and well water; even subsequent capital expenditure – for example, on cisterns – pays for itself within a few years. Water-saving sanitary facilities, such as water-flow regulators or dry urinals, noticeably reduce water consumption. Desealing and infiltration also protect natural water resources.

In most cases, sports facilities and disciplines consume much more water than spectators and athletes (for example, for sprinkling football pitches and golf courses, or for preparing ice-rinks for speed skating or curling). Many winter-sport events require great quantities of water to produce artificial snow.



## Ecological effects of large sporting events

### Nature and landscape

Sport and sporting events can lead to conflicts with the objectives of nature conservation and landscape protection in a number of ways. Sport requires a lot of land, on the one hand for traffic and parking areas, for the media, exhibition sites, side events and accommodation, and on the other hand for competition sites, such as cross-country ski trails, MTB courses and ski jumps. Along the routes and in the area surrounding sports facilities not only is the sport itself a strain on nature but also spectators.

The sealing of land, damage to vegetation and soil, interference with the water balance and the disturbance of protected animals can all lead to conflicts. Legislators have laid down clear specifications in order to keep the impact on nature and landscape to a minimum. The Federal Nature Conservation Act stipulates that avoidable adverse effects on nature and landscape have to be avoided. If they cannot be avoided, those responsible have to make good or compensate such effects.

### Noise

Sport produces noise, and it is not always disturbing. An exciting atmosphere, loud singing or chanting and music are part of the event for most spectators. Local residents, on the other hand, who do not directly participate in the event, often feel inconvenienced. At the same time, noise emissions – for example, from the arrival and departure of spectators – can hardly be avoided. From that point of view a dilemma often exists between those affected by noise and spectators and athletes who subject themselves voluntarily and consciously to noise. Noise impairs not only the quality of life of people affected; in the case of open-air events noise emissions can also have an effect on animals in the wild.

Noise is always experienced subjectively. The nuisance effect varies strongly from person to person, and is very much dependent on non-acoustic factors. With the exception of very loud volumes, as a result of which hearing can be directly impaired, the relation between cause and effect is difficult to prove. Moreover, it is often quite impossible to make a clear distinction between noise from sport and noise from leisure-time activities, as provided for in existing legislation, since large sporting events increasingly resemble huge festivals.



## Catering

Visitors to large sporting events generally buy pizzas, chips, sausages and beer at kiosks, which they eat with their fingers while standing around. At some events, besides the supply of food for visitors the feeding of athletes is also important. 7,500 kilograms of noodles are consumed, for instance, before the start of the Berlin Marathon, and during the race some 36,000 apples and 132,000 bananas are eaten.

The quality, type of production and origin of food products are important for an environmentally-sound sporting event. In order that athletes and spectators eat well, good quality food and meals are important, which are dietically healthy and sensible. Nowadays a wide variety of food is available, whose manufacture has the least possible adverse effect on the environment. This concerns cultivation and cattle breeding, subsequent processing of products and the transportation of food. Fair trade can also make a contribution. Fair means in this connection that producers receive prices for their raw materials and foodstuffs that cover their manufacturing costs.

## Procurement and merchandising

Souvenirs and merchandising products are an established feature of the colourful and atmospheric manifestation of large sporting events; they range from sports shirts, T-shirts, scarves and caps to balls, national flags, cuddly animals, car stickers, key chains, ball-point pens, whistles and all possible types of small toys. The spectator does not generally know how such products are manufactured, whether environmental aspects have been considered, whether child labour was avoided or fair wages paid. It is therefore all the more important that promoters and organizers take care when purchasing such products that international environmental and social standards have been complied with in their manufacture.



# Introduction to the guide



### Roland Gäbler

Three-time World Champion, nine-time European Champion and bronze medallist at the 2000 Olympic Games in tornado-class sailing

*“Experiencing nature and coping with its forces are the most important motive for sailing. Nature-compatible performance of sports and consideration for nature are in the best interests of all yachtsmen. Together with the main German water sports associations and the German League for Nature and Environment (DNR), the German Sailing Federation drew up in 1980 ‘10 golden rules for the behaviour of water sportsmen and -women in the natural environment’, which are still an integral part of all sailing training.”*



Why a guide for environmentally compatible sporting events? There are several reasons. To begin with, the environment and sport are two worlds that are often in conflict, namely when events cause too much noise and traffic, make use of valuable countryside or give rise to high levels of emissions. Solutions to these problems are available, and this guide wants to put them across. Secondly, the range of technical and organizational measures of environmental protection is nowadays so large that organizers of sporting events can easily lose track of things. This guide helps to find a way through the labyrinth. Thirdly, sporting events are a magnet for many millions of spectators, and if event organizers actively address the topic of environmental and climate protection they can reach target groups that either have little interest in or are insufficiently informed about ecology. The topic of environment and sport focuses not only on the short period of time during which the event takes place, but also on the application phase that often begins years earlier, the period of preparation and planning as well as on the event's aftermath, its legacy. This is particu-

larly noticeable in the case of the Olympic Games. In the 1990s, the International Olympic Committee declared environmental protection to be the third pillar of the Olympic movement. Since then, an environmental concept and estimation of the expected Olympic legacy is demanded of all applicant cities.

This guide is directed at all those who are responsible for the application, planning and organizing of large sporting events, namely sports associations, municipal bodies, organization committees and event agencies as well as the operators of sports facilities. They can all make use of this guide as orientation support and as a store of ideas, in order to integrate environmental protection and nature conservation into all phases of event organization on a direct and voluntary basis.

There is no clear dividing line between “large” and “small” events in sport. Environmental protection measures proposed in this guide relate primarily to large sporting events with more than 10,000 spectators per day or 5,000 participants. These measures, however, are appropriate also for smaller events.

The guide is thus designed to encour-

age all those who wish to establish the environmental concept in sport, whether they organize European or World Championships, an Olympic qualifying event, junior-class events, national championships, league games or smaller tournaments at a regional level.



## What the guide offers

The guide is based on experiences gained in recent years with the environmental concepts of such renowned sporting events as the FIS Nordic World Ski Championships 2005 in Oberstdorf and the 2006 FIFA World Cup (with its "Green Goal" concept), as well as with Leipzig's application for the 2012 Summer Olympic Games. Moreover, the findings of the research project, "*Stoffstromanalysen zur Beurteilung der Umweltbelastungen von Sportgroßveranstaltungen*" (Materials flow analyses for the assessment of the environmental impact of large sporting events), which was carried out by Öko-Institut and the German Sport University Cologne on behalf of the Federal Environmental Agency (UBA), were reflected in the development of the guide.

This guide seeks to

- | encourage event organizers to address the topic of environment and climate protection,
- | to provide information on the specific potentials of sporting events for environment and climate protection,
- | to demonstrate what large sporting events can do for environment and climate protection with modern technology and efficient organization,
- | to provide information about sporting events and measures that could be an example for future events,
- | to put forward proposals for specific action and a package of measures,
- | and to indicate the most important partners for implementation of such measures.



## The path to a custom-made environmental concept

The significance of measures proposed in the following chapters for a specific event needs to be examined for each event. In principle, environmentally relevant areas – for example, water, waste, energy, transport, catering – play a role in large sporting events. Just how large this role is depends on a number of criteria: the discipline, the duration and size of the event, the venue and the existing infrastructure as well as the available budget and the size of the organizing team.

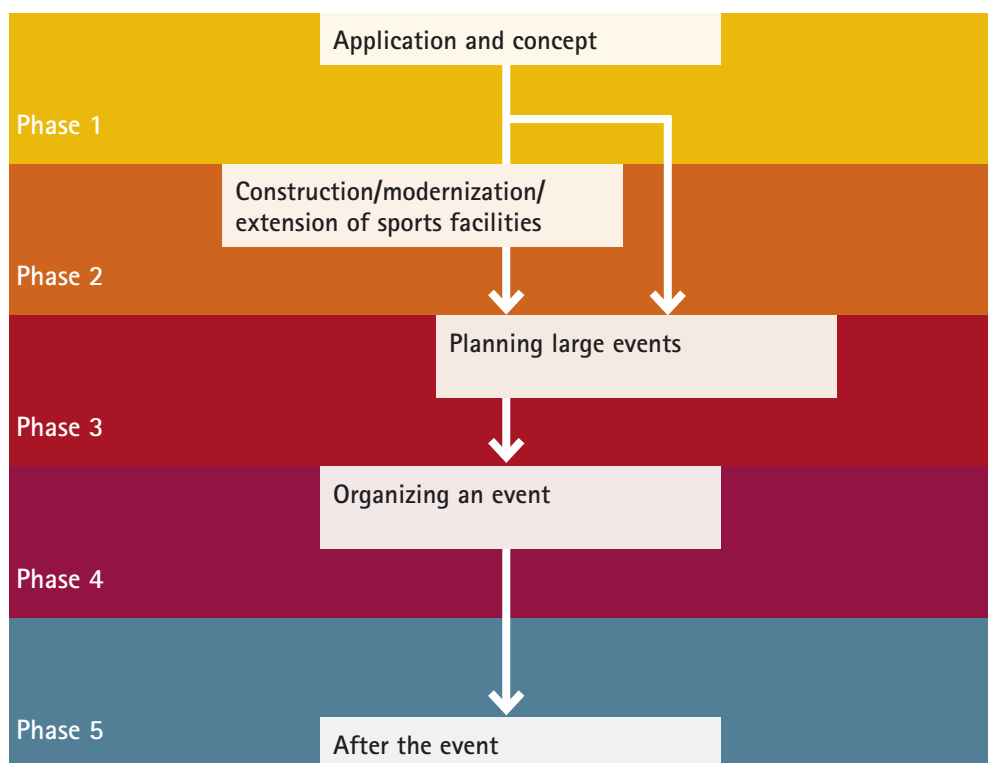
The format and structure of the guide is orientated towards the following five phases of a large sporting event:

- | Application and concept.
- | Construction/modernization/extension of sports facilities.
- | Planning of the event.
- | Organization.
- | Subsequent use/removal

The individual phases offer varied access to the topic and to specific measures. The "application and concept" phase is the ideal starting point for those who want to address the topic of environmentally compatible large sporting events in a fundamental and comprehensive way. Those who construct or modernize stadiums, cross-country ski trails and indoor facilities, or who plan temporary sports facilities, will find information and environmental protection measures in the chapter, "Construction/modernization/extension of sports facilities". The chapter, "Planning large events" covers the period before the event, and lists, describes and assesses individual measures in each important environ-

mental area. The chapter, "Organizing an event" describes matters that require attention during competitions. Finally, the chapter, "After the event" addresses the question concerning ecological activities that are useful once the event has ended.

*Phases of a large sporting event*





### Maria Riesch

2004 Junior World Champion in downhill and giant slalom racing, four-time gold medallist at Alpine Ski World Cup, third place overall in the 2003/2004 Alpine Ski World Cup

*"The guide also sets a signal for the FIS Alpine World Ski Championships 2011 in Garmisch-Partenkirchen. I live there and am really looking forward to it. We are carefully preparing the World Championships and giving particular attention to the environment, because we know how dependent we are on it."*

The guide defines relevant ecological areas and appropriate environmental protection measures for each phase. The Check List of measures at the end of each chapter gives an impression of the range of possibilities. In practice, however, only certain key areas will be relevant, and only a limited number of measures will be realizable. Experience shows that it is advantageous for event organizers to determine prioritized areas for action at an early stage, and to focus on selected measures.

It is not possible to detail all statutory requirements within the framework of this guide, which cannot detail all conceivable measures, activities and management systems, but rather

only provide suggestions. Previous experience shows that environmental protection is not a subordinate objective, which can be realized "randomly" or "by chance"; it is effective and successful only when taken into account in all phases of event organization. Organizers then not only act in an exemplary manner in ecological terms, they also enjoy economic benefits through environmental protection.





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# Training begins: Application and concept Phase 1



# Training begins

## Phase 1

All sporting success begins with training, or more precisely with a detailed training plan. Only those who are well prepared have a chance of success. The same applies to sporting events. Large events mostly require years of preparation. Whether environmental issues have a role to play depends, among other things, on the type of event. Environmental protection guidelines are increasingly included, for example, in the official documentation of international sports associations for events under the umbrella of the International Ski Federation or the International Olympic Committee (IOC), which are subject to a formal application procedure. Applicants have to provide information on ecological issues and put forward an environmental concept. They have to describe the environmental and legal situation, and must provide information, already at this early stage, on planned environmental protection measures. With many other international sporting events there are no clear environmental specifications for applicants. In such cases, however, an ecological concept for the event can represent a competitive advantage vis-à-vis other applicants. In the case of events that require no explicit application, environmental protection is basically voluntary. There

are, however, laws and regulations at a federal and *Länder* level, which have an influence on large sporting events. In addition, there are municipal statutes, for example, which require separate collection of wastes or set limits for noise emissions at events within city boundaries.

Mass events often lead to conflicts with their environs. Local residents complain about waste, noise and the increased volume of traffic. The timely planning of measures to minimize these environmental effects can preclude such conflicts and, under certain circumstances, simplify permitting procedures.

What is also important, environmental protection saves money. Event organizers that calculate in good time the energy and water that the event will consume, and then systematically minimize such consumption through modern technology and / or organizational measures, will reduce their costs. Experience shows that a saving of 10 to 15% can be achieved by quite simple means.

Sporting events are of great importance for society and can thus provide an important example. This applies in particular to environmental protection. Sport cannot evade demands for the most economical use of resources and the minimization of greenhouse

gas emissions. In the best possible case, a large event will be planned and conducted with a neutral effect on the climate. This requires that unavoidable greenhouse gas emissions be compensated through climate protection projects elsewhere.



