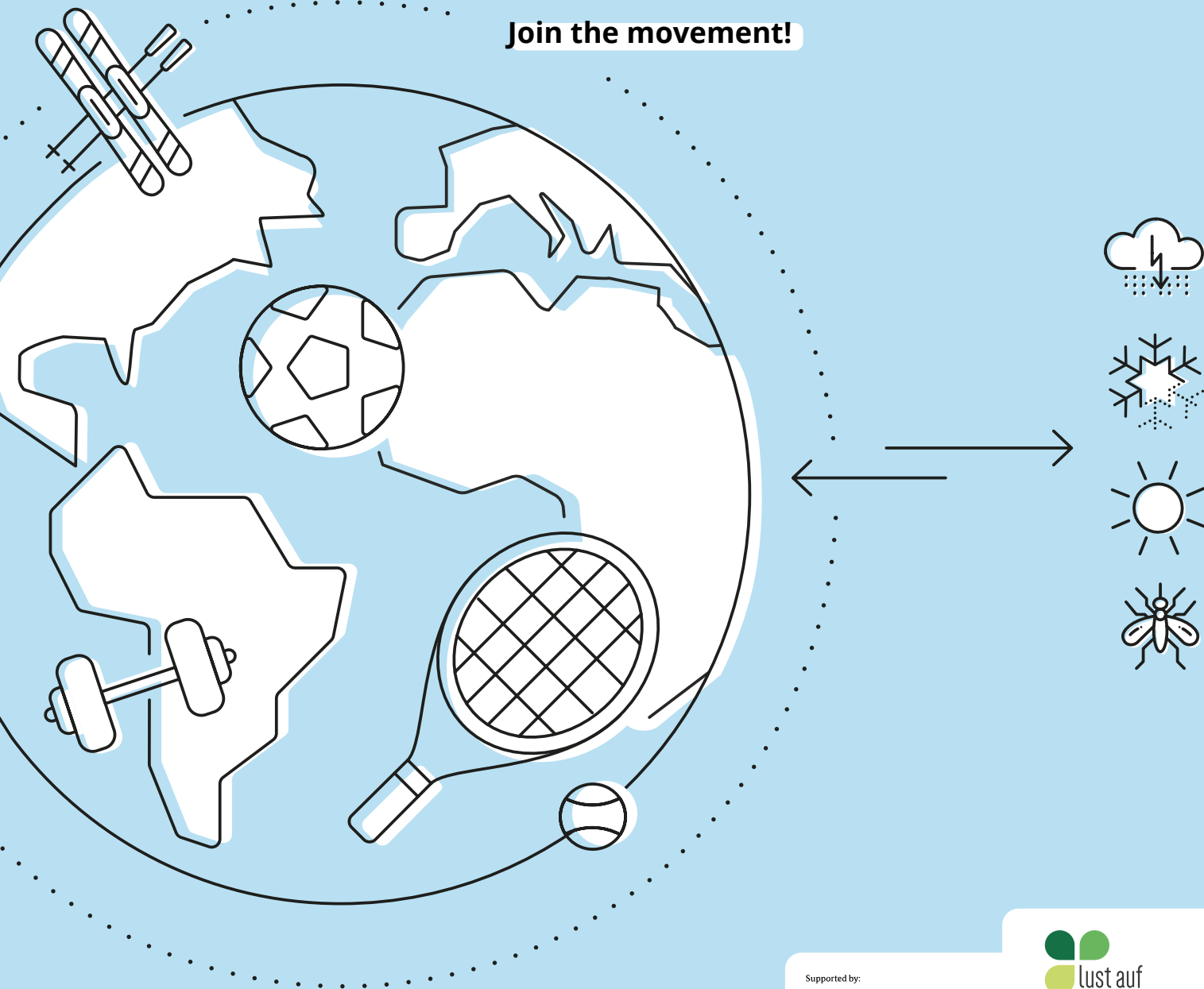


**CLIMATE
RESILIENT
SPORTS**

CLIMATE ADAPTATION AND SPORTS

Find out how sports clubs worldwide are affected by climate change and how to take action

Join the movement!



Supported by:

 Federal Ministry
for the Environment, Nature Conservation,
Nuclear Safety and Consumer Protection

based on a decision of
the German Bundestag

 Lust auf
besser leben

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About the project

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Fairtrade and sustainability in sports

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The impacts of the climate crisis such as heat waves, heavy rainfall, extreme dry periods and floods are causing significant damage, and Germany is now also affected. Homes, roads, farmland and railway tracks are being destroyed, people and nature are suffering in the process. The climate crisis is disrupting our leisure too – especially our outdoor activities – with stadiums, tennis courts and sports halls being damaged by heat, heavy rain or floods.

4

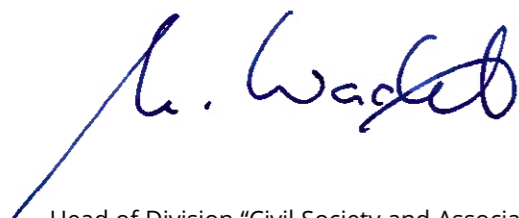
This means that athletes and sports infrastructure must change and adapt. Many sports clubs and associations have long been active in their communities, often thanks to the dedicated efforts of volunteers. For example, they provide drinking water fountains and shaded areas, and ensure climate-resilient infrastructure. Like society as a whole, sports clubs face the double challenge of tackling climate change and adapting to its impacts at the same time. This means protecting both sports facilities and the health of athletes, coaches, referees and spectators.

The Federal Environment Ministry (BMUV) supports KLIMASPORT, a project aiming to inform people about the effects of the climate crisis on sport. Using practical examples and information, the new issue of Climate Adaptation and Sport explains how you and your sports club can be better equipped to meet the challenges of the climate crisis.

This English version aims to foster discussion among athletes, their clubs and associations in Germany and abroad. The UN Climate Change initiative Sports for Climate Action is an excellent platform that uses the power of sport to drive forward effective climate action and adaptation. It helps us understand just how seriously the climate crisis impacts club life and sport itself – and highlights how we can find common solutions.

We wish you an inspiring read and above all, keep enjoying your favourite sports!

Michael Kracht



Head of Division "Civil Society and Associations, Tourism and Sports"

Just like athletes need a strong foundation to compete at their very best, the planet is no different. Our ecosystems need the right conditions to maintain peak performance.

Climate change has gone from a distant threat to a clear and present danger: one already destroying lives, livelihoods and futures and it is the vulnerable who are hardest hit, in every country. What's worse is once communities slowly starts to rebuild, they are knocked down yet again by another climate-related disaster.

5

Climate Change is also a serious threat to sport as we know it. More severe weather patterns will mean more canceled games and events. Warmer winters threatening winter sport or forcing hockey arenas to take on expensive remedial measures; Sea level rise affecting sport facilities on coastal locations and the wildfires These same extremes can influence health of athletes and fans alike, in terms of participation rates and attendance numbers. It is important that sports put resources in adaptation solutions so that they eventually reap their rewards with less damage to their players, facilities, and fan base.

Sport can drive change across the system - because we know the power of sport. In an often-divided world, it is hard to think of many as powerful as the stadiums we fill to cheer for our favorite teams and players. What sport do matters. That's why UN Climate Change, through the Sports for Climate Action Framework, works with the sports sector to ensure the industry can play a significant and influential role in addressing climate change. This initiative calls on sport to co-create and deliver both mitigation and adaptation strategies and solutions for their sport and their communities by collaborating with their supply chains, with cities and communities that support them, with fans and athletes. It asks sport to help bring climate action in the living rooms, by inspiring them to take the right policy and sustainability choices because ultimately changing climate has direct impact in peoples' lives

Responding to mitigation and adaptation needs isn't going to be easy, but it's the only pathway forward. I call upon the sector to make the decisions necessary to help build a clean, green, healthy, and more prosperous sector — and future — for all, by taking climate action on and off the pitch and inspiring billions to follow suit. I hope that this publication will spark ideas on how to bring some of this action to life.

Lindita Xhaferi-Salihu



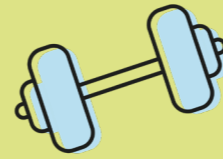
UNFCCC Sports for Climate Action Lead



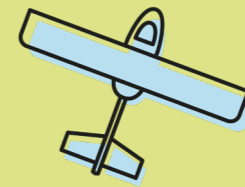
ATHLETICS



BALL SPORTS



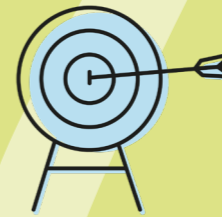
EQUIPMENT SPORTS



AVIATION SPORTS



HIKING



SHOOTING SPORTS



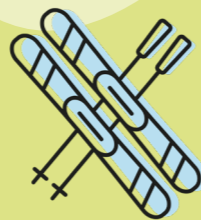
WATER SPORTS



HEALTH AND FITNESS



RACKET SPORTS



WINTER SPORTS



EQUESTRIAN SPORTS



CYCLING

CLIMATE

SPORTS

CLIMATE CHANGE

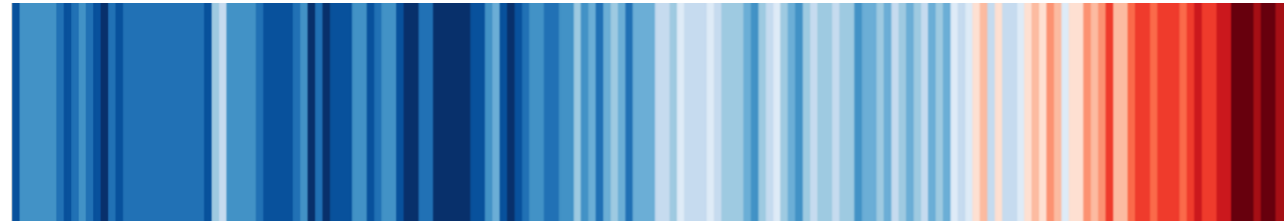


Illustration 1: Global Warming Stripes 1850-2022 (Ed Hawkins, National Centre for Atmospheric Science, UoR.).

What is Climate Change and what are its consequences?

Human made climate change, also known as 'global warming,' is primarily caused by greenhouse gases such as CO₂ and methane. These gases are released by various human activities, including deforestation, intensive agriculture, and energy-intensive production using fossil fuels, both in the economy and in people's everyday lives. This is how they enter the Earth's atmosphere, where they trap solar energy, leading to the warming of the planet.

This rise in average temperatures triggers a domino effect, leading to a series of climate impacts that affect countries worldwide.

For example, climate change has serious consequences on people's health. In 2022, the hottest summer in Europe since weather records began led to over 60,000 heat-related deaths. In Germany, the number of deaths rose by around 4,500 in the same year. In agriculture, dry summers lead to crop failures. The low water levels in the rivers mean that fewer cargo ships can travel, resulting in a shortage of goods in some regions.

There is also an increase in storms, hail, and heavy rain. Examples of damage caused by this include building damage, trees falling on cars, and roads being washed out. Repairing such damage is expensive. In a year with many storms, several billion euros can be spent.

Domino effect: record series of extreme weather events

Climate change does not mean that every summer in the future will be a new record summer. However, the frequency and intensity of extreme heat events has been increasing since 1950: globally speaking, every decade since 1980 has been warmer than the previous one. The hottest three-week period globally to date was in July 2023. Without human influence on the climate, heatwaves like this would have been very unlikely and are often accompanied by exceptionally high or low levels of precipitation. Such weather extremes have always existed. But they are becoming more frequent due to climate change. Since 2007 alone, the warmest ten years since weather records began have occurred in Europe.



*"IF WE CHOOSE NOT TO ACT,
OR FAIL TO ADAPT,
THEN SUFFER WE WILL."*

Professor Ed Hawkins MBE
National Centre for Atmospheric Science

CLIMATE

Effects of climate change at a glance



Hot and dry summers: 2023 was the warmest year worldwide since the beginning of industrialisation. On the one hand, nature suffers from the resulting drought and water shortages. The World Economic Forum considers water scarcity and its effects to be the greatest threat of the coming decade. Water levels in bodies of water fall, especially in the summer months, and forests die over large areas. Dried-out soil is susceptible to pests, dust formation and soil erosion. On the other hand, the extreme heat is also a health hazard. Hot days and especially hot nights are particularly hard on children and the elderly. Older people, in particular, may have reduced capacity to adapt due to their physical condition and the prevalent social isolation they often experience.



Extreme weather: The number of extreme weather events such as heavy rain or storms has increased fivefold since 1970. Weather extremes are becoming increasingly unpredictable, resulting in greater property damage, disasters, and threats to life for many people. Insurance companies are recording an increase in tropical and extratropical storms, floods and flash floods. As extreme weather events become more frequent in the future, companies, associations, and private individuals will face economic challenges due to property damage, as well as risks to people. In 2021, some of the worst floods since weather records began were recorded in Europe, with damage in Germany alone totalling the equivalent of more than 20 billion US dollars.



Milder winters: As the average annual temperature increases, temperatures in the winter months also rise. This makes the winter milder. Trends show that winter is starting later, becoming shorter and is wetter than usual. One of the consequences of milder winters is that less or no snow falls and plants and animals have to get used to and adapt to the new conditions.



Change in biodiversity: The change in biodiversity is a consequence of all the climate impacts mentioned above, as nature has to adapt to all these new conditions. This is accompanied not only by species extinction but also by the emergence of new stress-resistant, invasive species. Some animal and plant species, such as blue-green algae, bark beetles, or oak processionary moths, which cause problems for trees and humans, are favored by climate change and the changes it causes.

CLIMATE ACTION AND CLIMATE ADAPTATION

What is the difference between climate action and climate adaptation in sport clubs?

Climate action is understood to mean the avoidance and reduction of greenhouse gas emissions. This is achieved, for example, through the use of renewable energies, the creation of an energy-efficient infrastructure or the preservation and expansion of natural carbon sinks such as forests and moors, which temporarily absorb and store carbon. This leads to a reduction in temperature increases and mitigates the further consequences of climate change.

The topic of climate action is no longer a foreign concept for organised sports clubs and associations: Many sports clubs operate their facilities in an energy-efficient manner and with green electricity, use reusable cups at events to avoid unnecessary waste, as well as ensuring that their team kits are made from sustainably produced textiles. Mobility also is a major challenge, especially fans travelling to and from international tournaments.

Successful climate action measures can help contain climate change, but it cannot be entirely prevented. **As the climate reacts very slowly, we are not currently feeling the effects of today's greenhouse gas emissions, but the effects of emissions that have been released into the atmosphere in the past.**

Microplastic on artificial turf pitches

The entry of (micro)plastics into the environment through sports-related activities, is increasingly under scientific analysis. These issues are being discussed in sports and environmental policy contexts and are receiving media attention. In Europe, it is estimated that there are a total of 51.616 artificial pitches covering an area of 112 million square meters. The infill for these pitches usually includes rubber granulate made from used tyres. Rubber granules are microplastics, and have become a significant concern, as it's almost impossible to avoid spreading and discharging the small rubber pieces directly into the surroundings when playing a game of football.

Therefore, in spring 2019, the German Olympic Sports Confederation (DOSB) established the working group "Microplastics through Sport in the Environment", publishing recommendations and positions.

"The community-oriented sport in Germany can and wants to make its contribution to reducing environmental pollution through microplastics", emphasises Andreas Silbersack, former Vice President Sport Development at DOSB. "We hope that the 'recommendations' and 'positions' now available will lead to the reduction or avoidance of artificial fillers in artificial turf systems".

Unfortunately, both documents are currently only available in German. The "Recommendations" and "Positions" as well as further current information, FAQs, and downloads can be found at:

www.dosb.de/mikroplastik.

Global warming and all its consequences will therefore continue for a long time to come. Consequently, we are well advised to adapt to the expected climate change.

Climate adaptation involves implementing strategies and measures to minimise the negative consequences of climate change. These measures are geared towards regional and local conditions. This is because climate adaptation works directly where the consequences of climate change are felt.