## Measures

### Phase 1

#### Environmental protection has to be organized

Good organization is half the battle. This particularly applies to environmentally-sound large sporting events, since many of the tasks of an event organizer affect aspects of the environment. Ecological issues can only be adequately considered, however, when the environment has a staunch supporter on the organizing committee. Each organizational unit should have someone responsible for consideration and integration of environmental demands, and someone should also be appointed with overall responsibility for environmental issues. In the case of large events, moreover, it is advisable to establish an environment department in the organizing committee. Environmental staff can be successful only when they are provided with sufficient financial and personnel resources and when they are involved in all important decisions.

Environmental protection requires teamwork. Co-operation and integration are the key to success. For this reason, a dialogue with environmental and nature conservation organizations, experts and competent authorities, *Länder* sports federations and pressure groups should begin as early as possible in the planning of an event. This can help avoid misunderstandings and confrontation. This is a prerequisite for successful applications for large international sporting events; no international association will award sporting events to venues where the event is massively opposed by relevant societal groups. In the case of large sporting events, it could be useful to set up an advisory board under the participation of environmental and nature conservation organizations. Such a board would be helpful in the strategic analysis of environmental effects, in the definition of important fields of action and in establishing focal points in the environmental programme.

Good Practice

#### Environment officer for motor sport



*At every event approved by the German Motor Sports Association (DMSB) the organizer has to appoint an environment officer. He keeps an eye on ecological issues during the running of the event and ensures that specifications contained in DMSB environmental guidelines are complied with. He makes environmentally relevant recommendations during and after the event, at the end of which he prepares a report that is made available to the event organizer, the DMSB, the responsible sports associations and the chairman of the stewards.*

## Formulation of guidelines and objectives

Environmental protection has an infinite number of facets. Organizers and other involved parties must therefore lay down guidelines and objectives at an early stage. These provide the basis for the development of detailed environmental concepts, for the carrying out of measures, for result checking and monitoring.

At the very beginning, an initial estimate is made of the likely environmental effects of the event and main areas for action. At marathons, large quantities of rubbish are typical; at Formula 1 motor racing, spectator journeys to and from motor circuits have the greatest effect, while at ski events it is the impact on nature and landscape that is important. An assessment is insufficient, of course, for the Olympic Games or world championships, where a status-quo analysis is necessary.

The table on pages 30 and 31 reviews possible guidelines and objectives in varied fields of action. These are intended as recommendations that have to be adapted or modified for

each event. Two things are decisive: on the one hand, the involvement of all parties (ideally the organizer, municipality, sports-facility operators and sponsors), and on the other hand, quantification of objectives, that is, the percentage reduction in the use of potable water, the share of electricity from renewable sources and the quantity of greenhouse gases to be compensated by climate protection projects in developing countries. Such specific targets enable subsequent transparent monitoring of achievements.

Many of the following objectives are not at all theoretical; they have been tested and proven in practice and include the areas of waste, water, transport and energy, which were part of the "Green Goal" environmental concept for the 2006 FIFA World Cup. Other objectives, such as catering and merchandising, have been put to the test to a lesser extent at sporting events, but experience has been gained, however, at other large events, such as the October Fest in Munich and church congresses. Nature and landscape occupy a special position. Here, objectives are defined by legislators and the scope for action is largely regulated.

Once objectives have been set, the next important step is the drawing up of a comprehensive concept for realization of environmental objectives; that is, the selection and assessment of necessary technical and organizational measures.



## Overview

### Possible guidelines and objectives for environment protection and nature conservation

#### Construction/Resources

##### Guideline

A prerequisite for the planning of every sports facility is a critical examination of requirements and an ecologically and economically balanced concept for subsequent use. Environmentally compatible building covers not only the construction of sporting facilities, but also their subsequent operation.

##### Objectives

**Sustainable use:** Sports facilities are built only when it can be shown that their planning includes ecologically and economically useful subsequent operation.

**Temporary facilities:** In planning and construction, use is made of materials, elements, fittings and equipment that are durable and a risk to neither health nor the environment. Materials, fittings and equipment are intended for subsequent further use.

#### Transport

##### Guideline

Travel to and from the event must be organized in an ecological and efficient way. Unnecessary travel should be avoided, and unavoidable travel undertaken by environmentally-sound means of transport.

##### Objectives

**Improvement of integrated environment-friendly public transport:** Public transport, cycling and footpaths should achieve as high a share as possible of total traffic to and from sports venues.

**Reduction in the climatic effects of transport:** Transport-related greenhouse gas emissions will be reduced.

**Protection of residents:** Exposure of residents to traffic in the vicinity of sporting events will be minimized.

#### Climate/Energy

##### Guideline

Potential energy savings should be exploited through technical and organizational measures. Energy required will be produced as far as possible by environmentally compatible means. The organization of a large sporting event should have no impact on the global climate.

##### Objectives

**Reduction of energy consumption:** Savings and efficiency potentials will be ascertained. The energy consumption of the event will be reduced as far as possible.

**Use of renewable energy sources:** Energy supply will derive as far as possible from renewable sources.

**Temporary energy supply:** Diesel generators will not be used; where unavoidable, their use will be reduced.

**Climate-neutrality:** Greenhouse gas emissions will be avoided, or reduced. Unavoidable greenhouse gas emissions will be compensated by investment in climate protection projects.

#### Waste

##### Guideline

Waste should be avoided, or at least reduced. Unavoidable waste should be recycled, and non-recyclable waste expertly disposed of.

##### Objectives

**Waste avoidance:** Quantities of waste will be reduced as far as possible through, for example, packaging-free and multiple-use systems.

**Waste recycling:** Systems will be established for the separate collection of biowaste, light packaging, paper, glass and residual rubbish.

**Temporary facilities:** Where possible, materials, fittings and equipment for temporary facilities will be rented and reused, sold or given away after the event.

## Water

### Guideline

Potable water is a valuable resource, which should be used carefully and economically.

### Objectives

**Protection of resources:** Water consumption for both the event and the venue will be reduced.

**Substitution of potable water:** Surface water, rain- and well water will be used instead of potable water.

**Reduction in waste- and groundwater contamination:** Soil and groundwater contamination will be prevented. Wastewater quantities will be reduced.

## Catering

### Guideline

Meat and other food products should be produced regionally in an environmentally sound and natural manner and also be uncontaminated. They should derive from fair-trading.

### Objectives

**Organic products:** A large share of organic products will be used in catering.

**Regional products:** Regional produce will be used.

**Fair-trade products:** Care will be taken that food products are purchased at fair prices. Where possible, products with the "fair-trade" label will be used.

## Nature and landscape

### Guideline

Events should have as little as possible impact on nature and the landscape. Species protection should be guaranteed.

### Objectives

**Co-operation instead of confrontation:** A continuous dialogue between different interest groups can avoid conflicts between "nature users" and "nature conservers".

**Avoidance before both minimization and compensation:** The user should avoid or minimize adverse effects on nature and the countryside to the greatest extent possible. Unavoidable effects must be offset or compensated by measures of nature conservation and landscape management.

**Use of existing resources:** Local resources can be successfully employed through sound planning.

## Noise

### Guideline

Noise should be avoided or reduced. Unavoidable noise should be limited in terms of time and space. Certain groups of people (those in schools, kindergartens, hospitals etc.) should be particularly protected.

### Objectives

**Reduce noise emissions:** Noise emissions should be reduced as far as possible directly at source and kept at as low a level as possible. Event sound systems may not cause unreasonable disturbance to local residents.

**Decrease in noise exposure:** Where noise exposure cannot be adequately reduced through active noise abatement measures, passive or constructional measures should be taken.

**Controlling:** There should be permanent and consistent monitoring of events with high noise emissions.

## Merchandising

### Guideline

Merchandising products should be pollutant-free and manufactured in an environmentally sound manner. Demanding environmental and social standards should be complied with in production processes.

### Objectives

**Environmental management:** Manufacturers of merchandising products must possess a formal environment management system (for example, EU eco-audit or ISO 14001).

**Environmental and social standards:** Manufacturing should take place in line with demanding environmental and social standards. This applies particularly to sports clothing and equipment.

**Durability and recyclability:** Merchandising products should be of high quality, durable and easily recyclable.



### Florian Schwarthoff

Bronze medallist in 110 metres hurdles at the 1996 Olympic Games in Atlanta

*"One can't take all hurdles at one go. If a sporting event should have as little effect on the environment as possible, this can only be achieved with clear and specific objectives. Even when not all objectives can be achieved, they are an incentive to keep trying until they are achieved."*

## Statutory framework

Every sporting event on public grounds has to be approved, and every approval requires that the organisers comply with statutory requirements. Requirements in the areas of nature/landscape and noise, which are laid down in federal and *Länder* law, are particularly relevant for large sporting events. At a municipal level, there are further standards, particularly concerning the treatment of waste and the regulation of traffic flows.

Nature conservation has a long tradition in Germany, and the statutory regulations, which also affect sport, are correspondingly extensive. If possible, large sporting events should not take place in nature conservation areas, where special approval is generally required. Valuable ecosystems, such as wetlands or dry grasslands, are particularly protected and may not be adversely affected.

According to the Federal Nature Conservation Act, avoidable adverse effects on nature and landscape are prohibited. Where such effects are unavoidable, they have to be offset or compensated by nature conservation and landscape management elsewhere. The act also lays down that sensitive ecosystems that require protection – including both small biotopes and large conservation areas – may not be impaired. Organizers planning outdoor events have to seek clarification from the local competent authority on whether the event requires approval under nature conservation or landscape protection law. Legislation protects people from excessive noise from sporting events. Loud open-air events therefore require approval, and noise is restricted



to a tolerable level for local residents by means of stipulations and conditions. Such conditions include, for example, a limitation on the duration of an event, specifications concerning the location and radiation direction of loudspeakers as well as limits on noise levels. In this case, too, application for approval must be made at an early stage to the competent municipal authority.



## Overview

### German statutory requirements for large sporting events (excluding construction of sports facilities)

Legislation	Area of application	Principles and objectives	Effects on events
<b>1. Nature conservation</b>			
Federal Nature Conservation Act (BNatSchG)	Throughout Germany	Adverse effects on the balance of nature have to be avoided or, when unavoidable, offset or compensated	Early involvement of competent authorities in the examination of applications
NATURA 2000	FFH areas and bird sanctuaries	Area-specific protection and obligation for sustainable development. The "prohibition of deterioration" applies	Sports facilities in or around NATURA 2000 areas generally require confirmation of compatibility
<i>Länder</i> nature conservation regulations	Nature conservation areas	Destruction, impairment, modification and long-term disturbance are prohibited	Such areas have generally to be avoided. Use is not possible without official approval
	Landscape protection areas	All activities are prohibited that run counter to the character of the protected area	Use is not possible without official approval
<b>2. Protection of species</b>			
Tree Protection Decree	Mostly in cities	Activities that damage protected trees are prohibited	An event must be planned and organized in such a way that the protection of species is guaranteed
Federal Species Protection Decree	Throughout Germany	Protected flora and fauna may not be endangered	An event must be planned and organized in such a way that the protection of species is guaranteed
<b>3. Woodlands</b>			
Federal Forest Act and <i>Länder</i> woodland legislation	Events in woodlands or on woodland pathways	Woodlands have to be preserved and protected on account of their economic, ecological and cultural values	The general right of access to woodlands can be restricted in the case of events

Legislation	Area of application	Principles and objectives	Effects on events
<b>4. Water protection</b>			
Federal Water Act (WHG) and <i>Länder</i> legislation	Events that involve the use of surface waters, coastal waters or groundwater	Waters must be managed in such a way that the interests of the general public are served. Every avoidable impairment of waters is prohibited	Subordinate water authorities must be consulted when adverse effects cannot be excluded
<b>5. Noise protection</b>			
Technical Instructions concerning noise ( <i>TA Lärm</i> ) (according to the 4th Federal Immission Control Decree, Annex)	Sports facilities subject to approval according to immission control law (motor sports circuits, shooting ranges)	Limitation of noise exposure	Standard exposure values in <i>TA Lärm</i> must be met
Decree on noise protection in respect of sports facilities (18th Federal Immission Control Decree)	Sports facilities not subject to approval according to immission control law	Protection from the adverse environmental effects of noise	Standard exposure values in line with the 18th Federal Immission Control Decree must be met
<i>Länder</i> recreational-noise guidelines	For non-sporting-events in sports facilities	Restriction to a reasonable level of noise exposure for residents	Standard exposure values according to <i>TA Lärm</i> are assessed
<i>Länder</i> immission control legislation	Outdoor events	Restriction to a reasonable level of noise exposure for residents	Approval required; approval can be issued with stipulations and/or conditions
<b>6. Waste/Wastewater</b>			
Municipal statutes on waste	Events on public grounds	Waste avoidance, waste separation and environment-compatible disposal	Observe municipal regulations (e.g. ban on nonreturnable crockery and packaging material, regulations on waste separation and disposal)
Municipal statutes on wastewater	Throughout Germany	Orderly disposal of wastewater	Approval required from the competent authority (generally the civil engineering office). Connection of waste pipes to public sewerage systems

## Measures

### Phase 1

*Application of the city of Leipzig for the 2012 Summer Olympic Games: 90 per cent of all medals were to be awarded within a radius of 10 kilometres from the Olympic village and the city centre (Source: City of Leipzig, Olympic Planning Staff)*



### The right choice: Event venues and sports facilities

The choice of venue and sports facilities sets the path at an early stage for an environmentally compatible event. With the conscious and careful selection of venues and facilities adverse effects on the environment can be more easily prevented and the cost of environmental protection measures reduced. Size, duration, spectator numbers and the timing of the event are the decisive factors. Besides issues of nature conservation and problems of noise, the venue's traffic connections play an important role. The question of whether the venue can be reached by public transport largely determines the level of later noise and pollutant emissions arising from travel to and from the event by spectators (see diagram concerning the concept of the city of Leipzig contained in its application for the 2012 Summer Olympic Games). The choice of venue can also have an influence on the energy supply and wastewater disposal of sports facilities. In the case of outdoor events, cross-country ski trails, water and racing courses have to be very carefully selected in order that flora and fauna are disturbed and otherwise affected as little as possible.