Sports enthusiasts are already affected by climate change. Increasing heat and drought, extreme weather events, milder and wetter winters and the change in biodiversity poses challenges for athletes today and in the future. It is therefore worth taking a closer look at the issue and putting your own club to the test: **How fit is our club to deal with the consequences of climate change?**

IDEAS FOR CLIMATE ACTION

- Use of renewable energies
- Climate-friendly mobility concepts (e.g. e-charging stations near the club, sufficient bicycle stands, carpooling for training sessions and tournaments ...)
- Waste avoidance (e.g. reusable cups at sporting events)
- Energy efficiency and thermal insulation
- Sustainable materials for kit and equipment

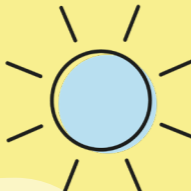


IDEAS FOR CLIMATE ADAPTATION

- Measures against overheating and improved sun protection (sun cream dispensers, drinking water dispensers, shade, trees, etc.)
- Communication of critical ozone values to members
- Regularly check the weatherproofing of the sports facility for hazards
- Dealing with altered biodiversity on the plant (e.g. pests, insects, blue-green algae, etc.)
- Utilisation of process water for plant irrigation
- Adaptation of the training season to milder & wetter winters



TIPS FOR ADAPTATION



EXTREME HEAT & DROUGHT



STORMS & FLOODS



MILD WINTERS



CHANGES IN BIODIVERSITY

GLOBAL EFFECTS OF CLIMATE CHANGE ON SPORT

More examples of global effects on sports can be found in Madeleine Orr's book "Warming Up: How climate change is changing sport" (2024, Bloomsbury Publishing)

**International Olympic Committee,
Julie Duffus**

"I work with 206 countries around the world. And so many of them now are witnessing impacts by climate change. By the time we get to 2030, we're looking at losing about 20% of our Olympic nations. Literally, gone."

"We are very aware of the ways in which climate change can affect the Wimbledon Championships. The event is fortunate to be positioned in a relatively temperate zone, but is actively preparing for the effects of heavier rain events, droughts and extreme heat. The Championships 2023 were wetter than in previous years and also contended with very high winds which led to closure of temporary Championships infrastructure, affecting staff, guests as well as commercial partners."

**The All England Lawn Tennis Club,
Hattie Park**

**New York Road Runners,
Aly Criscuolo**

"The health and safety of our participants is our top priority, and we work closely with the city and state to ensure a safe experience for all. In anticipation of extreme weather, we conduct pre-race, race in progress, and post-race assessments based off the Wet Bulb Globe Temperature, which considers the temperature, humidity, wind speed, sun angle, and cloud cover. This helps us determine if we need to delay or cancel in consultation with our meteorologist and Medical Director and navigate the challenges of climate change impacts."

**Mehran Football Club
Thatta, Pakistan
Ali Athar Nakash Brohi**

"(In the heavily by floods affected region of Sind) it took us many months to get our fields back in order and to start sports again. It was really challenging for us, because everyone is completely disturbed and everything we do is run by volunteers. Nobody has mental energy after floods."

"We need to protect our athletes from the effects of climate change. At the Olympic games in Japan, we had to move the marathon and the walking competition to a cooler place 800 km north of Tokyo. And at the World Championships in Doha the marathon took place at midnight, in order to avoid the extreme heat. It's hard for professional athletes and for organizers to adapt to these rough circumstances."

**World Athletics
Vice President,
Jackson Tuwei**

**Kenyatta University,
Vincent Onywera**

"I expect injuries to go up as droughts make clay roads harder than pavement and the impact on knees and hips takes its toll."

"Rugby is a very important sport to our village community and the beaches were the places where we used to play rugby as young kids and where the men would do their rugby training. With the beaches quickly eroding, it is impacting the community, especially with the rugby training programme. Kids are growing up knowing they won't have the same experience and luxury of playing on the beaches as we used to do growing up. And that could impact a young kid's dream of being a rugby star."

**Fijian-born Australian
rugby union player,
Tevita Kuridrani**

Sports clubs are directly embedded in nature and cities with their activities and sports facilities. They are at home on water, in the mountains, in forests as well as in villages and towns. Almost the entire surface of the earth can be utilised for sporting activities. Interactions occur between sporting activities and natural systems – **therefore, sports clubs are experiencing the effects of climate change in different ways.**

The extent to which your **sports club** is **affected by climate change depends on the** following factors:



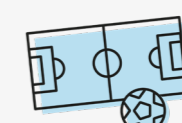
Type of Sport

The extent to which a sports club is affected depends, among other things, on the type of sport. Each sport is individual and therefore also individually and differently affected by climate change and its consequences. For example, water sports are dependent on the availability and quality of water, while winter sports are primarily affected by shorter and warmer winters.



Geographical location

The geographical location of a sports club also determines how it is affected by climate change. A sports club near a river or the sea has an increased risk of flooding, while sports clubs located in urban areas are more likely to face an increased risk of heat exposure due to impervious surfaces and the absence of cooling airflows.



Sports facility

Indoor sports are affected very differently to sports that are practised outdoors or in nature. For example, the ever-increasing temperatures, especially in summer, lead to poor air quality and heat in sports halls, while outdoor sports require adequate shaded areas and mitigating the risk of accidents during storms.

HOT & DRY SUMMERS



HOT & DRY SUMMERS

How can the health of athletes be protected?

15% LESS

precipitation fell in 2021 compared to the reference period of 1961 – 1990.

120 µG/M³

High intensity exercise should be avoided by children and the elderly with a 1-hour-ozone-value of 120 µg/m³.

4x

this is how many hot days above 30°C there could be in Europe at the end of the century, if emissions remain high.

40%

of the world's population is affected by water scarcity, putting 700 million people at risk of being displaced by drought by 2030.

630,000 KM²

was the area affected by drought in Europe in 2022 - the largest area to date and almost four times as much as the average for the years 2000 - 2022.

75%

Increase in deaths due to skin cancer between 2001 - 2021 in Germany.

It's getting hotter and hotter. That's what the weather records say: **The ten warmest years in Europe have occurred since 2007.** A trend that is set to continue.

The rise in average temperature is accompanied by water scarcity and drought. Water is becoming increasingly scarce and water levels are falling, especially in the summer months. Dried-out soils are susceptible to dust formation and soil erosion.

Children and older people in particular face new challenges when exercising in extreme heat. They lose more fluid, their heart rate increases and with it, numerous health risks. Some sports become difficult to practise. The heat builds up in sports halls, UV radiation poses a risk to athletes and maintaining recovery periods becomes more challenging, which **further reduces performance.**

Drought and water shortages can cause damage to sports facilities, for example by drying out grass pitches.

In the case of water sports, the drought means that some of them can no longer be practised.

The forest - an important place for athletes - is also threatened by the increasing drought. The water reservoirs are emptying and this puts trees under stress. Trees dry out and pests attack the weakened trees.

These developments are putting sports clubs to the test: Is there enough shade at the venue? Is the health of the members protected? Can the sports equipment and sports facilities withstand the extreme temperatures and drought?

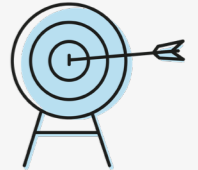
"The dryness and heat are damaging our cinder track and there is increased moss formation, which is why our maintenance costs are constantly rising. In addition, the runners lose their grip on the cinder track in dry conditions, which significantly increases the risk of injury."

TSG Gießen-Wieseck, Elmar Knappik



Rüsselsheim Shooting Club 1862, Aleksander Perica

"It sometimes gets so hot under the shooting clothes when shooting that we have to take forced breaks. This has extended the training times overall."



"Sun protection and sunshades are crucial for safeguarding against heat and UV radiation, which has become imperative. However, on exceptionally hot days across the district, we frequently find ourselves compelled to cancel youth and senior games due to the heightened vulnerability of senior citizens and children to heat-related issues. We would also like to see sufficient parasols made available on all courts."

Frankfurt Tennis District, Reimund Bucher



Kriftel/Ts. riding and driving club, Gabriele Bentscheck

"During periods of extreme heat, there are health risks for horses and riders, dizziness and overheating occur and performance is reduced. Training times are therefore shortened and are no longer as intensive. In vaulting, the warm-up no longer takes place outside, but in the hall if at all, and in some cases the warm-up programme only involves stretching exercises."

"We are making more golf carts available. Older players in particular find it difficult to carry their golf equipment to the next teeing ground in the heat."

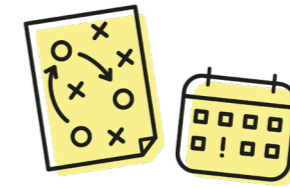
Attighof Golf Club, Daniel Deutschmann



Robert Seel, DJK-BFC

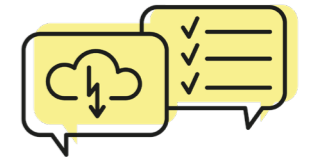
"We didn't have enough feed for the animals in recent years due to the drought, as German fields dried out and there was a poor harvest. We had to buy some of the feed in Eastern Europe. That costs three times as much as feed from Germany, which presented us with real financial difficulties."

TIPS FOR DEALING WITH HOT & DRY SUMMERS



Processes & Events

- Increase drinking and recovery breaks during training phases. Drinks containing minerals such as highly diluted juice spritzers or unsweetened teas are best.
- Expansion of catering to include water-rich fruit and vegetables (melons, cucumbers, tomatoes, strawberries, peaches).
- Guidelines for cancelling training and competitions due to high ozone levels: The German UBA recommends that for sporting events involving children, organisers should make an individual decision regarding whether participation in the event is hazardous to health when the 1-hour ozone value exceeds 120 µg/m³. Current ozone and particulate matter levels can be found in the local press or on the DWD "WarnWetter App".
- In the case of organised competitions, the presence of medical personnel is mandatory under certain conditions, but it is generally advisable to always have first aiders present at the venue.
- Alternative sports programme for training cancellations: Can indoor facilities be utilised instead of playing outdoors? Is it possible to do the sport in the shade? Can the training times be moved to the morning and evening hours?
- Provide facilities for cooling down during training sessions and competitions, e.g. cool packs, water buckets, ice bins, cold showers.
- Schedule health-related activities so they are predominantly practised in the morning or evening and help to strengthen the cardiovascular system and reduce associated illnesses.
- Shorten the winter break and extend the summer break due to the heat in the summer months and the milder winters.
- Irrigate sports facilities at night/late in the evening or early in the morning.
- Use service water, rainwater, surface water or groundwater of inferior quality to save drinking water if drinking water quality is not required. This method is suitable for flushing toilets, washing machines or outside taps, for example. Low-quality groundwater can be obtained from wells or cisterns.
- Publish guidelines for more frequent player changes, shorter match duration, additional breaks
- Switch to evening floodlight competitions
- Climate-friendly travel and event planning



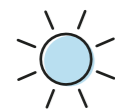
Communication

- Remind members - especially children and the elderly - to drink plenty of fluids by putting up signs.
- Remind members to wear protective clothing and headgear, as well as having additional equipment for members to borrow.
- Daily ozone values should be clearly published at the club.
- Communicate current health and climate-related risks (e.g. exceeding ozone and temperature values) and their organisational consequences (e.g. postponement or cancellation of training) at an early stage via functioning communication chains.
- Sensitise members to the responsible use of water and publish specific measures in the association.
- Create a telephone chain with members for emergency information, for example when courts are flooded, etc. (do you have numbers available?)



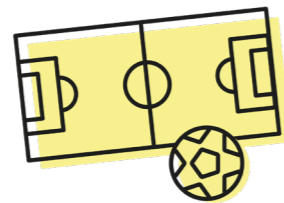
Finance & Liability

- Purchase a defibrillator, as there is an increased risk of cardiovascular failure due to the heat.
- Training/education on climate-related health hazards, recognising the first signs of exhaustion and first aid measures. First aid: shade, drink, cool down, call a doctor.
- Clarify whether the local authority has guidelines on the conditions under which the club may water the sports facility in the event of a water shortage.



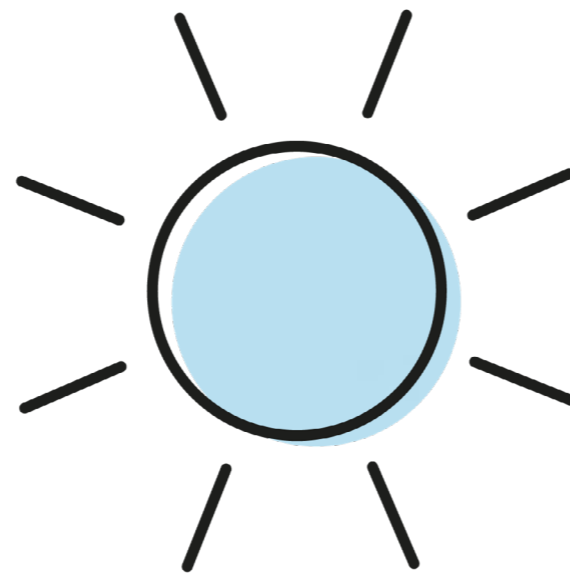
HOT & DRY SUMMERS

How can the health of members be protected?



Sports facilities & equipment

- Modern and enhanced ventilation and insulation technology.
- Avoidance of heat-retaining building materials.
- Facade greening (vertical greening) with climbing plants and green roofs to cool the clubhouse and the facility.
- Climate-resistant planting: Trees and hedges provide shade and generate evaporative cooling. The species must be selected so that they can withstand higher temperatures and are less susceptible to storms, which is ensured by the development of deeper roots. Ask a local landscaper for individual advice on climate-resistant planting.
- Trees that provide shade should be large-leaved and large-crowned. Wild walnut trees, sal willows, poplars or berry-bearing shrubs are particularly robust.
- Deciduous trees can support higher seasonal water yields and protect the soil from erosion.
- Switching to warm-zone grasses such as bermudagrass, which is heat-resistant and less susceptible to disease, improves the quality of grass pitches in hot and dry conditions.
- If possible, redensification should be avoided: a lower building density leads to a higher cooling rate and thus a reduced heat storage.
- Surfaces should be maintained in light colors as they absorb less heat.
- The use of solar control glass or triple glazing can be useful for glass surfaces.
- If possible, drinking water dispensers should be installed.
- Underground irrigation of lawns, as this is done directly at the root and the water doesn't evaporate.
- Raise the cutting height of lawns during the summer to reduce evaporation, as there is shading between the blades of grass.
- Supplying the lawn with potassium in autumn so that the water balance can be maintained even in dry phases.
- Utilisation of small wastewater treatment plants to make water usable again.



EXTREME WEATHER EVENTS



EXTREME WEATHER

How can sports facilities and members be protected from storms, heavy rain, floods, storm surges and hail?

UP TO 14%

the amount of rainfall during heavy rainfall increases with each degree of warming.

5x

more climate- and weather-related disasters in the last 50 years.

OVER 200 DEATHS

caused by the floods in Germany and Belgium in 2021.

80-90%

of natural disasters in the last 10 years have included floods, droughts and severe storms.

€ 650 BILLION

of economic damage was caused to Europe's economy by weather and climate extremes between 1980 and 2022.

Extreme weather events such as storms, heavy rain, floods, storm surges and hail are occurring more frequently and are becoming increasingly unpredictable. **These often cause danger to the lives of many people and millions in property damage.** Insurance companies are recording an extreme increase in insurance benefits due to damage reports in the context of tropical and extratropical storms, floods and flash floods. According to studies, the greatest economic damage is not caused by the direct consequences of heat, but by floods and storms. Especially in dry summers, the soil cannot absorb water masses. This sometimes results in torrential rivers, as the water is merely transported away and does not seep away.

Sports clubs near bodies of water are particularly affected. The Elbe floods of 2002 destroyed the facilities of some sports clubs. And just when all the damage had been repaired with the help of special emergency programmes, the next flood came in 2013, threatening the existence of many sports clubs. Increasingly frequent storms in the future will also affect more roofs of sports facilities, leaving devastation or causing hail damage to sports equipment. Club members are increasingly at risk from thunderstorms and falling branches or trees. Is your club weatherproof and sufficiently insured against possible damage? (Cf. sports insurance, p. 38)



Wheels over Frankfurt Cycling, Johannes Weinkauff

"We stop training sessions more often than before due to thunderstorms. The pitch has also had to be closed several times due to heavy rain and flooding."

"We now have to repair weather-related damage more frequently than in previous years. Paths break away due to storms and rain, trees fall into the downhill course and loose sections are completely washed away."



German Aero Club, René Heise

"There have always been floods, but in recent years our boathouses have been flooded and silted up more often. The organisations take the precaution of clearing out their facilities when water levels rise in order to minimise financial damage."

"Due to the increase in extreme weather conditions, especially drought in the last two decades, the necessary stable turf on airfields often disappears in summer and extreme heat stresses arise for pilots on the ground. Financially coping with the increased storm, hail and lightning damage to hangars and clubhouses is becoming an increasing challenge for air sports clubs."