## Measures

### Phase 1

#### Sponsoring

In surveys, around 90% of Germans claim to be interested in sport. Each year 30 million people visit sporting events, 50 million watch events on television. In other words, sporting events are an optimum platform for sponsors, enabling them to achieve long-term, emotional attachment of consumers to a particular brand or product. Sport is by far the most popular sponsoring area, accounting for an estimated 40% of total sponsoring budgets.

Sponsors can also play a key role in the realization of an environmental concept. Experience has shown that an early approach to companies is important. It is a good idea when selecting sponsors to check whether they will support environmental objectives. At best, the event organizer will agree upon precise environmental objectives or ecological guidelines

with the sponsor that will then be included in contracts. In the case of an automobile industry sponsor, for instance, it could be arranged that only those vehicles will be used for the transport of VIPs during the event, which have high exhaust standards or alternative engines, or that drivers will undergo fuel-saving training. Finally, companies can be sought that actively support and promote the environmental concept without being official sponsors.

Large sporting events are not only an opportunity for traditional marketing. They can also serve companies as a platform for the presentation of new, environmentally beneficial technologies, products and services. In this (ideal) case, co-operation between event organizer and sponsor takes the form of pro-active collaboration, which benefits both the environment and the event. Also in the case of co-operation with other important partners, such as caterers, settling the details of contracts at an early stage has a great influence on the practical realization of environmental objectives.

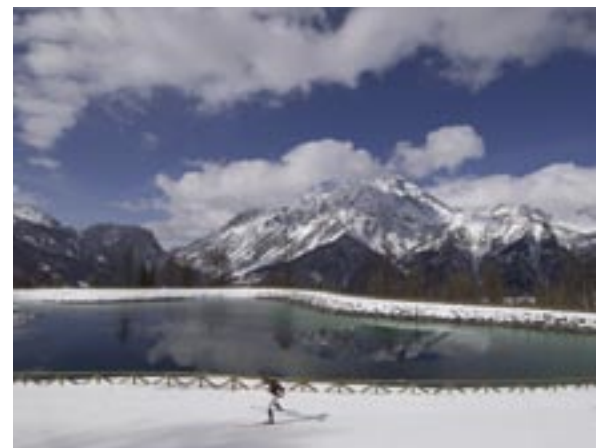
#### Systematic environmental protection

Environmental management systems are worthwhile for large events, whose planning is spread over several years, for annually recurring events and for large sports facilities. Such systems affect many different ecological areas, from water, energy and waste to the further training of staff and public relations. Environmental management systems are much more than the sum of individual measures; they lend environmental protection both a system and a structure. Environmental management systems require that responsibilities, processes and requirements be laid down in detail. This way it is ensured that ecological issues play a role not only in the short term, but also in the long term. Such systems facilitate the search for cost-reduction potentials and the development of a comprehensive package of measures. Furthermore, they enhance staff motivation and support dealings with licensing authorities. Not least they offer built-in result checking, as it were; environmental management systems provide for regular control through external experts, who examine whether laid down objectives have been achieved.

#### Good Practice

### Medal for environmental management

*The organizers of the 2006 Winter Olympic Games in Turin set their sights on environmental protection. For the first time in Olympic history TOROC, the organizing committee, received an environmental certificate according to ISO 14001 as well as certification according to the European EMAS system. Eight of the venues also registered under EMAS. The effects were particularly noticeable in the Olympic village, with its total of 39 buildings and 2,500 athletes. Hot water was produced by solar absorbers, south-facing glassed areas made the best possible use of sunlight and energy-saving lamps reduced electricity consumption for lighting. In addition, the village was connected to the municipal district-heating network and buildings were insulated with material made from recycled cellulose fibre. TOROC also established an environment-friendly procurement policy and laid down environmental criteria for the selection of suppliers. Almost 40% of the 3 million euros that the organizers of the Winter Games spent on goods and services met these standards.*

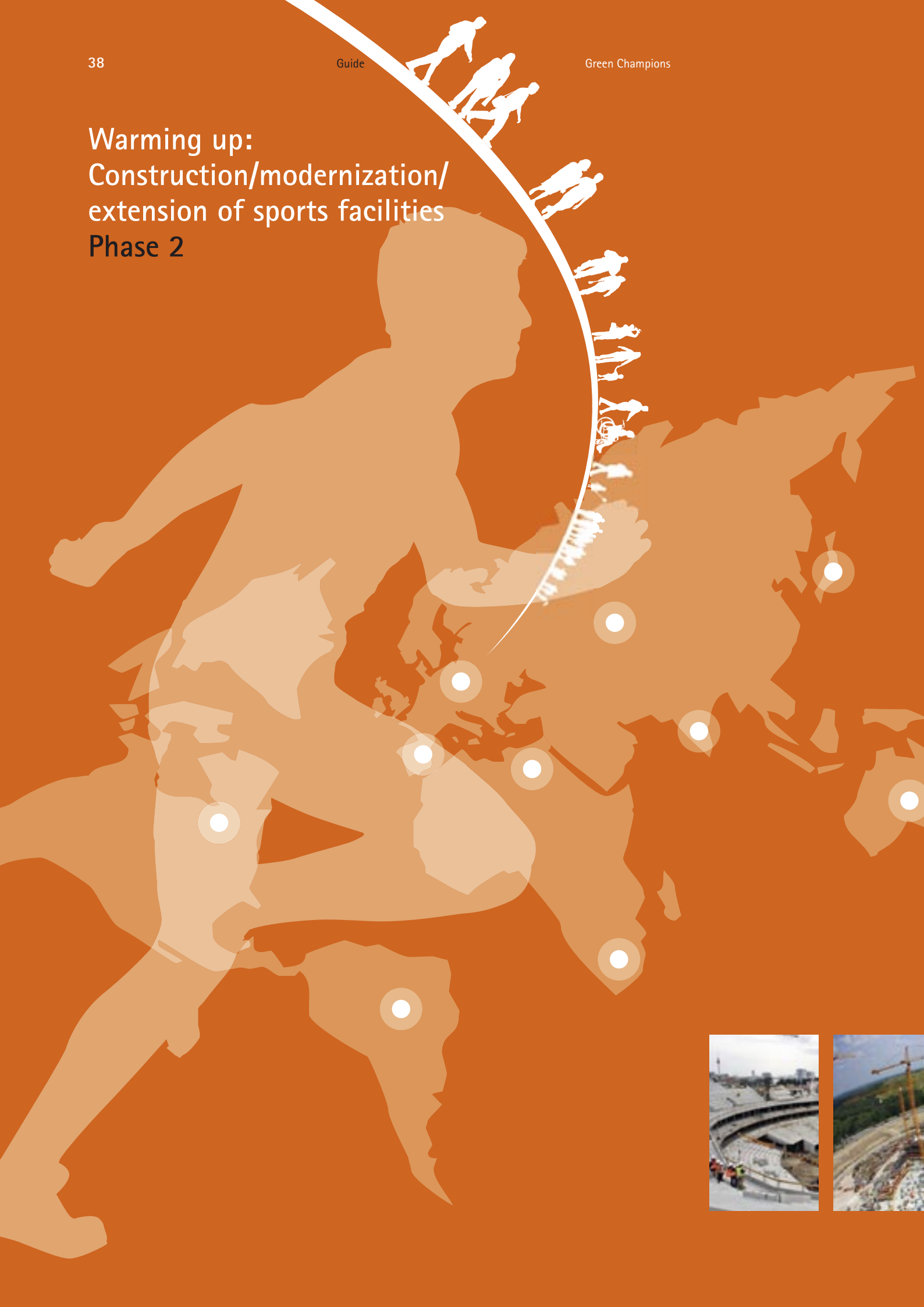


# Check List

## Phase 1

Action	Measures			Responsibility
<b>1. General Matters</b>				
Organization of environmental protection	Appoint staff responsible for the application and concept phase			Organizers, sports associations
	Establish environment department within the organizing committee for large events with decision-making responsibility and its own budget			
	Commence dialogue and co-operation with environmental and nature conservation organizations, experts and relevant authorities			
Formulation of guidelines and objectives	Initial assessment of the event's environmental effects (especially in the case of large events)			Organizers in co-operation with relevant parties
	Lay down specific environmental guidelines and objectives in co-operation with relevant parties			
	Development of an innovative environmental concept			
Statutory requirements	Identification of requirements under environmental and nature conservation law			Organizers, operators of sports venues
	Compliance with environmental and nature conservation law in planning the event			
Selecting venues and sports facilities	Selection of venues and sports facilities in line with environmental criteria			Organizers
Sponsoring and contractual agreements	Consideration of environmental aspects in the choice of sponsors and in corresponding contracts			Organizers, sponsors
	Co-operation with sponsors in the creation and realization of the environmental concept			
	Co-operation with caterers (VIP areas)			
Environmental management	Preparation and development of a comprehensive (certificated) environmental management system (for example, Öko-Profit, ISO 14001, EMAS II), covering also the nature and landscape area			Organizers, operators of sports facilities

# Warming up: Construction/modernization/ extension of sports facilities Phase 2



## Warming up Phase 2

Sport needs the right framework. This includes large halls, modern stadiums, the best possible race circuits and ski trails. Competitions mostly take place at existing facilities. Many halls are multi-purpose facilities for widely differing disciplines – from boxing to ice hockey and horse-riding. With such events, promoters and organizers generally act independently of owners and operators of sports facilities. On the other hand, horse-racing courses, football stadiums and ski jumps are venues for regularly recurring events, and there is a close connection to the respective sports association. Existing sports facilities, however, are not always adequate. Sometimes they are too small or outdated, or they do not meet all the technical demands of a promoter. New and modernized facilities are nearly always required for Olympic Games and football or skiing world championships. Generally, it is not the promoters and organizers of an event but rather the owners and operators of sports facilities that are the appropriate parties for implementation of environmental protection measures.

Apart from sports facilities themselves, temporary facilities are also frequently required at large events; that is, structures that are specially

erected for an event and then dismantled or removed on its conclusion. These temporary facilities include tents for catering and medical aid, restaurant and sanitary facilities, media centres and offices, terraces and stands. Temporary facilities are always very important, since most activities – such as catering, shows, games and exhibitions – take place in the area surrounding the actual sporting event. Even a complete sports facility can be erected as a temporary construction. Low-waste and resource-saving construction methods are therefore of particular importance in this area. The construction of sports facilities involves considerable emissions of greenhouse gases and airborne pollutants as well as the use of land and resources. Every sports facility whose capacity is not fully utilized has a needless impact on the environment. The greater the size and cost of sports facilities the greater, as a rule, the impact on the environment. For this reason, a critical examination of requirements must be carried out at the outset of planning: Does a new sports facility have to be built, or can an existing facility be used? Can an existing facility be modernized or extended with temporary buildings to meet the demands of a particular large sporting event? Is the facility of the right size? Is it adequately equipped? Is the location right? Can it be used after the event?



# Warming up Phase 2

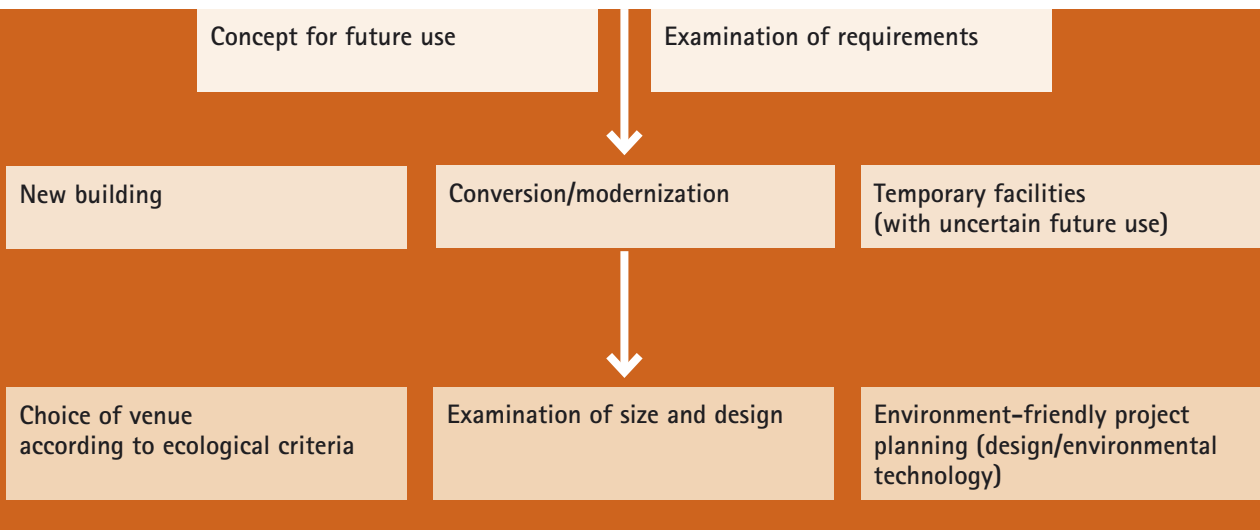
Planning and construction as well as subsequent operation are the decisive factors influencing an environmentally-sound sports facility. In general, the following principles apply:

- | The path to environmentally-sound operation of a sports facility is determined in its planning and construction.
- | Environmental protection measures can be better implemented when they are properly planned in good time.
- | The scope for measures is generally greater in the case of new and temporary buildings than in the modernization or extension of existing facilities.
- | Existing facilities also have considerable potential in environmental areas such as energy and water.