SV Gronau, Christian Hohensteiner

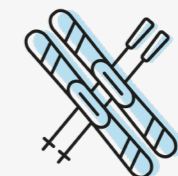


German Canoe Association, Petra Schellhorn



TV Heimgarten 1912, Kerstin Meyers

"Due to the heavy rainfall, we are experiencing noticeably more flooding, which makes the pitches unplayable and leads to the cancellation or abandonment of training sessions or medal matches. We have completely renovated our courts - also using subsidies - to ensure good drainage. And the new „tennis court sponge tamperers“ are fantastic for drying out puddles. As our facility is located in a nature reserve, we still have a challenge with heavy rainfall: We are not connected to the sewerage system, but have a pit that has to be emptied regularly."



Ski-Club Gosheim 1947, Dr. Gerd Hermle

"Fallen trees caused by thunderstorms, storms and snow breakage (wet snow) are an increasing problem for us, as they destroy elaborately prepared cross-country ski trails and can also endanger the lives of cross-country skiers!"

TIPS FOR DEALING WITH EXTREME WEATHER



WARNINGS AND WEATHER APPS

The German Weather Service has released two warning apps in the popular app stores (check your country for similar availability):

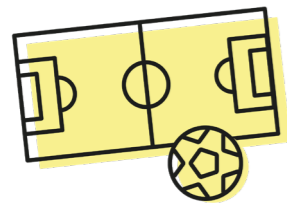
The "WarnWetter" app

The WarnWetter app, which provides the public with information on the current warning and weather situation. It includes, for example, an overview of the current warning situation for Germany down to municipal level, configurable warning elements and warning levels with an alert function and warnings of natural hazards (floods, storm surges and avalanches)

<https://www.dwd.de/DE/leistungen/warnwetterapp/warnwetterapp.html?nn=16124>

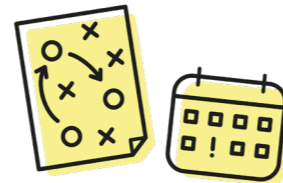


How can sports facilities and members be protected from storms, heavy rain, floods, storm surges and hail?



Sports facilities & equipment

- Planned and regular inspection of the training areas/ terrain (due to branch breakage, deadwood, terrain damage, etc.)
- Construction and labelling of lightning protection shelters/rooms
- When renovating or building a new sports facility, ensure that it has improved statics and more robust materials.
- Purchase sports equipment for quick drying of the facility, e.g. "tennis court sponge tamper".
- Unsealing of surfaces on the sports grounds and use of water-bound surfaces such as gravel turf, gravel, chippings and porous paving instead of tar and tar-mac.
- Install heating system in the loft instead of the cellar to reduce flood damage.
- Flood protection through rainwater retention basins and backwater protection.
- If there is a serious threat of flooding and sea level rise, move to a new location that is not in a flood zone.
- Efficiently utilise water and aim for closed water cycles whenever possible.



Processes & Events

- Clear guidelines for game interruptions
- Flexibility in planning and event postponement in the event of early weather warnings
- Closure of training areas, ski areas and tours
- Establish emergency processes in the organisation: Who is contacted in the event of imminent flooding or extreme weather events? Is there any sports equipment that can still be brought to safety? Who takes care of the inventory of damage? Who submits damage reports to the insurance company?



Communication

- Open communication with members about accident risks and ways to protect the sports facility from storms, heavy rain, floods, storm surges and hail.



Finance & Liability

- Take out insurance against damage (here it is particularly important to clarify with the responsible insurance office what cover is included in the existing sports insurance, see page 38).

MILD WINTERS AND THE DECLINE OF ICE & SNOW



MILD WINTERS

A challenge not only for snow sports

35 KM³

If the glaciers in Europe recede on average per year – it would create a volume of fresh water that would meet the needs of the city of New York for 24 years.

17 %

of the ice volume of the Alps decreased between 2000 and 2020, that is over 22 km³.

+5° C

Is the difference in the average temperature in north-eastern Europe in winter 2020 compared to the years 1981 - 2010. Almost 45 % of the area remained without ice days in the same year.

SHORTER AND LESS FREQUENT COLD SPELLS IN WINTER

while heat waves increase in summer.

1.1 METRE

Is the mass loss of glaciers worldwide in 2017/18.

Climate-induced global warming will cause temperatures to rise in the winter months. This means that our winters are becoming noticeably milder on average. Trends show that the winter generally starts later, is shorter and is wetter than usual. In addition to reduced ice and snow, milder, wetter winters lead to changes in nature, such as earlier reproduction and growth of animals and plants. This also applies to pests - such as bark beetles and oak processionary moths, which cause problems for the forest because they cause greater damage after milder winters. Sports clubs are also affected by the milder climate. Winter sports enthusiasts have to adapt: the amount of snow and ice is decreasing, meaning that **winter sports will no longer be profitable in some winter sports areas in the future.**

It's not just the lack of snow, but also the slush on the tracks and the general fluctuations in the weather that worry winter sports enthusiasts. Many training sessions and competitions have to be

cancelled or postponed. Perhaps the Zugspitze will be Germany's last remaining ski resort in 2050. Alternatives are needed: snow is sometimes transported from A to B, „reusable“ snow. Artificial snow is being used more and more, but the increasing scarcity of water is also making this a challenge. In the meantime, ski jumping on mats is even being discussed during the winter season.

However, milder, wetter winters can be seen as an opportunity for sports clubs that are not reliant on snow. Sports can be moved outside earlier in the year and the outdoor season can run longer - and water sports are less likely to be cancelled due to frozen lakes.



German Canoe Association, Petra Schellhorn

“The mild temperatures mean that water sports are possible more often during the winter months, which was hardly possible before. That's great because it makes our sport more attractive. However, water sports enthusiasts have to be particularly considerate of the wintering waterfowl.”

“We are observing that declining snow reliability at lower altitudes is causing skiing to shift to areas where snow is guaranteed. Ski resorts suffering from a lack of snow are faced with the question of whether it makes sense to invest more than €1 million in 20 snow cannons for just a few slopes. High-altitude, snow-sure ski resorts are therefore gaining more and more influence. The flow of visitors is therefore focussing on them and it is still worth investing in snowmaking to ensure a reliable and high-quality offering.”

WSV Wintersportarena Winterberg, Julian Pape



Darmstadt-Starkenburger section of the German Alpine Club, Paul Goertz

“Last year, for example, routes in Saxon Switzerland were already climbable in April that we would otherwise only be able to climb later in the year.”

“The mild winter in 2019 meant that we used our energy-intensive pitch heating system less. This saved us costs.”

VfL Wolfsburg, Peter Sauer



Sport Marketing Drohmann, Thomas Drohmann

“Traditionally, the outdoor tennis season starts in May, but in recent years we've had such nice weather in March and April ... It makes you want to get outside in the sun earlier. But you also have to bear in mind that hall operators are reliant on income and make fixed contracts accordingly. New win-win solutions will have to be found.”



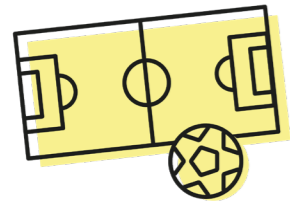
TIPS TO HANDLE MILD WINTERS



MILD WINTERS

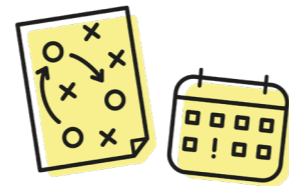
A challenge not only for snow sports

26



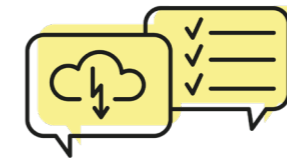
Sports facilities & equipment

- Close slopes and set up only a few main pistes..
- Use technical snowmaking in compliance with climate action . This is generally only possible at temperatures below freezing. Slight sub-zero temperatures of around - 2°C – over several days – are a prerequisite for the fine water droplets to freeze..
- Getting sports facilities ready for the outdoor season earlier in the year.
- Build photovoltaic systems on unused areas to make better use of increased hours of sunshine in winter.



Processes & Events

- Develop and create alternative options that go beyond the classic winter sport offering.
- Increase the frequency of ski buses to neighbouring ski areas when there is no snow in your own area.
- Use of parks and facilities for outdoor sports as soon as the weather permits.
- Shortening the winter break and extending the summer break due to the extreme heat in the summer months.
- Coordination between sports hall owners and sports clubs for the fair reorganisation of season dates.



Communication

- Open communication with members about how the association deals with milder winters.
- Informing outdoor sports enthusiasts about new dangers and safety measures resulting from milder winters.



27

CHANGES IN BIODIVERSITY



DIVERSITY OF SPECIES

How can sports clubs deal with changes in biodiversity?