No money for environmental protection? This argument is rarely convincing. When money is short and savings are made in environmental protection rather than in other areas, this is often regretted during later operation of the facility. Operators have then to cope with unnecessarily high energy and water costs for decades, costs, which could have been noticeably reduced with comparatively modest expenditure on efficiency technology at the time of construction. An event is generally a good opportunity to carry out long-needed modernization work on a sports facility. It can also provide an impulse to carry out exemplary measures for emission reduction or for the protection of nature and landscape. Various models have been developed in the past to help cope with costs. In the case of contracting, a company recoups capital expenditure – for example, on water- and energy-saving technology – through long-term savings in water and energy costs. A further option is to have individual measures financed by sponsors or manufacturers of corresponding products and plants. This way, companies can open up a market and at the same time use the event to cultivate its own image. Should it be intended to take environmental issues into account in

the construction or modernization of a sports facility, corresponding specifications have to be stipulated in tendering documents. If, for example, water-saving fittings or efficient heating systems are included in the invitation to tender they are much easier to realize. Environmental criteria in tendering documents lay the grounds for environmentally-sound operation of the sports facility. Besides approvals under building law, and depending on their size and location, environmental and nature conservation regulations have also to be observed in the construction or modernization of sports facilities. Without precise knowledge of the building project it is impossible to specify the legal regulations that have to be considered. In the following table, legal regulations in the nature conservation area are listed, which might have to be considered for the construction or modernization of sports facilities. In addition to nature conservation regulation, environmental regulations have also to be considered. In this connection, in particular, the requirements of the Energy Savings Decree have to be observed.

*Procedure for the planning of a sports facility*





## Overview

### Nature conservation regulations in Germany concerning the construction and modernization of sports facilities

Legislation	Area of application	Importance for the project
<b>1. Planning permission procedure</b>		
Building Code, <i>Länder</i> building and nature conservation laws	Construction, use, operation and modification of sports facilities, including temporary buildings	The compatibility of the project with all public regulations is examined, including those concerning environmental protection. All legal regulations have to be complied with, and legal demands have to be met even if a project does not require approval.
<i>Possibly necessary:</i>		
Landscape Protection Support Plan	see above	The Landscape Protection Support Plan is the independent specialist contribution to a project that describes an impact on the environment and landscape in terms of <i>Länder</i> nature conservation laws.
Green Structures Plan	see above	The Green Structures Plan specifies the requirements of the Landscape Plan and forms the ecological basis for the Local Development Plan.
<b>2. Planning approval procedure</b>		
Administrative Procedure Acts	Realization of larger projects (superior, sectoral planning significant for regional planning)	Planning approval encompasses all other decisions of competent authorities. It is not applicable to normal building projects, and has to be laid down in administrative regulations (this concerns, for example, motor sport circuits and ski lifts).
<b>3. Environmental Impact Assessment (EIA)</b>		
Environmental Impact Assessment Act, <i>Länder</i> laws	Has to be conducted for projects of importance for regional planning, from which considerable effects on the environment are to be expected	The EIA comprises the appraisal, description and assessment of probable considerable effects of a project on man, flora and fauna, soil, climate and landscape – including respective interaction – as well on cultural and other material assets.
<b>4. Examination of FFH compatibility</b>		
Federal Landscape Conservation Act, <i>Länder</i> laws	Projects in or around Natura 2000 areas (FFH areas and bird sanctuaries)	The compatibility of plans and projects with the objectives of preservation or restoration of a favourable state of conservation of an area is examined. Adverse effects that considerably endanger these objectives are not permissible.

## Measures

### Phase 2

Technology does not have to be reinvented for environmentally compatible sports facilities. From energy-saving light bulbs to photovoltaic plants, from rainwater storage to economical toilet flushing, from recycled concrete to waste separation – most technologies that are used in public and private buildings or by non-sporting events are eminently suitable for utilization in the world of sport. And the advantages of environment-friendly building materials can be easily exploited in sports facilities.

### Building materials

**Regenerative building materials** | Regenerative building materials such as wood have a decisive environmental advantage: They are climate-neutral since they absorb during their growth phase the same amount of carbon dioxide that is later released during disposal of the material. Use of this building material should therefore be favoured.

**Recycled building materials** | Materials should be used that derive from recycled material. These include chipboard from recycled wood, products from recycled plastics and recycled concrete.

**Materials low in pollutants** | Generally, only those materials should be employed that give no concern for health risks. Problematic materials can be found, above all, in floor coverings and their adhesives, wall panelling, paint and varnish as well as in insulation materials. PVC should be avoided. Many municipalities now have their own regulations concerning materials that may not be used in public buildings.

### Transport

**Public transport connections** | In order that as many spectators as possible travel to events not with their cars but rather by bus or train, sports facilities should have the best possible connections to the local public transport network. Shuttle bus services can be set up with little effort. City-rail, underground and tram services or local rail services, on the other hand, require new routes or enlarged stops. Such construction work is, however, only sustainable when sports facilities have a high capacity utilization, or when expansion improves access to city districts and municipalities. It is obvious that such infrastructural measures are more worthwhile in cities than in rural areas, where buses are often the better solution.

### Cycleways and footpaths

Many sports facilities can be easily reached by bicycle. Well-planned cycleways and sufficient parking places at sports facilities increase the number of cyclists. Footpaths planned at an early stage, and well signposted, are also elements of environmentally compatible journeys to sports facilities.

Good Practice

## Regenerative raw materials for the Television Centre

*During the 2006 FIFA World Cup the International Broadcasting Centre (IBC) was the central "powerhouse" for television broadcasting to a billion people. The IBC was built using recycling-favourable construction methods and regenerative raw materials. Ceiling beams and carrier profiles were made of solid wood, and walls of glued multi-layered coniferous wood. A total of 966 tonnes of wood – 40 lorry-loads – were used to build the Television Centre. At the end of the World Cup the greater part of the material was not waste but rather recyclable material. The wooden elements of the studios, for instance, will be used in the construction of 60 houses.*



Good Practice

## The sun shines on Bern



*Since the summer of 2005 the Stade de Suisse in Bern operates the largest solar plant integrated into the roof of a football stadium anywhere in the world. For this it was awarded the EUROSOLAR Environment Prize and the Swiss Solar Prize. The roof modules together form an area of 8,000 square metres. In its first year of operation around 800,000 kWh of electricity were produced; this is equivalent to the average annual consumption of around 250 households. In its final form the roof will accommodate 12,000 square metres of modules and produce an annual total of 1.2 million kWh of electricity.*

## Energy

### *Solar energy* |

Sports facilities frequently offer sufficient space for the installation of photovoltaic plants – whether on roofs or in the immediate vicinity. Requirements for later installation of plant should be laid down in invitations to tender for construction of the sports facility. Such requirements include the positioning of the building, its usable (roof) area and statics as well as technical infrastructure for the feeding of generated energy into the power supply network. Photovoltaic plants are not only of interest for new buildings, they can also be retrofitted to existing sports facilities. An important point is that generated solar energy is generally not directly supplied to the sports facility but is fed into the power supply network.

Good Practice

## Sun galore over Kaiserslautern stadium

*Stadium roofs are generally open and relatively fragile structures. That the later installation of photovoltaic plants is nevertheless possible is demonstrated by the example of Kaiserslautern stadium, where installation of the largest photovoltaic plant that has ever been installed on the roof of a German football stadium began in 2006. In all, around 5,000 modules are being installed. They cover an area of 6,000 square metres and, fitted close together, they would more than cover a football field. In its ultimate configuration the plant will have an output of up to 800 kWp and generate up to 720,000 kWh of electricity each year – enough to supply 200 households with electricity for a whole year.*



## Measures

### Phase 2

#### Energy

##### *Heat* |

The production of heat consumes energy. Heating with renewable energy sources, such as wood chips, biogas and solar heat, is more environment-favourable and in the long term more cost effective than with gas or oil. Condensing boilers and block CHP (combined heat and power) units also reduce consumption considerably. A lot of energy is lost through ventilation. Heat exchangers can recover a large proportion of this energy. The insulation of walls and floors noticeably reduces energy consumption. Even modest measures have a great effect: Dispensing with hot-water connections for washbasins in sanitary facilities, for example, and thermostats on radiators that restrict maximum room temperature. The use of air-conditioning systems can be reduced through passive sun protection measures (for example, external blinds) and natural ventilation.

##### *Lighting* |

Daylight is the most environment-friendly light. As far as possible, one should utilize daylight and dispense with artificial light. Where artificial light is required, energy-saving light bulbs result in a considerable reduction in electricity consumption. In indoor areas, compact fluorescent lamps (T5 technology) and raster or reflector lamps with electronic series connectors are recommended. In external areas – for example with floodlights – modern, energy-saving lights should be used, which nowadays produce the same illumination as earlier models, but consume 20% less electricity. In addition, through precise arrangement of floodlights both lights and energy can be saved. Detector alarms and brightness sensors ensure that light only burns – indoors and outdoors – when it is needed. Finally, lamps are not always needed. Basically, it is a question of creating sufficient light with the least amount of electricity.

##### *Central building control systems* |

Sports facilities have a large number of heat and electricity consumers. Modern central building control systems enable control of isolated consumption – lamps, heating, ventilation etc. – in such a way that energy is only supplied when it is really needed. A great deal of energy can be saved through proper management with the help of central building control systems.



## Water/wastewater

### *Substitution of potable water |*

A simple and effective way to save water is the extensive use of free rainwater: One-third of stadiums newly-constructed or modernized for the 2006 FIFA World Cup built rainwater cisterns. Besides rainwater, well water or water from lakes or rivers can also be used. Rain and surface water can be used for toilets and urinals, for cleaning and the watering of playing fields and other areas. Lightly contaminated water can be reused, for example, for toilet flushing.

### *Water-saving (sanitary) facilities and devices |*

Considerable quantities of potable and wastewater can be saved at comparatively low cost through the use of water-saving fittings and devices. The choice is great: dry urinals, water-saving showers and toilet flushing, water-flow regulators on taps, self-closing taps on washbasins, economical dishwashers. Many of these can be easily retrofitted in existing sports facilities.

### *Infiltration and desealing |*

Wherever buildings are constructed large areas of land are generally sealed. The deliberate infiltration of rainwater and other types of precipitation can reduce the impact on the water cycle. Modern infiltration plants comprise underground hollowed-out plastic blocks, which store and slowly release water into the ground. The use of water-permeable materials for free spaces and paths contributes to rainwater infiltration and feeds water back into the natural water cycle.

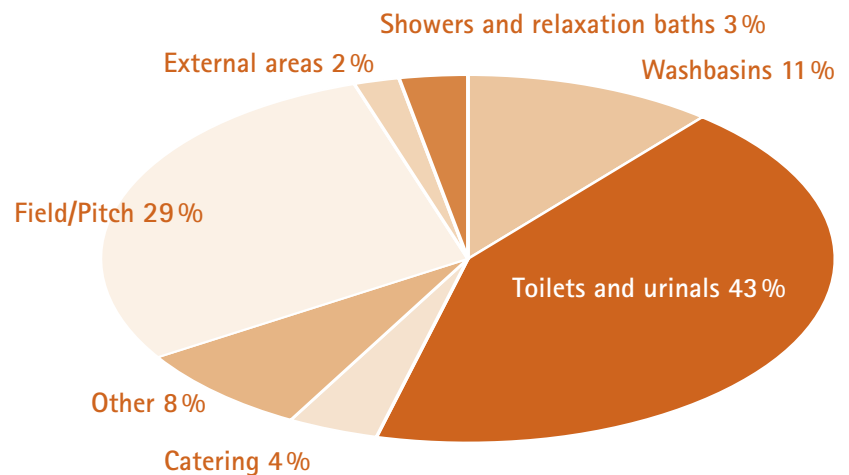


### Good Practice

## 100,000 gymnasts save water

The 1994 German Gymnastics Festival in Hamburg set a milestone for the economical of water in the world of sport. Around 100,000 athletes traditionally stay overnight during the event in sports halls and schools. The city of Hamburg took this opportunity to modernize sanitary facilities in more than 200 schools. As a result, a great deal of potable water was saved and modernization soon paid for itself. At the same time, the water-saving gymnastics championships encouraged the education authority to re-equip sanitary facilities in other schools in the Hanseatic city.

Water consumption of selected World Cup stadiums in Bundesliga operations (Source: Green Goal Legacy Report 2006)





### Fabian Hambüchen

Gold medallist on the horizontal bar at the 2007 World Gymnastics Championships, Gold medallist on the horizontal bar at the 2005 and 2007 European Championships, runner-up in the multi-discipline event at the 2007 European Gymnastics Championships

*"Championships and Olympic Games need large halls and stadiums. This can lead to adverse effects on the environment. In my opinion, measures to restrict such effects to a minimum should already be adopted during the construction of sports facilities."*

## Nature and landscape

### Compensation concept |

Where sports facilities have an impact on nature and landscape, legislation requires that such adverse effects be compensated. This is intended to ensure that major effects are subject to a process of examination and consideration.

### Ecological monitoring of construction work |

Precise realization of laid-down avoidance and minimization measures should be monitored by an ecologist during construction work.

### Use of land |

Sealed land represents a loss for nature and landscape. The minimization of the use of land and land sealing must therefore be a prime objective of project planning. An important contribution can be made by temporary facilities, such as spectator stands, which are erected just for the event and then later dismantled and removed without a lasting effect on nature and landscape.

## Noise

### Active noise abatement |

This includes the installation of loudspeaker attenuators, the use of several small loudspeakers instead of a lesser number with greater output, or the arrangement of loudspeakers in such a way that noise emission in the vicinity of the sports facility is minimized.

### Passive noise protection |

Loud sports facilities, such as stadiums and racing circuits, can be separated from the environment – similar to industrial installations and roads – by noise-protection barriers or planting.

*Compensation areas for the development of the cross-country ski course and ski-jump stadium in Oberstdorf for the FIS Nordic World Ski Championships 2005 (Source: Oberstdorf Municipal Council)*

Location	Forestry-related compensation in ha	Nature-conservation-related compensation in ha
Donelars – Teil	0.78	
Schöllang		1.48
Traufberg	1.10	
Wanne	0.33	
Jauchen	0.51	
Sanghölzer, Schöllang	0.35	
Rubi	1.65	0.78
Truppersoy	0.30	
<b>Total</b>	<b>5.02</b>	<b>2.26</b>














# Check List

## Phase 2

Action	Measures			Responsibility
<b>1. General matters</b>				
Examination of requirements	Use existing sports facilities instead of new buildings for large sporting events			Organizers, operators and owners of sports facilities
	Where new buildings/extensions are necessary, check whether they could be operated economically after the event			
	Where applicable, construct temporary facilities (for example, stands)			
	Develop a concept for subsequent use			
Choice of venue	Pay attention to environmentally relevant aspects, such as nature conservation, noise abatement, energy supply, local public transport connections			Operators and owners of sports facilities
Statutory requirements	Observation and compliance with all laws and regulations relating to environmental protection and nature conservation			Operators/ owners of sports facilities, organizers, authorities
	Initiation of a procedure for consideration of environmental criteria in respect of construction or enlargement			
Environmental criteria in invitations to tender	Lay down binding environmental specifications in invitations to tender			Operators and owners of sports facilities
<b>2. Building materials</b>				
Regenerative raw materials	Give preference to regenerative raw materials for construction or enlargement			Operators and owners of sports facilities
Recycled building materials	Give preference to recycled building materials			Operators and owners of sports facilities
Materials low in pollutants	Avoid problematic materials and those of potential risk to health			Operators and owners of sports facilities
	Observe municipal bans on certain materials			

# Check List

## Phase 2

Action	Measures		!!	Responsibility
<b>3. Transport</b>				
Local public transport connections	Construction or extension of public transport stops/stations (especially with large international sporting events)			Municipalities/cities, transport undertakings
	Increase route capacities of rail-based local public transport			
Cycleways and footpaths	Provide cycleways and footpaths to sports facilities			Municipalities/cities
	Set up/extend bicycle parking spaces			
<b>4. Energy</b>				
Solar energy	Installation of photovoltaic plants			Sports-facility operators/owners
Heat	Energy-efficient heating plants			Operators and owners of sports facilities
	Regenerative energy sources			
	Recover heat by means of heat exchangers in air-conditioning plants			
	Best possible insulation of heated areas			
	Do without hot-water connections for hand basins in sanitary facilities			
	Fitting of radiator thermostats			
	Passive sun protection and night-time cooling			
	Use natural ventilation			
Lighting	Use energy-saving light bulbs			Operators and owners of sports facilities
	Install energy-saving floodlighting systems			
	Use detector alarms and brightness sensors to control lighting			
Central building control systems	Control isolated heat and electricity consumption centrally			Operators and owners of sports facilities



Please make a copy of the Check List and tick off action taken



Statutory requirements



Particularly effective measures



Action	Measures			Responsibility
<b>5. Water/Wastewater</b>				
Substitution of potable water	Use well- or rainwater for toilets, urinals and the watering of green areas.			Operators and owners of sports facilities
	Construct rainwater cisterns			
Water-saving sanitary facilities und devices	Water-flow regulators on taps, self-closing taps			Operators and owners of sports facilities
	Dry urinals or reduced toilet flushing			
	Purchase of appliances/fittings that save water			
Infiltration and desealing	Construction of trenches for the infiltration of rainwater			Owners of sports facilities
	Use water-permeable materials for the surfacing of paths and spaces			
<b>6. Nature/Landscape</b>				
Compensation concept	Preparation and implementation of a compensation concept in line with nature conservation law (avoidance, minimization and compensation strategy)			Organizers, sports-facility operators/ owners, authorities
Ecological project planning	Monitoring of the construction phase by an ecologist			Operators and owners of sports facilities/experts
Land use	Minimize the sealing of land			Organizers, operators and owners of sports facilities
	Reduce sealing and land use by means of temporary buildings			
<b>7. Noise</b>				
Active noise abatement	Position public address systems in such a way that noise exposure is minimized			Operators and owners of sports facilities
Passive noise protection	Protect local residents by means of structures such as noise protection barriers			Operators and owners of sports facilities
	Compliance with legal requirements (e.g. TA Lärm, Technical Instructions on Noise)			

# Preliminaries: Planning large events Phase 3



## Preliminaries

### Phase 3

**Nia Künzer**

Scorer of the golden goal in the final of the 2003 Women's World Cup and twice winner of the European Women's Football Championship with the German team

*“It's an incredible feeling to be world champion. Not only the team celebrates, but also the whole country. I think that Germany should also try to take the lead in environmental protection. That is good for the country's image. And if others follow our example, that is even better.”*



Good planning requires answers to the right questions. This also applies to environmentally compatible sporting events.

- | How can one achieve the environmental objectives set out in an outline concept or in the application for a sporting event?
- | Which measures are absolutely essential, and which additional measures might be possible?
- | Which capital expenditure promises a short amortization period and at the same time great effectiveness?
- | Who is responsible for the realization of technical and organizational measures?
- | Where can potential partners be found who might support the environmental concept?

The objective of this phase is the realization of the environmental concept and, from a technical point of view, the choice of appropriate technologies and equipment. The departure point for the selection of measures is sound data; for instance, as precise an estimation as possible of water and energy consumption for the forthcoming event. On this basis it is possible, on the one hand, to define the greatest savings potentials, and, on the other hand, to carry out a precise results check after the event, namely, which objectives were achieved, and which were not achieved?

The organizational embedment of the environmental concept is just as important as the technology. Who bears responsibility, and where is he or she to be found? The respective persons must be selected, appointed and motivated at an early point in time. The more varied the circle of participants the greater the prospects of success. Early involvement of environmental organizations and civic action groups, for instance, can improve both the acceptance and the quality of the environmental concept. Sponsors and investors who support and promote individual measures or the overall concept are also important for the success of the project. They must be involved in planning at an early stage with their specific contributions towards realization of the concept.



## Focus on climate protection

### Climate on the victory rostrum

As a result of the great public interest that they arouse, large sporting events can provide an important example. This also applies to climate protection. Travel to and from sports venues often gives rise to the greatest greenhouse gas emissions. On the other hand, sports facilities themselves contribute considerably to emissions.

Even when promoters and organizers have exhausted all possible means to minimize emissions, a deficit remains in the climate balance, for the air travel of international teams and visitors can be neither restricted nor avoided. The solution to this problem is the compensation of unavoidable greenhouse gas emissions through climate protection projects. Experts speak of "climate neutrality". Below the line, sporting events cause greenhouse gas emissions where they are held; but they are neutralized through activities that avoid an equivalent amount of greenhouse gases elsewhere in the world.

### A large sporting event can have a neutral effect on the climate by means of the following:

1. Reductions in emissions of greenhouse gases through:

- | the use of environment-friendly means of transport
- | energy savings
- | an increase in energy efficiency
- | the use of renewable energy sources.

2. Compensation of unavoidable greenhouse gas emissions:

To begin with, a balance is drawn up to ascertain the quantity of greenhouse gases that have to be compensated. The balance framework lays down the emission-related activities – such as construction, energy, transport and the overnight stays of visitors – that are to be covered. Finally, expenditure on climate protection projects then occurs, which compensate the emissions of the sporting event in a verifiable manner. The choice of compensation projects requires care. They should fulfil the demands of the so-called "Gold Standard" (developed by the WWF and other environmental organizations and interest groups), a seal of quality that sets high environmental and social standards. The Gold Standard requires, for example, that projects specifically promote renewable energy sources and efficient technologies, and that they involve local interest groups in their planning and realization.

Climate neutrality is not a banal matter. It requires a lot of planning and research, a great deal of know-how and many years of commitment. That is why there are now a number of consultants that provide specialized services for such projects. They undertake the search for and selection of projects, the calculation of emissions, implementation of specific measures and project monitoring throughout its duration.

### The example of football

The 2006 FIFA World Cup was the first football World Cup with a comprehensive climate protection project. During the tournament, transport emissions were cut, energy requirements reduced and renewable energy sources used. Nevertheless, 92,000 tonnes of unavoidable greenhouse gas emissions arose in Germany during the World Cup. In order to compensate these emissions the German Football Association, FIFA and industrial partners provided 1.2 million euros of finance for climate protection projects in India and South Africa, which satisfied the Gold Standard. In the coming ten years these projects will prevent and thus compensate emissions totalling 100,000 tonnes of carbon dioxide. In India, around 900 families in a region laid waste by the tsunami in 2004 are provided with simple biogas generating units for cooking purposes. In South Africa, the coal furnace at a citrus fruit farm was replaced by a new boiler that runs on sawdust.

# Measures

## Phase 3

**Sabrina Mockenhaupt**

2005 European Cup gold medallist over 10,000 metres, German champion from 2003 to 2005 over 10,000 metres, runner-up at the 2005 European Cross Country Championships

*“Training and staying power are the most important things in running. And one must never lose sight of the long-term goal. I think it’s the same with environmental protection. Thinking not only about the here and now, but also about the future and coming generations! They also want to enjoy a healthy environment.”*



There is a wide range of possible measures to protect the environment. Just which of these measures is applicable, depends on the type of event: Is it an indoor or outdoor event? How many visitors are expected? How many participants? Will existing sports facilities be used, or will the event take place in the countryside? The importance of individual fields of action depends on the type of sport. The topic of transport is always important, since spectator travel to and from sports venues gives rise to the greatest emissions. The topic of waste plays a large role in practically every type of sport.

*The most important fields of action for selected large sporting events*

Event	Waste	Water	Transport	Energy	Noise	Nature Landscape	Catering	Merchandising
Marathon/Triathlon/Runs	■	□	■	□	□	□	□	□
Cycling	■	□	■	□	□	■ <sup>1</sup>	□	□
Motor sport	■	□	■	□	■	■ <sup>2</sup>	□	□
Skiing: nordic/alpine	■	■	■	□	□	■	□	□
Riding	□	□	■	□	□	□	□	□
Football	■	■	■	■	■	□	□	□
Sailing/Surfing/Rowing	□	□	■	□	□	□	□	□
Golf	□	■	■	□	□	□	□	□
Beach Volleyball	□	□	■	□	□	□	□	□
Athletics	■	■	■	■	■	□	□	□
Boxing	□	□	■	■	□	□	□	□
Tennis	□	□	■	□	□	□	□	□

- Particularly important
- Important
- To be examined

<sup>1</sup> Only Mountain bike and cross-country events – other events: important

<sup>2</sup> Motor rally and Motocross – other events: examine

## Measures

### Phase 3

#### Transport

##### *Strengthen integrated environment-friendly public transport |*

In the case of large events with huge numbers of spectators it is worthwhile from an ecological point of view to extend and increase the frequency of local public transport services. The general objective for all events must be to convey as many visitors as possible to the event with existing infrastructure. It is a good idea to use special trains and shuttle buses to connect city centres and hotels to the event venue. Experience shows that attractively-priced special tickets encourage many visitors to switch from travel by private car to public transport. The so-called CombiTicket, which covered both admission and journeys to and from the event by underground or city-rail, has proven successful. Special offers can be made for journeys by rail to large events. In many cases the sports venue can be easily reached on foot or by bicycle from city centres. In a number of cities, World Cup routes ("fan miles") from city centres to stadiums were designated and upgraded for the 2006 FIFA World Cup. Many fans made use of these routes to walk to a stadium. Provided that a sufficient number of secured bicycle-parking spaces are made available, visitors from surrounding areas will willingly get on their bikes. Appropriate mobile bicycle-parking systems have already proven their worth at large sporting events.

#### Good Practice

### Climate protection with CombiTickets

*The Bremen Six Day Race offers it, the ISTAF in Berlin too, as well as the CHIO in Aachen and ice hockey and handball Bundesliga operations: the "CombiTicket". A particularly attractive CombiTicket was offered for the 2006 Football World Cup: the admission ticket entitled holders not only to free travel to and from the respective stadium – as is common for football Bundesliga games – but also to free travel on all buses and trains of the respective transport network from the commencement of services in the early morning of match days until the early morning of the following day. The CombiTicket made a major contribution to the fact that during the 2006 World Cup 57% of visitors travelled to stadiums with public transport services. Before preparations for the World Cup began, the average share of public transport of all World Cup stadiums in football Bundesliga operations was 40%.*

#### *Direct individual motorized traffic |*

An intelligent parking management system makes a major contribution to a large environment-friendly large sporting event. The better public transport connections the lesser the need for car parks in the direct vicinity of the event. Park & Ride parking facilities – possibly just for the event – encourage visitors to switch to public transport on the outskirts of a city. A positive effect is that cities are relieved of problems of noise and exhaust-gas. Traffic-control systems direct motorists to available car parks. Sufficient parking spaces for coaches



should be made available as close as possible to the sports facility. To reduce inconvenience to local residents, residential areas in the vicinity of the sports facility could be cordoned off for private traffic. This was carried out during the 2006 Football World Cup in Berlin, Leipzig and Kaiserslautern. At the 2000 Olympic Games in Sydney, too, the residential area in the vicinity of the Olympic complex was cordoned off for traffic.

### Christian Schwarzer

Member of the 2007 World Champion and 2004 European Champion German handball teams

*“Handball games attract an increasing number of spectators, and I’m very pleased about that. People want to travel to games comfortably and safely. Transport concepts are therefore required that bring fans to games quickly and by environmentally favourable means.”*

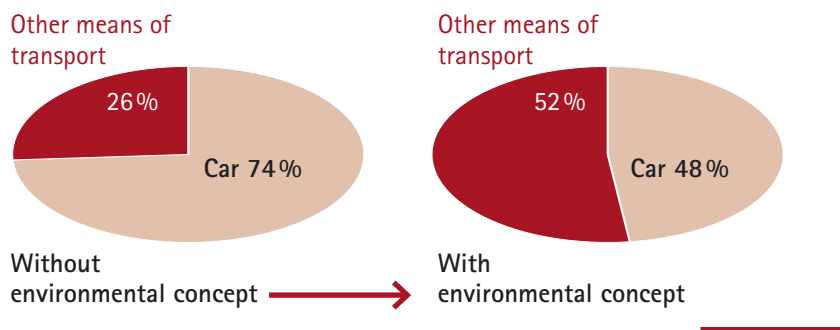


## Good Practice

### Success with additional trains

12,000 additional train-kilometres were provided for the FIS Nordic World Ski Championships 2005 in Oberstdorf, which was equivalent to a 51% expansion in capacity. In all, 180,000 people travelled to Oberstdorf by train, which corresponded to 50% of daily visitors and 18% of overnight visitors. For a sporting venue in a rural area this was a great success! The share of spectators that travelled to the event by car was around 26 per cent lower than it would have been without the environmental concept. This way, greenhouse gas emissions through travel to and from the event were reduced by 10 per cent.