4%

of mammals could lose half of their habitat if global warming increases by 1.5 degrees. In total, one in eight million plant and animal species worldwide are currently threatened with extinction

10,000 INVASIVE ANIMAL AND PLANT SPECIES

exist in Europe. Of these, an estimated 15 % are potentially dangerous to European biodiversity, as well as causing economic and health damage. For example, the Asian tiger mosquito is thought to be responsible for the spread of 20 pathogens.

35 MILLION HECTARES

of forest are damaged by pests every year worldwide. In the Mediterranean region, the area affected each year is equivalent to the size of Slovakia. Together with drought, this leads to competition for the cool forest among sports enthusiasts, walkers and animals.

UP TO 577 BILLION

USD profits from cereal production are jeopardised by the loss of pollinators.

12 MILLION

people were allergy sufferers in Germany in 2023.

Climate-related changes in biodiversity pose **health risks**, especially for athletes:

- The increased temperatures lead to longer pollen flight times, which results in a longer **pollen load**. This affects allergy sufferers. For example, the flowering of hazelnut bushes has shifted forward by around one month since 1951, meaning that there are hardly any pollen-free periods in very mild winters. Researchers also suspect that the poor air quality leads to more severe **allergies**.
- Global warming favours the spread of originally non-native species, such as **invasive mosquito species** that can transmit dangerous pathogens. One example is the **tiger mosquito**, which has already been detected in Freiburg and Heidelberg. The **Japanese**

bush mosquito, which is a potential carrier of the West Nile virus, has also arrived in the Hanover region.

- Another risk for outdoor sports enthusiasts is infection caused by **ticks**. In the case of tick-borne encephalitis (TBE), a virus enters the human bloodstream with the tick bite and causes inflammation in the brain. This can lead to paralysis or, in the worst case, death. Due to climate change, infected ticks are spreading more and more in the north and at higher altitudes. Due to the change in climate, ticks can now survive at altitudes of 1,600 metres. For comparison: a few years ago, it was assumed that TBE could not be transmitted in areas above 1,000 metres.

- The constant increase in temperature can lead to a deterioration in water quality, for example through the formation of **blue-green algae**. This restricts the use of water and can cause serious damage to health..

- **Forests** are also suffering from climate stress, especially due to persistent drought, which makes it susceptible to infestation by pests such as the **oak processionary moth** and the **bark beetle**. The increase in insects, strong winds and drought causes tree diseases to spread. As the forest is a favourite place of refuge for athletes, sport is also affected by the change in biodiversity. A functioning ecosystem such as a forest or a lake is a prerequisite for playing sport in a natural, healthy environment.



"If there's blue-green algae in the water, we're not allowed to train because of the health risks. That happens more often now than it used to."

Canoe club on the Old Rhine in Lampertheim



Golf-Park Winnerod Betriebsgesellschaft mbH, Kim Tarek Kleczka

"Our golf course is on the edge of the forest. We've never had any problems with the other forest dwellers so far, but due to the drought, the wild boars can no longer find enough food in the forest. That's why they've recently started coming onto the golf course to look for food. They have already caused a lot of damage."



"The mild temperatures have led to an increase in ticks and spiders on the green areas of our sports facilities and ancillary areas."

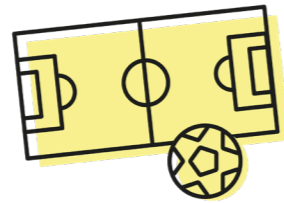
TSG Gießen-Wieseck e.V., Elmar Knappik

TIPS FOR DEALING WITH CHANGES IN BIODIVERSITY & INFECTION RISKS



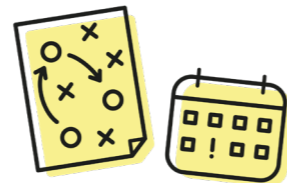
DIVERSITY OF SPECIES

How can sports clubs deal with changes in biodiversity?



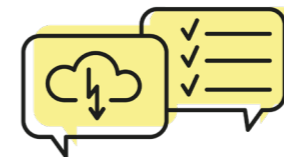
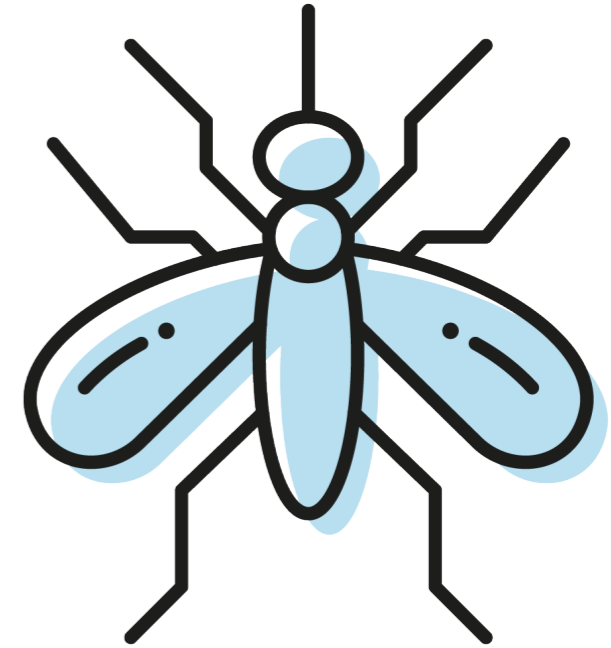
Sports facilities & equipment

- Climate and pest-resistant planting for the sports venue: See here for tips on dealing with hot and dry summers.
- Checking the sports facility for pests.
- Checking the water quality of the sports centre, particularly with regard to blue-green algae.
- Depending on the species and pests you want/need to protect yourself from, there are different plants that are suitable for you to plant. Talk to a local garden centre or plant nursery about which plants are suitable for you to plant.
- For example, the scent of basil keeps flies and wasps away, sage repels caterpillars and snails, and savoury helps against aphids.
- To maintain biodiversity, for example, food islands for bees are helpful. Fruit blossoms, sunflowers and dandelions are very suitable.
- The greening/planting of the facility should contribute to the preservation and promotion of biodiversity, for example through site-appropriate, resistant species, insect hotels or bat boxes.
- Installation of disinfectant dispensers for surfaces and hands.



Processes & Events

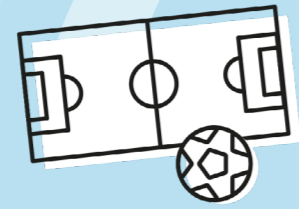
- Have first aid medication readily available for allergy sufferers.
- Provide protection sprays and creams against insects for members.



Communication

- Educate members about protection against insects using protective clothing and sprays.
- Members are reminded that they must not leave the designated paths when participating in outdoor sports.
- Members should be made aware of the increased risk of outdoor sports for people with allergies.
- We recommend that athletes check themselves thoroughly for ticks and bites after exercising outdoors.
- Recommend long clothing to protect members against bites and insects.
- Constructive dialogue on competition between the use of green spaces and forests.

INFO FOR



SPORTS FACILITIES & EQUIPMENT



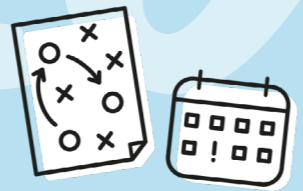
COMMUNICATION

SPORTS



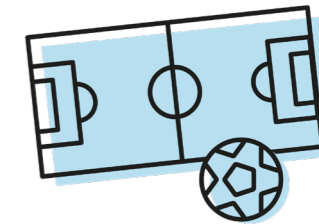
FINANCE & LIABILITY ISSUES

CLUBS



PROCESSES & SPORTS EVENTS

CLIMATE ADAPTATION FOR SPORTING EVENTS & COMPETITIONS

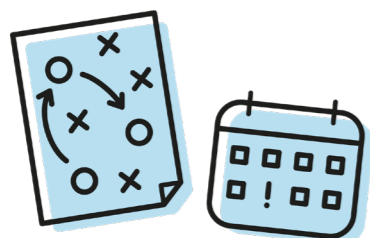


event has to be cancelled due to the consequences of climate change. Nevertheless, the organiser is responsible for typical event risks as part of their duty to ensure safety. These risks include those that arise from the event and from which participants cannot easily protect themselves. Coordinate with the responsible decision-makers, offices, and authorities on how to assess the risks. If the decision is made to cancel or postpone the sporting event, athletes, spectators, club members, and other stakeholders must be informed as early as possible.