Reduction in the share of car travel by spectators to and from the FIS Nordic World Ski Championships 2005 with and without the environmental concept



#### Provide reliable information |

Only those who know how they can get to an event or the host city by public transport will use buses and trains. For this reason, travel information – for example, in the form of a pamphlet – should be provided at the time when admission tickets are sold or dispatched. These should inform visitors about offers such as “CombiTickets” or special rail tickets and detail routes to the respective sports facilities. In addition: Use the Internet! Many visitors seek travel information and tips at short notice on the Internet.

#### Operate environment-friendly vehicle fleets |

Event organizers often convey VIPs, representatives of sports associations and sponsors in special vehicles. For the FIS Nordic World Ski Championships 2005 in Oberstdorf, for instance, 55 minibuses, 40 cars and 35 shuttle buses were used, and at the 2006 Football World Cup 912 minibuses and cars were in operation. This service offers varied opportunities to do something for the environment, for example through the use of low-fuel vehicles with high exhaust standards or alternative engines and the use of hybrid and gas-run vehicles. The

use of light free-flowing oil noticeably reduces fuel consumption. Special training for drivers offers great potential for fuel savings of between 10 and 25%. Since vehicles are generally provided by sponsors, corresponding arrangements should be included in contracts. Driver-only journeys should be avoided. The use of minibuses instead of cars can reduce the number of necessary journeys.

## Measures

### Phase 3

#### Energy

##### *Save electricity* |

In principle, only electrical appliances (cooling and air-conditioning plants, dishwashers) of the highest efficiency grade should be used. In the case of refrigerators, for example, the best appliances on the market consume 25% less electricity than the average. Dishwashers should be connected to hot-water heating systems when the hot water is produced from recovered heat or gas. With large appliances keep an eye on energy and water consumption! Conveyor dishwashers should be equipped if possible with heat recovery. Modern commercial models with a tank use only 2 to 4 litres for each washing cycle. Appliances in kitchens should basically be run on gas instead of electricity. Gas cookers, for example, use only 50% as much energy as electric cookers.

##### *Minimize stand-by losses* |

Prevent stand-by losses – for example, through switchable plug connectors. Completely switching off all unneeded energy sources at the end of an event also contributes to energy-savings and thus climate protection.

##### *Green electricity* |

The electricity requirements of large sporting events can be completely covered with electricity from renewable sources such as solar energy or hydropower. Sporting events can be supplied directly with green electricity, whereby it should be ensured that only certificated green electricity is purchased. Where contracts already exist for the supply of conventional electricity, substitution solutions are available, by means of which a quantity of green electricity is fed into the

supply network, which is estimated to cover the event's requirements. Such substitution schemes are suitable for both indoor and outdoor events. An event can also encourage a sports facility to switch to green electricity on a permanent basis.

##### *Generators* |

As many plant and appliances as possible should be connected to the power supply network, and as few as possible by means of generators. Where generators cannot be dispensed with, it should be examined whether they can be run on biodiesel. Their operating time should be restricted to a necessary minimum.

#### Good Practice

### Green power for Ballack & team

*The 2006 FIFA World Cup in Germany was the first Football World Championship with green electricity. Since direct supply of football stadiums was not possible – operators had long-term contracts with their respective suppliers – a “substitution solution” was evolved. The energy sponsor fed 13 million kWh of electricity into the German supply network before the World Cup began. This electricity was wholly generated in a Swiss hydropower plant, part of which is recognized as a new plant in accordance with “OK Power” criteria. The increased cost was borne by the energy sponsor.*





## Waste

### *Multiple-use systems* |

Returnable beakers for drinks have become established in the world of sport. They are used at football *Bundesliga* games, at the Nürburgring and at the Kieler Woche. Beakers for hot drinks as well as plates and cutlery are also in use as multi-use products. Dispensing with disposable crockery reduces purchasing costs as well as the cost of street cleaning, collection, removal and disposal. Multi-use crockery is basically suitable for just about all large sporting events. Marathon races are an exception, where

the orderly return of beakers is not possible. When disposable products are used they must be separately collected to enable high-grade recycling.

### *Separate wastes* |

Wastes should always be collected separately according to fraction – paper, light packaging (“green point”), glass and residual waste. Consistent waste separation is a pre-condition for later recycling of materials. “Waste points” are suitable for this purpose: a joint collection point comprising individual containers for each waste fraction. This principle should be consistently applied – from

approach roads and paths to the direct vicinity of the sports facility and the event area itself. With waste separation a distinction has generally to be made between areas accessible to spectators and the backstage area, where special wastes occur – such as paper in the organizational area and biowaste in kitchens – and separation is obligatory. Frying fat, vegetable oils and the content of fat separators have to be recovered separated from other wastes. The same goes for problematic materials such as engine oil, batteries, paint residues and medicinal products

### Good Practice

## Waste points ensure clean Nordic World Ski Championships

*At the FIS Nordic World Ski Championships 2005 in Oberstdorf there were 20 waste points in and around the stadiums. Local schoolchildren took care that wastes were collected, separated and prepared for recycling or disposal. More than half of the visitors said that they had noticed waste points, and nearly all those questioned regarded the disposal system as a good idea. Above all, appearances confirmed the success of waste points: the World Championships in Oberstdorf were the cleanest yet.*



## Measures

### Phase 3

#### Waste

##### *Avoid waste in spectator areas* |

"Put it in a roll" (steak or sausages not on plates but in a bread roll) and the serving of food (for example, chips) in paper bags saves a lot of waste. Where possible, goods should be purchased without packaging or in large batches. Do without small packages as far as possible; for instance, provide large mustard dispensers instead of small sachets and coffee cream in small cans instead of individually packaged portions. Replace disposable paper towels in sanitary facilities preferably with multi-use rolled cotton towels. It can generally be said that when waste avoidance is consistently applied later separation of residual waste from spectator areas may be unnecessary.

##### *Avoid waste with communications* |

In pressrooms nowadays paper has been largely replaced with electronic "media channels". Information should only be provided on paper when requested at information desks. The same applies to invitations, registrations, travel guides and spectator information. But here, too, the Internet and E-mails can replace paper. Where printed materials are necessary, use recycled paper.

##### *Avoid waste backstage* |

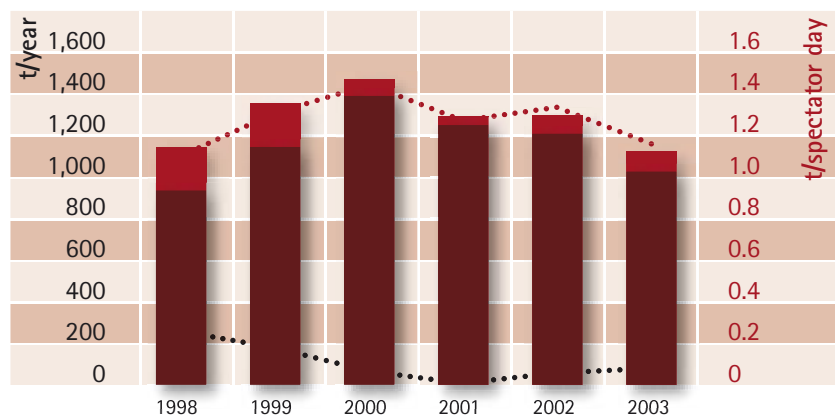
Suppliers and caterers should make use of multi-use packaging and receptacles. Meat and sausages, for example, can be delivered in returnable trays, bread in returnable baskets. Where multi-use systems cannot be employed, suppliers should be obliged to take back packaging! Through the supply of drinks in large containers (for example, mixed taps for soft drinks and draught instead of bottled beer), waste can also be avoided. In principle, returnable bottles should be provided instead of disposable bottles.

#### Good Practice

### Waste avoidance at the Nürburgring

The Nürburgring succeeded in reducing annual quantities of waste by 40% from 2000 to 2003. Returnable beakers for drinks, waste charges levied on those responsible for waste and organizational measures all contributed to this success. Campers receive an "environment token" – on payment of a deposit – as well as differently coloured rubbish bags on entering the site, and are refunded the deposit when the bags are returned together with the token. In addition, car parks and camping areas are separated. The result is that considerably less sofas, refrigerators and other waste are left behind at camping sites.

*Trend in waste quantities of the Nürburgring GmbH  
(Source: Environment Report 2004)*



Wastes per year:  
■ for disposal  
■ for recycling

Wastes per day:  
..... for disposal  
..... for recycling

## Water

### *Use environmentally sound detergents |*

Whenever possible, use environmentally sound detergents and dispense with products such as disinfectants, which contaminate wastewater. Use cleaning agents for dishwashers that are free of phosphate and compounds containing chlorine.

### *Isolate problematical substances |*

Ensure that problematical substances do not enter wastewater, surface water or the ground during the cleaning of sports equipments. Contaminants are a problem, for example, in motor sport events. Engine oils, fuel and brake fluid can be separately collected. Impermeable covers and mats prevent seepage. Where possible, set up special washing areas.

### *Collect wastewater |*

As a general rule, with outdoor events it should be examined whether temporary facilities can be connected to the public sewage system. Tanks might have to be provided from which wastewater can be pumped into sewers or taken away by lorry. The undesirable use of the countryside as toilets can be countered by restricted access and an adequate supply of mobile toilets.

## Good Practice

### Sewers instead of chemicals

*There is a great need for public toilets at large sporting events. Suitable installations have therefore to be designed and constructed in good time. Most of the mobile toilet containers at the IAAF World Championships in Athletics in Helsinki 2005 were connected to the city's public sewage system, with the result that the use of chemicals in toilets was unnecessary.*



## Measures

### Phase 3

#### *Avoid disturbance to animals |*

Breeding seasons of animals in the wild must be observed. In certain sensitive areas large events in the spring and early summer have therefore to be avoided. Visitors should be informed that loud equipment should not be used outside of built-up areas. Accompanying vehicles should be dispensed with.

### Nature and landscape

#### *Control visitors through convenience |*

With a number of simple but effective measures it can be ensured that visitors stay on the right track. Such measures include clear signposting of catering and toilet facilities, the provision of route maps showing important pathways and facilities as well as a closely-linked path network, so that visitors do not walk across country. Steps and stands – for example, along racing circuits – are convenient for spectators and also reduce damage to embankments and environs.

#### *Carefully plan routes |*

Wherever possible, use existing routes or paved paths! Routing has to be carefully planned. If the route touches on a prioritized nature conservation area, examination of compatibility – also with the flora, fauna and habitat (FFH) – might be necessary. It is useful to design courses in such a way that use is possible subsequent to the event. In general, no courses should be planned in areas that have previously not been affected or only marginally affected. Restoration and renaturalization can also make a contribution to nature conservation.

#### Good Practice

### Peddalling lightly for the wood grouse

The Black Forest ULTRA Bike Marathon, which the Kirchzarten Sports Club has organized for the past ten years, runs for a total of 150 kilometres through the Upper Black Forest and thus through many sensitive areas, including the habitat of the wood grouse. There are only around 600 of these shy protected birds in the upper regions of the Black Forest, and the event regularly coincides with the end of their breeding season. However, the around 5.000 bikers and 30,000 spectators no longer get under the feet of the wood grouse. The marathon course was changed in certain critical areas for the wood grouse without losing its attraction.

Course plan of the Ultra Bike Marathon taking account of wood grouse breeding grounds (Source: DSHS, Cologne)



## Noise

### *Reduce noise exposure* |

Wherever possible, the event should be planned at such a time that it causes only a minimum amount of noise nuisance for residents in the morning, the evening and at night. Public address systems should be positioned, directed and adjusted in such a way that local residents and – with outdoor events – animals are least affected. Take noise emissions into consideration when purchasing loud equipment, such as snowmaking plant. New equipment is mostly quieter than older models. The use of electric engines instead of petrol and diesel engines can also reduce noise emissions.

## Catering

### *Organic products* |

Organic food products are a rarity at large sporting events. Offering organically produced food products and drinks is one way to make sporting events more environmentally beneficial. Ecological agriculture reduces the use of pesticides and synthetic fertilizers and protects, above all, soil and groundwater. Ecolabels, which draw the attention of visitors to the use of organic products, can be used to boost an event's image and enhance its communications.

### *Regional products* |

When purchasing food products, regional products and direct purchasing from farmers can also be considered. This promotes the regional economy and decreases emissions from transportation. The deliberate selection of seasonal products also relieves the environment through reduced freight paths. Furthermore, regional purchasing enhances transparency of origin and production. Due to their better quality and environment-friendly production regional and organic products might be more expensive than mass-produced goods, but partnerships with producers can cushion these additional costs.

### *Fair-trade products* |

The use of fair-traded food products such as coffee supports producers in developing countries. Fair and cost-covering prices, however, also make an important contribution towards securing the existence and future of domestic farmers. Fair-traded food and drinks could therefore contribute towards the sustainable development of events.

## Good Practice

### The organic marathon

*At the Frankfurt City Marathon in 2005 a great effort was made to promote organic food. Ten companies from the health foods sector provided the complete catering for runners along the course and at the finishing line. In order to help spectators to appreciate the campaign, 130 "organic runners" participated in the race. In addition, an "Organic Mile" was created for the marathon with entertainment, information, catering and a relaxation zone. Because of its great success it is planned to make the "Organic Race" a regular feature of the Frankfurt City Marathon.*



## Measures

### Phase 3

#### Merchandising

##### *Carefully select suppliers |*

Manufacturers and suppliers of merchandising products of all kinds should be carefully selected. Where possible, companies should be chosen that dispose of a certificated environmental management system (EMAS or ISO 14001). This ensures that production and product design are continually optimized according to ecological criteria. Compliance with international social standards (for instance, the banning of child labour) is also an important aspect of the selection of suppliers.