• **Under what conditions can sports events or competitions take place and what needs to be considered?** If you decide that the event should take place, take precautionary health measures. These include, provisions such as providing drinking water, more breaks for drinking and resting, protective clothing, shade, headwear, sun cream, insect repellent, as well as medical advice.

In addition, spectators must be protected from any health risks. If possible, spectator seating should be shaded and free headwear should be available if required. Access to sufficient drinking water is particularly important. Fans should be made aware of the issue, for example through announcements encouraging them to drink, thanking them for appropriate behaviour or providing other information related to the rules of conduct.

Tips for planning sporting events



In Australia, it is no longer an exception that sports competitions and events are cancelled or postponed: The air quality and heat are causing problems for athletes and causing health issues. At the Australian Open in 2020, several participants had to end a match prematurely - due to poor air quality caused by climate change-related to forest fires.

However, climate change and the associated consequences are also affecting the planning and organisation of sporting events in Germany. For example, the 2019 Marathon in Wolfsburg was cancelled due to the caterpillars of the oak processionary moth. These pests can reproduce better and faster due to the changed conditions and pose a risk to humans.

- **Are the sporting conditions right for the competition?** Do the temperatures permit a competition without jeopardising health? Is the water level high enough? Are the race courses free of fallen trees? Is the safety of the athletes guaranteed at all times?
- **Under what conditions must a sports event or competition be cancelled?** First of all, it should be noted that participating in a sports event does not necessarily mean it is safer than engaging in the sport outside the event. When a person takes part in a marathon, they train for it beforehand - and even when training, they are responsible for themselves and cannot assume that the organiser is paying attention. Therefore, there are no fixed rules as to when a sports

Tarahumara Fans: Protecting the climate and drawing attention to the effects of climate change

The initiative "Tarahunara Fans - Running for the Planet" is committed to a consciously sustainable lifestyle and running style. The members of the initiative not only meet regularly to run together, they also use their sport to promote climate action and climate adaptation. They organise their run "Run for the Planet" in a consistently environmentally friendly and inclusive way, they draw attention to free water stations in the city through special events such as the "Refill Run for the Planet", their running shirts are compostable, their minimalist footwear - if they don't run barefoot like the "real" Tarahunara peoples in Mexico - saves on materials and energy. The organisation thus protects the environment and uses its income to support environmental and inclusion projects internationally.

Further information under:

www.runningfortheplanet.com



CLIMATE ADAPTATION AT THE FRANKFURT MARATHON

Interview with Hans-Georg Dannert

1. Chairman,
Rhine-Main Environmental Forum e. V.



Biorunner team,
Frankfurt Marathon 2019

What is your initiative about?

With the "Main Bio läuft" initiative, our organisation initially became involved many years ago as a sponsor of the runners' catering (in organic quality) at the Frankfurt Marathon. Our idea generator and main coordinator of the initiative Thomas Wolff is an organic retailer and a committed runner. In addition to his sponsorship of the runners' catering, he also motivated the campaign running team - the Biorunners - (at times the largest team with up to 200 runners) as an "ambassador". Little by little we have moved from just organising catering to becoming important partners of the organisers of the Frankfurt Marathon. Jointly, we have identified other areas in addition to runner catering in which measures for sustainability and climate adaptation can be implemented. For example, offers for climate-friendly mobility were developed, a lot was done to avoid waste, the pasta party was converted to organic, electricity consumption was reduced through the construction of

OF COURSE WE NOTICE THE EFFECTS OF CLIMATE CHANGE

photovoltaic systems in the region and residual quantities were minimised. Our commitment has led to the Frankfurt City Marathon being listed as best practice by the Federal Ministry for the Environment and ultimately being voted the "Greenest Marathon in the World". Both of these are also great recognition for our work.

Are the consequences of climate change noticeable for the Frankfurt Marathon?

Of course we notice the effects of climate change. The marathon in autumn, for example, has been affected by shifts in the weather, as there are now more storms, cold and rain. This requires a certain amount of protection against loss of heat at the start, which is collected again afterwards. With others sporting events, the problem tends to be extreme heat, which we are not yet used to in Germany. At the Frankfurt Ironman 2019, for example, the leading Sarah True collapsed 1.000 metres before the finish line due to heat. Organisers must prevent such tragic happenings. Extreme weathers are now increasingly forcing sporting events to rethink processes

"IT IS IMPORTANT TO FIRST EXPLORE THE POSSIBILITIES ON SITE AND TO FAMILIARISE YOURSELF WITH THE RESPECTIVE LOCAL GOVERNMENT AND OTHER STRONG PARTNERS AND PARTNERS ON THE GROUND."

and health protection.

What advice would you give to event organisers who are dealing with climate adaptation at sporting events for the first time? Are there any specific steps or tips?

It is important to first explore the possibilities on site and to join forces with the respective municipal administration and other strong local partners. In our case, in addition to the Frankfurt city administration, it was the Umweltforum Rhein-Main e.V., an association of over 160 companies and institutions from the region. Then we should take the time to analyse, which elements of the event are particularly affected by climate change, as investments often have to be made for this, for example for shading. One could speak of a process that focusses on continuous improvement and for which all those involved are responsible alongside. It takes a lot of creativity, commitment and, as with running, staying power. But: it's worth it! And don't forget: if possible, free water should be provided. There is also sun cream in large containers or sunscreen clothing. If these are printed with a logo, this is also great advertising. In addition to the expected air temperatures, precipitation and wind speeds, it is also important to check the forecast ozone

levels. This is because on some days they can simply be too high for responsible sport - as much as you may not want to accept it.

In your experience, what should be the climate standard at sporting events and what do clubs and organisers need for this?

I think the topics of energy, waste, catering, mobility and health protection are the top priorities and also offer the best opportunities for action. Clearly, the issues related to the infrastructure used and a good relationship with the local municipal administration (municipality / city / district) are also important. Ultimately, however, a huge audience can be addressed via the many participants, athletes and spectators, thus providing a major lever for climate action and climate adaptation.

FINANCE & INSURANCE

How can measures for climate adaptation be financed and insured?



38

Measures for climate adaptation and repairing damage caused by heavy rain or flooding cost money. Lots of money. How can sports clubs pay for preventative measures and what happens in the event of damage? First of all: Check sport focussed funding, which is available for a variety of climate adaptation measures like modernisation of sports facilities, for drainage systems or shading.

In addition, sports clubs can fall back on a variety of financing options:

Eco-check programmes

The first point of contact for an eco-check is usually the regional sports association (in Germany: Landes-sportbund). The sports facility is assessed by energy consultants. Proposals for refurbishment and improvement work are then made in the form of a catalogue of measures and possible financing options.

Funding for climate adaptation measures Find out about funding opportunities for climate adaptation measures at federal, state and local level. Perhaps Shade structures at your facility, the greening of the façade for cooler air or the construction of drinking water wells can be subsidised? There are funding programmes at federal, state and local level that could be suitable for your association. The environmental offices or ministries of your municipality or state are often helpful in finding suitable funding programmes of your federal state.

In Germany, funding is available for measures such as the installation of sun protection, roof and façade greening measures or the installation of piped drinking water dispensers.

Promotion of specific climate and sustainability projects related to sports facilities

In Germany, sports facilities are the responsibility of the federal states and local authorities. We therefore recommend that you contact your state sports association to find out about funding opportunities. You can also find an overview of current funding programmes at federal level on the website of your Olympic Sports Confederation.

Crowdfunding - financing climate adaptation with club members and fans

Would you like to put in place some climate adaptation measures for your club, but can't find the right funding? Perhaps crowdfund through your support base such as club members, players, and fans! There are various models and crowdfunding platforms available for this collaborative financing approach. With these models projects can be financed online by garnering support by many people that support your project.

There are various platforms for financing sustainable projects, such as *bettervest*. Here, your organisation can take out a loan for sustainable investments through public funding - and benefit from a wider public audience. www.bettervest.com

UNFCCC Sports for Climate Action #SPORTPOSITIVE

The UNFCCC Sports for Climate Action Framework was launched in 2018 with two objectives: empower professional sports organizations in reducing their environmental impact and leverage their global platform to drive climate awareness and action. To achieve this, the Framework is built on five principles:

- (1) embedding environmental considerations into business operations,
- (2) implementing a net-zero plan,
- (3) educating for climate,
- (4) promoting sustainable production and consumption, and
- (5) communicating for climate action.

Since its inception, over 280 organizations, including governing bodies, leagues, teams, and event organizers, have committed to these principles.

By joining the Framework, sports organizations commit to reducing their emissions by 50% by 2030 and reaching net zero by 2040, addressing their own internal operations (Scope 1+2) and collaborating across their value chain (Scope 3).

Additionally, sports are invited to engage their key stakeholders such as cities, communities, fans and athletes to foster systems transformation and build climate resilience. The Framework's role is to catalyze and guide this collective action and empower sport to play an inspiring role in addressing the climate crisis.

UNFCCC invites all professional sports organizations to join the Framework and contribute to achieving these ambitious goals.

www.unfccc.int/climate-action/sectoral-engagement/sports-for-climate-action

39



Insurance: Is damage caused by extreme weather insured?

In Germany, ARAG sports insurance provides a comprehensive insurance policy tailored for sports clubs. This coverage extends to all club operations and encompasses all members, employees, and volunteers of the member clubs that are affiliated with the state sports federations and state sports associations (LSB/LSV). It offers protection in the event of accidents resulting from extreme weather conditions such as floods, storms, thunderstorms, or hail. The sports insurance includes accident insurance including a rehabilitation management, liability, fidelity and legal expenses insurance.

However, sports insurance does not always include property insurance!

To insure your club against storm damage or other property damage caused by extreme weather, buildings insurance or equipment, insurance is required.

It's essential to find out about the exact scope of your insurance. If you have any questions, please contact your insurance office or your regional sports association.



Inspiration from Frankfurt am Main:

More green for a better urban climate
Frankfurt freshens up –
50 % climate bonus

Does your sports club in Frankfurt am Main have a flat roof that you have always wanted to green? Or do you need advice and help in choosing a suitable green facade to cool the building in summer? Perhaps a grey, paved-over club yard could be turned into a green oasis with a drinking fountain?

Funding is available for newly planted roofs, façades and backyards, investments for the shading buildings (e.g. trees, pergolas, sun sails), as well as the installation of publicly accessible drinking fountains. Up to 50 % of the eligible costs, up to a maximum of 50,000 euros per measure per property, can be reimbursed. Find out whether your local authority also offers similar funding. Simply enter the keywords climate adaptation and the name of your local authority in your search engine – and off you go. There is more than meets the eye...

Further information:

www.frankfurt.de/klimabonus

PAYMENT FOR TRAINING CANCELLATION

Coaches frequently encounter challenges like heat, excessive rainfall to name a few, which can unexpectedly disrupt training sessions. Deciding who bears the cost of these cancellations depends on various factors (such as employment status, predictability of challenges, etc.), that often lead to disagreements. A fair, reliable, and standardised agreement is generally preferred by both the coaching staff and the members/parents to address such situations amicably.

CLIMATE RISK CHECKLIST



**Which climate impacts affect your sports club?
What action is required?**

Sports clubs are first and foremost providers of sports. Climate change can thwart them in various ways and at the same time open up opportunities. In order to ensure the economic viability and attractiveness of a sports club as well as the health of its members, it is important to identify the individual effects of climate change on your own club and to initiate possible adaptation measures. Here are some questions to help you take stock:

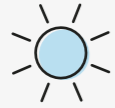


EXTREME WEATHER

Is your club affected by extreme weather?

- Does your sports facility suffer damage from hail and flooding?
- Do you have to cancel, shorten or postpone training sessions due to bad weather?
- Is your club's sports equipment not yet protected against extreme weather?
- Is your club located in a risk area for flooding and storm surges?
- Is your sports facility heavily sealed so that water cannot seep away easily?
- Is your club not yet insured against damage caused by extreme weather events?

If you answered "yes" to at least one question, then your club is already affected by the consequences of extreme weather. Possible measures include the **surface unsealing** on your sports grounds, the use of robust materials, improved drainage systems through facility **renovation**, the installation of rainwater retention basins or the use of a rainwater drainage system as well as, installation of a heating system in the loft instead of the cellar to protect it from flood damage. Further information can be found on pages 20 - 23.



HOT & DRY SUMMERS

Is your club affected by severe heat and drought?

- Does your sports ground have areas without shade, leaving athletes exposed to extreme heat and sun?
- Does your club use sports halls that are poorly air-conditioned?
- Do you have to cancel, shorten or postpone training sessions due to the heat?
- Do you have a significant number of children and senior citizens among your membership, who are particularly vulnerable to increased temperatures during the summer?
- Is your sport dependent on good quality water and water levels of rivers or lakes?
- Does your sports facility need water for maintenance?
- Does your club have outdoor facilities that can dry out due to the heat and are therefore susceptible to flooding?
- Is your organisation facing challenges in obtaining feed for animals due to drought and poor harvest conditions?
- Is your sport practised in the great outdoors and in the forest?

If you answered “yes” to at least one question, your club is already affected by the consequences of hot and dry summers. Possible measures include **shading** your sports facilities with awnings or trees, informing members about **protective clothing** and headgear and, if necessary, making large quantities of **sun cream** available for all members. Staff should always ensure that sportspeople take sufficient **breaks to drink and allow for adequate recovery**. Further information can be found on pages 16 - 19.



MILD WINTERS

Is your club affected by mild and wet winters?

- Does your club rely on snow and the cold season?
- Have competitions and training sessions been cancelled in the past due to a lack of snow?
- Has your club's sport moved outside earlier due to the milder winter?

If you answered “yes” to at least one question, then your club is already affected by milder winters. Measures can include the use of **snow cannons** in consideration of climate action, earlier **use of outdoor facilities** and the **cancellation of a winter break** and an extended summer break. Further information can be found on pages 24 - 27.



DIVERSITY OF SPECIES

Is your organisation affected by the change in biodiversity?

- Is your sport practiced in natural settings, such as forests, or does it involve using outdoor facilities?
- Do the members of your organisation come into direct contact with plants and animals?
- Do you have members who suffer from allergies?

If you answered “yes” to at least one question, then your club is already affected by the change in biodiversity. Possible measures include wearing protective clothing and using insect spray, educating members about the dangers of pests and insects, checking sports facilities for pests and insects and/or, using climate-resistant plants and trees. Further information can be found on pages 28 - 31.

ABOUT THE PROJECT

You can contact us at

www.klimasport.de

Let's work together to ensure that sports remains enjoyable in the future, even with climate change!

The project offers working materials for sports clubs to enable them to continue working successfully under changing climatic conditions. Funded by the German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV), you will find the following modules at www.klimasport.de, that can be utilised by sports people, clubs, associations and regional sports federations (unfortunately, currently only available in German language):



Explanatory video

3-minute introduction on how sport is affected by climate change

CLIMATE RESILIENT SPORTS



Training materials

Customisable slides and worksheets for training courses, seminars, and lectures.



Poster with tips for sport in extreme heat

Signage for sports facilities and clubhouses (can be customised with your own logo and contact details)



Social media elements

Pre-designed graphics for use on your own social media channels



Thinking outside the box: Fairtrade and sustainability in sports

In addition to climate adaptation and protection, topics such as sustainable sports facility management, sustainable mobility and fair trade are playing an increasingly important role. This is because they not only affect the day-to-day running of the club, but are also aimed at securing the club's future viability.

Whether in popular sports, elite sports or mega sports events: every year, several billion euros are spent on sportswear and equipment in Germany alone - around 5.5 billion euros in sales were generated with sportswear in Germany in 2023.

As in other markets, the supply chains for sporting goods have long spanned the entire globe. This leads to labour and human rights violations on a daily basis. Added to this is the impact on our climate: according to FIFA estimates, the FIFA World Cup in Qatar in 2022 caused the emission of 3.6 million tonnes of CO₂.

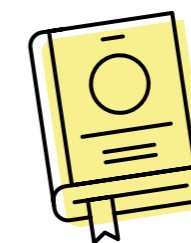
Sports clubs can substantially contribute to a sustainable development at large by, for example, reviewing their procurement practices with regard to environmental and social compatibility and looking for "fairtrade" alternatives or reviewing potential for circular economy.

Contacts and further information:

There is a German nationwide website with practical examples, factsheets and information on the topic: www.sporthandeltfair.com - here you will find contacts for each federal state in Germany.

#FAIRPLAYINSPO

TOP TIP FOR FURTHER READING



Warming Up How Climate Change is Changing Sport

Madeleine Orr
2024, Bloomsbury Publishing

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