##### *Watch out for ecolabels |*

There are a number of environmental labels for products, whose prime purpose is to provide consumers with information. These labels may be used when specific ecological criteria are met concerning their properties and manufacture. Environmental labels, such as the "Blue Angel" label in Germany, basically provide sound guidance for recognition of environmentally-sound and low-pollutant products.

##### *Do without throwaway articles |*

Do without cheap throwaways! Environment-friendly merchandising products are more durable, they save energy and can be recycled; their production makes economic use of resources, they can be made from recycled material and regenerative materials, and their manufacture has a harmful effect neither on human health nor the environment.

#### Good Practice

### Goals with fair balls

*Most footballs are made in Pakistan. A sewer needs almost 700 stitches and around two hours of work to sew together the 32 sections of a football. Footballs from fair trade were rated highly in World Cup year 2006. Film, music and football celebrities were actively involved, schools and clubs also played a role and the balls could even be bought at discounters. In order to prevent child labour and to improve working conditions in factories, organizations and suppliers signed contractual agreements, which included the commitment to work together with a manufacturer who paid a minimum wage as well as a bonus to be used by sewing centres for health care, schooling and further training.*



## Communications

### *Inform visitors |*

The waste and mobility concept should be explained to visitors through specifically targeted public relations and through talking to visitors (for example, when handing over tickets before the event, or at ticket stands during the event).

### *Inform staff |*

Environmental protection is always teamwork. Without well-informed and motivated staff many measures cannot be implemented, or at least not successfully implemented. Well-functioning waste separation in the backstage area, for instance, requires that everyone be informed about the waste concept before the event. This includes organizers, athletes, volunteers and cleaners. The same applies to catering personnel; a great proportion of waste arises in their area. Water- and energy-savings also require that staff be adequately informed. Modern technology may well frequently function automatically, but a lot depends on whether people behave properly and are environmentally aware.

### *Inform the public |*

Do good things and talk about them! In line with this principle, information should be provided to the public at an early stage. The means of doing so are varied: press releases, press conferences and an Internet presence. Open communication of the objectives, motivation, measures and participants contribute to an event's positive image. Moreover, broadly based campaigns can sensitize the public for environmental matters. In many types of sport, clubs and schools can also be actively involved, which are often open and sensitive to environmental issues. Best of all is the support of personalities and celebrities in the role of environment ambassadors; this guarantees a great deal of attention for a particular issue.































### Good Practice

## “PrimaKLIMA“: Do-it-yourself climate protection























*Small steps also have a great effect. And with climate protection everyone can get involved and make a personal contribution to the solution of a global problem. This was the motto of the “PrimaKLIMA” campaign of the Ministry of the Environment in the State of Rheinland-Pfalz. Between June 2005 and June 2006 – up to the end of the Football World Cup – schools, associations, clubs, municipalities and households were called upon to form teams and evolve simple, smart ideas to save energy. Simple action would already make a big difference: replacing light bulbs with energy-saving bulbs, switching off the stand-by function on electrical appliances, reducing room temperature and fuel-saving car driving. The teams passed on their ideas and encouraged friends, relatives, neighbours and colleagues to take part. The more energy – and thus CO<sub>2</sub> – that was saved the more points the team accumulated. The main prize awarded by the Environment Ministry was a several-day stay for the winning team at the “Biosphere House” in Fischbach/Pfalz, in the Allgäu region of Bavaria or in the Upper Black Forest. For football fans there was a special prize: a football game refereed by Dr. Markus Merk, the World Cup referee, and a training session with the manager of Koblenz Sports Club and former national player Stefan Kuntz. All in all, the campaign resulted in savings of 1,930 tonnes of CO<sub>2</sub>. The Environment Ministry summed up the implications at the end of the campaign: “The great interest and large numbers of participants clearly demonstrated the need for information and suggestions on the saving of energy in private households and everyday life.”*
































## Check List – Phase 3

Action	Measures			Responsibility
<b>1. General Matters</b>				
Put the environmental concept into concrete terms	Develop a detailed environmental concept			Organizers in co-operation with all relevant parties
	Quantify the prospective environmental effects of the event			
	Gain partners for co-operation			
	Guarantee compliance with all statutory requirements (see also Phase 1)			
	Examine the introduction of a formal environmental management system (for example. EMAS, ISO 14001)			
Set up a team	Assignment of responsibility for environmental matters to a specific staff member			Organizers
	Setting up an environment team, involvement of relevant parties (sports-facility operators, sponsors, municipalities)			
	Co-operation with environmental and nature conservation organizations and experts			
<b>2. Climate protection</b>				
Reduce greenhouse gases	Reduce greenhouse gases through an increase in energy efficiency, the use of renewable energy sources and environment-friendly transportation (see points 3 and 4)			Organizers, sponsors
Compensation of unavoidable emissions	Compensate unavoidable greenhouse gas emissions through expenditure on climate protection projects			Organizers, sponsors
<b>3. Transport</b>				
Strengthen integrated environment-friendly public transport services	Expand and increase the frequency of local public transport services before and after the event			Organizers, transport services, municipalities
	Use of special trains			
	Combine admission tickets with free use of local public transport (CombiTicket)			
	Attractive special offers for rail travel			
	Provide attractive cycleways and footpaths to sports facilities			
Control individual motorized traffic	Adjust the number of car parks to local public transport capacities			Organizers, operators of sports facilities, municipalities
	Create park + ride facilities with traffic-control systems			
	Provide parking areas for coaches in the immediate vicinity of the event			
	Where applicable, cordon off residential areas in the vicinity of the event for private traffic			



Action	Measures			Responsibility
<b>3. Transport (cont.)</b>				
Provide reliable information	Provide special travel information on public transport services			Organizers, transport services
Environ.-sound vehicle fleets	Operate environment-friendly vehicles with low fuel consumption in vehicle fleets			organizers, sponsors
<b>4. Energy</b>				
Save electricity	Use electrical appliances offering the best energy efficiency			Operators of sports facilities, caterers
	Directly connect dishwashers to hot-water systems			
	Operate gas rather than electricity-run kitchen equipment			
Minimize stand-by losses	Use switchable plug connectors			Operators of sports facilities
	Switch off unneeded energy sources			
Green electricity	Cover the event's energy requirements with certificated green electricity			Organizers, operators of sports facilities, sponsors
	In the long term: Convert sports facilities to green electricity			
Generators	Obtain electricity supply as far as possible from the supply network instead of from generators			Organizers
	Check the use of biodiesel in generators			
<b>5. Waste</b>				
Multiple-use systems	Use of returnable beakers requiring a deposit			Organizers, caterers
	Use of returnable crockery			
Avoid waste in spectator areas	Offer low-waste catering			Organizers, caterers, operators of sports facilities
	Purchase goods in large batches without packaging			
	Dispense with pre-packed individual portions			
	Dispense with disposable paper towels			
Avoid waste backstage	Obtain deliveries in returnable packaging			Caterers, organizers
	Supply drinks in large receptacles			
	Use returnable instead of disposable bottles			
	Oblige suppliers to take back packaging			

## Check List – Phase 3

Action	Measures			Responsibility
<b>5. Waste (cont.)</b>				
Avoid waste in communications	Set up electronic media channels for journalists			Organizers
	Use recycled paper			
Separate wastes	Provide waste points for waste separation in spectator areas and in the vicinity of sports facilities			Organizers, caterers, waste disposal companies
	Waste separation in the backstage area			
	Collect problematic substances			
<b>6. Water</b>				
Environment-friendly detergents	Use environment-friendly detergents			Operators and owners of sports facilities, caterers, (organizers)
	Dispense with disinfectants			
	Use phosphate- and chlorine-free detergents			
Harmful substances	Separate collection of substances hazardous to water			Organizers, Operators of sports facilities
	Set up special washing areas for sports equipment			
	Protect soil with impermeable covers and mats			
Wastewater	Examine possibilities to connect temporary facilities to public sewage systems			Organizers
	Collect wastewater in tanks for disposal by specialized companies			
	Dispense with chemical toilet facilities			
<b>7. Nature/Landscape</b>				
Direct visitors	Direct visitor flows by means of course maps, clear signposting of catering and toilet facilities, a close network of paths and dismantable stands			Organizers, sports-facility operators, authorities
Carefully plan courses	Plan courses that are environmentally compatible (where necessary, carry out an EIA and check FFH-compatibility)			Organizers, sports-facility operators, authorities, experts
	Use existing routes and paths			
	Consider the subsequent use and renaturalization of courses			
Avoid disturbance to animals	Avoid events during breeding seasons			Organizers

Action	Measures			Responsibility
<b>8. Noise</b>				
Reduce noise exposure	Plan events in such a way that local residents are inconvenienced as little as possible			Organizers
	Make use of low-noise equipment			
<b>9. Catering</b>				
Organic products	Offer organic food and drink			Caterers, organizers
Regional products	Consider regional products and those directly marketed by farmers			Caterers, organizers
Products from Fair Trade	Offer "fair-trade" food products			Caterers, organizers
<b>10. Merchandising</b>				
Specially select suppliers	Favour manufacturers and suppliers with environmental management systems			Organizers, manufacturers, sponsors
	Check compliance with international social standards on the part of manufacturers			
Watch out for ecolabels	Provide merchandising products with ecolabels			Organizers, manufacturers, sponsors
	Keep an eye out for low-pollutant products			
Do without throwaways	Favour durable, high-quality merchandising products			Organizers, manufacturers, sponsors
	Bear in mind the recyclability of goods			
<b>11. Communications</b>				
Informing visitors	Provide visitors with information about waste and transport concepts before the event			Organizers
Informing staff	Provide staff with detailed information on the environmental concept			Organizers, facility operators, transport services
	Prepare specific instructions for action			
Informing the public	Provide the public with information on the environmental concept through special PR activities			Organizers, sports associations, municipalities
	Develop environmental campaigns for schools, clubs etc.			
	Gain the support of popular athletes as environment ambassadors			

# Let's go! Organizing an event Phase 4



## Let's go! Phase 4

### Sabine Spitz

Mountainbike World Champion 2003,  
bronze medallist at the 2004 Olympic Games in Athens,  
runner-up in the 2005 Cyclo-Cross World Championships

*“One should be able to enjoy mountain biking out in the open. That's why the precautionary planning of races is important, so that adverse effects on the environment and nature can be kept to an absolute minimum.”*



Years of work and good planning cannot prevent problems and conflicts occurring during the event. In order to be able to react quickly and effectively, permanent controlling and monitoring is necessary. Responsibilities for environmental matters during the event must be laid down. Should the shuttle buses provided for the event prove to be insufficient, for instance, it must be immediately clear who will take care of additional buses. If waste containers are overflowing at waste points because more waste is accumulating than expected, they have to be emptied immediately. Ideally, environmental matters should be the responsibility of one particular person in the coordination office or "crisis squad". Monitoring during the event is important not only for the solution of problems, but also for control of compliance with statutory regulations (for instance, concerning exposure to noise).

The survey of environment-relevant data during the event is necessary to

enable documentation of achievements and monitoring of environmental objectives. This includes, for example, actual consumption of electricity and water as well as the number of visitors who travel with local public transport. Only when such data is available is a transparent report on achievements possible at the end of the event.



## Let's go!

### Phase 4

*Survey of environmentally relevant data at large sporting events (per sports facility)*

Area	Category	Unit	Comments
General	Daily number of visitors	No. per day	
	Daily event duration	Hours per day	
Traffic	Parking capacity	No. of spaces	Estimates or, in the case of large events, visitor surveys (random sample)
	Daily utilization of parking spaces	% per day	
	Number of coaches	No. per day	
	Users of integrated environment-friendly means of transport (local public transport, coaches, bicycles, journeys on foot) compared to total journeys to and from the sports facility	% of total daily visitors	
	Utilization of the organizer's vehicle fleet, also for the transport of VIPs	Litres of petrol or diesel	Where possible, differentiating between the event itself and periods before and after the event
Energy	Electricity consumption	kWh	Where possible, differentiated between the event itself and periods before and after the event
	Consumption of diesel generators	Litres of diesel	
	Purchase / production of heat	kWh	
	Gas consumption (excluding consumption for heat – e.g. cooking)	kWh or m <sup>3</sup>	
Waste	Residual refuse	Tonnes	Where possible, differentiated between different areas (e.g. spectator areas, temporary facilities, media facilities, catering, organization) as well as between the event itself and periods before and after the event
	Plastics / packaging	Tonnes	
	Paper / cardboard	Tonnes	
	Waste glass	Tonnes	
	Biowaste	Tonnes	
	Other wastes	Tonnes	
Water	Total water consumption	m <sup>3</sup>	Where possible, differentiated between the event itself and periods before and after the event
	Consumption for watering grounds / sprinkler systems	m <sup>3</sup>	
	Share of rain-, surface and well water in total consumption	%	

# Measures

## Phase 4

### Transport

#### *Direct traffic* |

How do visitors get to the stadium by public transport? Apart from the Internet, pamphlets and flyers, continuous traffic control is necessary especially for public transport. Spectators are guided by means of regular signposting from the main station or city centre to the venue. Care has to be taken particularly with international events to ensure that foreign visitors understand the traffic-control system.

#### *Look after passengers* |

At railway stations with long-distance services and key local stations passenger attendants and volunteers can be employed to help visitors to get to the event and to answer questions about public transport services. In the case of international events, specially trained personnel with knowledge of foreign languages are useful. Multilingual announcements at railway stations make it easier to catch the right train.

#### *Control traffic* |

In the case of large events, transport to and from the sports facility should be controlled. A co-ordination office staffed with representatives of the police, transport companies, the municipality and organizers is particularly advisable for large events. If shuttle-bus or public transport capacity is inadequate for the quick and smooth conveyance of all spectators to the venue, additional capacity can then be ordered immediately.

### Waste

#### *Control waste-collection behaviour* |

To ensure cleanliness, operators of kiosks, camping sites and other places can be required to pay a deposit before commencement of the event, which is then only returned when the facility is handed back in a clean condition.

#### *Avoid waste* |

Those who distribute only a moderate quantity of flyers, give-aways and other promotional articles during an event avoid a lot of waste. According to the principle, "quality instead of quantity" small quantities of products – but of a better quality – should be distributed, sold or given away. Where possible flyers should be completely dispensed with.

#### *Empty waste containers* |

Overflowing waste containers endanger separate collection concepts, since rubbish is then automatically thrown into other containers. To avoid this, waste containers should be emptied continuously during the event.

#### *Control waste separation in the backstage area* |

Waste separation in the backstage area of large events is essential. In order for this to be successful, regular control is necessary during the event. Should the occasion arise, non-compliance should be penalized. For this purpose, contracts with caterers and other service providers should contain provisions concerning waste separation.

### Nature and landscape

#### *Monitoring control* |

Whether fauna and flora is protected through the control of visitor movements should be monitored during the event. For this purpose a suitable monitoring system should be installed. Shortcomings should be dealt with immediately.



## Measures

### Phase 4

#### Noise

##### *Alleviate noise exposure* |

Particularly loud activities should not be undertaken in the early morning, the evening or at night. Loud equipment and plant, in particular, can be enclosed or screened off from the environs.

##### *Control noise exposure* |

In order to protect local residents from excessive noise, statutory and municipal requirements – permissible noise limits, for instance – have to be carefully complied with. This concerns competitions themselves, but often also side events or visitor noise at camping sites. Noise exposure should therefore be regularly monitored during the event and remedied where necessary.

#### Good Practice

### Foiling noise polluters

*Motor sport is loud? No way! The operators of the Nürburgring take noise and health problems seriously. Since 2001, course noise emissions have been monitored with appropriate technology. Three measurement points document excessive noise levels and driving at impermissible periods of time around the clock. Technicians quickly track down noise polluters by means of online monitoring, so that particularly loud vehicles can be immediately removed from the course. Apart from that, noise costs money: Since 2001, the cost of renting the Nürburgring has depended on actual noise levels. "Quiet" events are rewarded with lower course charges, loud events cost up to 15% more. The result is that loud races have noticeably declined since 2001. Since 2006, "tourist runs" by private individuals at the Ring are monitored by means of a special measuring procedure. This way, the operators intend to identify noise polluters among leisure drivers and further reduce noise exposure from the Nürburgring's "northern loop".*

*Trend in the legally approved maximum number of days in the respective category at the Nürburgring, 2001 to 2003. Sound emissions increase from C to A (Source: Nürburgring GmbH: Environmental Report 2004)*

Test days	2001	2002	2003	Maximum quota <sup>1</sup>
A test days	1	0	0	24
B test days	12	4	4	28
C test days	41	40	27	116
Other	148	107	116	offen
Total	202	151	147	

Races	2001	2002	2003	Maximum quota <sup>1</sup>
A race days	12	4	5	15
B race days	36	20	21	36
C race days	30	32	37	45
Total	78	56	63	96

Not in operation	85	158	155
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<sup>1</sup>Permissible number of days in the respective category



## Communications

### *Visitor information |*

The normal visitor is unaware of most environmental protection measures taken within the scope of a sporting event. There are nevertheless areas in which his or her co-operation is necessary. This applies to all questions of waste. Waste containers for separate collection must be adequately labelled with coloured symbols for individual waste fractions. The employment of volunteers to inform visitors on site about separate collection enhances the quality of separation and helps to avoid litter.

### *Accompanying media activities |*



















Shortly before and during the event media representatives are particularly interested in all aspects of the event. This is an opportunity for environmental protection and nature conservation. Press releases can present measures that make the event environmentally and climatically compatible. In the case of events stretching over several days, a press conference specially devoted to environmental issues is recommended, since experience shows that this generally receives a considerable response in the media.



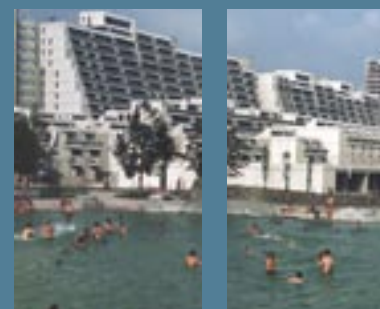
# Check List

## Phase 4

Action	Measures			Responsibility
<b>1. General Matters</b>				
Monitoring	Control implementation of environmental measures during the event			Organizers, operators of sports facilities
	Set up monitoring systems			
	Assign environmental responsibility to staff in the central coordination office			
Survey environmentally relevant data	Survey actual consumption of water and electricity, waste quantities and traffic flows during the event			Organizers, facility operators, transport services
<b>2. Transport</b>				
Direct traffic	General (multilingual) traffic-control system for public transport services to and from the event			Organizers, transport serv., municipalities
Look after passengers	Passenger attendants and volunteers at railway stations with long-distance services			Transport services
	(Multilingual) announcements at railway stations and on local rail transport services			
Control traffic	Set up central coordination office for traffic control (with large events)			Transport services, municipalities, (organizers)
	Plan additional local transport services in case of unexpectedly high demand and emergencies			
<b>3. Waste</b>				
Check waste-collection behaviour	Regularly control cleanliness in all event areas			Organizers, operators of sports facilities
	Encourage proper waste-collection behaviour among service providers through returnable deposits			
Avoid waste	Reduce the quantity of promotional articles			Organizers, facility operators, municipalities, sponsors
	Make corresponding arrangements with sponsors and municipalities			
Empty containers	Regularly empty waste containers			Organizers, sports-facility operators
Control waste separation in the backstage area	Regularly control waste separation in the backstage area			Organizers, sports-facility operators

Action	Measures			Responsibility
<b>4. Nature/Landscape</b>				
Monitoring of measures	Install a monitoring system for the control and possible modification of measures			Organizers
<b>5. Noise</b>				
Reduce noise exposure	Avoid early-morning, evening and night-time noise exposure			Organizers, operators of sports facilities, spectators
	Sensitize spectators for noise control			
	Optimum alignment and adjustment of loud-speakers			
	Enclose or screen off particularly loud equipment and plant			
Control noise exposure	Observe legal requirements for the protection of residents against noise			Organizers, operators of sports facilities, spectators
	Regularly check noise specifications			
	Enclose or screen off particularly loud equipment and plant			
<b>6. Communications</b>				
Visitor information	Provide specific information at the event venue (for example, concerning deposits on beakers, symbols for waste containers for separate collection)			Organizers, operators of sports facilities
	Employ volunteers on site to answer questions on particular measures (for example, separate waste collection)			
Media activities	Inform the media about environmental measures shortly before and during the event			Organizers, operators of sports facilities, sports associations, municipalities

# A sigh of relief: After the event Phase 5



## A sigh of relief

### Phase 5

Timo Boll

Table tennis European Champion in singles and doubles in 2002 and 2007, European Champion with the German team in 2007, runner-up in doubles at the 2005 World Championships, third-placed with the German team at the 2006 World Table Tennis Championships

*"Sports facilities should only be newly constructed when their use will be optimized and their operation therefore economical. This is the case with the new TableTennis Centre in Düsseldorf, which is used both for training and competitive events, but is also a residential school and provides facilities for courses and conferences."*



After the game is before the game! This wise old saying from the world of football applies also to environment-friendly large sporting events. For environmental protection is not something static, but rather lives off further development, optimization and adaptation.

Large international sporting tournaments are often one-off events. For a short period of time capacity has to be made available for a great number of spectators. The general objective after the event is therefore to recover, recycle or reuse as much material as possible. For this reason, subsequent use must be taken into account at the time of building or modernizing sports facilities. Construction costs are paid off all the quicker the more frequently

the sports facility is in operation. This principle is not always observed: Part of the buildings erected for the 2004 Summer Olympic Games in Athens have stood empty since the Games and are now to be partly demolished. Many sports fans collect souvenirs. So why not involve visitors in "subsequent use"? After the 2006 Football World Cup, for example, in several of the host cities a huge number of articles of value were successfully auctioned off: desks, lamps and table-football games, flags, decorative material and plants. Dortmund had the green banner that stretched the length of the "Fan Mile" from the main station to the stadium made into 100 high-quality bags and donated sales proceeds to a good cause.

#### Good Practice

### New life for TV presenter studios

*Temporary facilities can be reused. This is confirmed by the example of the TV presenter studios in the 2006 World Cup stadiums. The substructure of the 48 studios was built as a frame, and the studios themselves were erected as a superstructure in a modular system. Individual elements were suitable for reuse, which would not have been possible with conventional studios. For example, walls and roofs comprised sandwich elements from container construction, which could be reused after the World Cup.*



# Measures

## Phase 5

### Subsequent use

#### *Sports facilities |*

The basic prerequisite for the building of new sports facilities is an ecologically and economically sound concept for subsequent use. It should therefore be foreseen at the commencement of planning how sports facilities will be used after the event. The location of the sports facility is very important for future use. The capacity of sports facilities can be better utilized if they are built and used by several municipalities.

#### *Temporary structures |*

The erection and dismantling of temporary structures frequently gives rise to more waste than the total spectator area. Buildings and structural elements should therefore be re-used and not disposed of as waste. One simple yet efficient way is to rent materials! Tents, kitchen installations, electronic equipment, furniture and even cables can be rented.

### Waste

#### *Reuse |*

There are many possibilities, particularly in the case of temporary structures, for the reuse of structural elements and products and thus the reduction of waste. This applies to floor coverings, wall elements, cables, pipes, fences, cordons etc. Decorative materials and signs are also often reusable. Non-reusable materials should be recovered rather than disposed of.

#### *Sell or give away what is no longer needed |*

Rostrums, reporting stands and tent fixtures can be sold or given to other event organizers or sports facilities. In superior catering in VIP areas food requirements are difficult to calculate. It can therefore happen that large quantities of top-quality food products are left over. This should also be handed over to charitable organizations. This way, people in need are helped and waste reduced.

### Nature and landscape

#### *Remedial measures |*

After the event, damage to the ground and vegetation should be expertly remedied. In addition, the success of implemented compensation and replacement measures should be controlled.

### Communications

#### *Learn from experience |*

Environmental protection has to be learned. Some environmental objectives are easy to achieve, others more difficult. Honest analysis and assessment of environmental activities after the event indicate the strengths and weaknesses of the concept. Analysis is also the basis for proposals for improvement, which can flow into instructions for action and guidance for the event in the following year or for organizers of other events. The important thing is that as many organizers of large sporting events as possible profit from experiences made. Experiences with implementation of the environmental concept are also of interest to the sports associations behind events. They can learn from such experiences and make corresponding recommendations in the awarding of future events. The review and assessment of environmental objectives is also a matter for sports associations, for only extensive monitoring creates a basis for the further development of environmental concepts in sport. Finally, a national federation can also take the initiative in the international umbrella organization to ensure that greater account of environmental protection is taken with future events.

#### *Document success |*

Those who have organized an environment-friendly sporting event should make it known through the media, but also in an environmental report that details achievements and provides an incentive for emulators.



# Check List

## Phase 5

Action	Measures			Responsibility
<b>1. Subsequent use</b>				
Sports facilities	Realize a concept for subsequent use			Sports-facility operators/owners, municipalities
Temporary facilities	Reuse temporary facilities and structural elements			Organizers, sports-facility operators, sponsors, caterers
	Rent materials, structures, fittings and electronic equipment			
<b>2. Waste</b>				
Reuse	Reuse structural elements of temporary facilities, fittings and decorative materials			Organizers, operators of sports facilities
	Recover non-reusable materials			
Sell or give away what is no longer needed	Sell or give away articles and structural elements that can no longer be used			Organizers, operators of sports facilities, caterers
	Give away leftover food to charitable organizations			
<b>3. Nature/Landscape</b>				
Remedial measures	Expert remediation of damage to ground and vegetation			Organizers, operators of sports facilities
	Implementation and control of compensation and replacement measures			
<b>4. Communications</b>				
Learn from experience	Check self-initiated environmental guidelines and objectives			Organizers, (sports associations)
	Analyse strengths and weaknesses of the environmental concept			
	Draw up proposals for improvements			
Document success	Document experiences and successes in an environmental report			Organizers, (sports associations)
	Draw the attention of the media to the report			



Please make a copy of the Check List and tick off action taken



Particularly effective measures

# Green Champions Annex





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# Guide to environmentally-sound large sporting events

Large sporting events inspire millions of people every year. World and European championships as well as a wide variety of mass sports, competitive and top-class sports events are also an important image and economic factor that increasingly provides an initiative for sports development in keeping with the times. However, this trend brings with it greater consumption of resources (of energy and water, for example), increased emissions (of noise and pollution) and further side effects (such as increased traffic volume).

The objective of organizing such events in an environment-compatible manner is therefore of growing importance, since sporting events are also increasingly judged by their ecological standards. Experience shows that environmental protection in sport leads to a real win-win-situation. The environment and event organizers benefit equally from energy savings and waste avoidance, particularly

since the protection of resources also means cost savings and represents a contribution to sustainability.

"Green Champions in Sport and Environment – Guide to environmentally-sound large sporting events" investigates the varied aspects of the ecological impact of large sporting events, from waste to transport and from climate protection to catering. It provides practical advice, orientated towards specific action, for event organizers and sponsors, associations and clubs, but also for municipalities as well as the commercial partners and service providers of sporting events. In its five chapters it looks at individual areas and the respective statutory framework, it provides tips and specific recommendations for action and highlights examples of good practice, and it is rounded off with check lists and a bibliography. Though the guide focuses on "large" events, its recommendations are equally applicable to "small" events at a regional or club level.



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