

Chapter 4: Environmental and sustainable development conditions specific to the various Olympic disciplines



4.6 Indoor land-based sports

4.6.1 General

The main aspects of indoor sports that affect the environment and sustainable development concern the building in which they are held. They include:

- deciding whether to build or renovate;
- compatibility of the building with its built or natural environment;
- the health-related and environmental impact of the construction materials and equipment used in the building;
- the energy required to use the building;
- the water required by users;
- the management of waste generated by the use of the building;
- maintaining the building and its facilities in order to increase its durability;
- the safety, approval and flexibility of use of facilities and sports halls;
- the use of the building for the community.

4.6.1.1 Deciding whether to build or renovate

When an old sports hall no longer meets the needs of its users, a choice has to be made between renovating it or building a new facility. This decision should be based on a detailed analysis of the situation, including an environmental impact study of the two options and maybe even a life-cycle analysis.

Buildings should be renovated if:

- they have a particular architectural or cultural value;
- they can be adapted to meet the latest requirements more cheaply than the construction of a new building;
- they are structurally sound;
- they do not contain any toxic materials (asbestos, lead piping, paint containing organochlorates or heavy metals);
- they can be adapted in accordance with the highest safety standards (evacuation, fire protection, earthquake resistance, etc.);
- they can be equipped with modern installations (electrical circuits, air conditioning, communications, water supply and drainage system, etc.) ;
- if the local socio-economic benefits outweigh those linked to the construction of a new building.

If several of the above conditions are not met, it is preferable to demolish the old building and construct a new one.

4.6.1.2 Compatibility of the building with its built or natural environment

All buildings should fit aesthetically into their environment, whether natural or urban. However, this requirement has a subjective and cultural dimension which means that it can be interpreted in many different ways.

Nevertheless, two rules should always be respected:

- new buildings should not be erected in protected or ecologically sensitive areas (e.g. reproduction sites);
- new buildings should not cause a nuisance to local residents or neighbours, nor disturb the local ecosystem. For example, they should not:
 - block a pleasant view for neighbours;
 - lead to an increase in traffic caused by the use of private cars due to a lack of public transport capable of accommodating users of the new building;
 - harm the supply of water or energy to local buildings;
 - obstruct, if they are built in a natural environment, the movement of animals or the flow of runoff water.

Furthermore, if the construction of a new building involves destroying green or wooded areas, it is vital to:

- alter as little as possible the permeability of the land occupied by the building and its surroundings by not

IOC Guide on Sport, Environment and Sustainable Development

tarmacking or concreting its immediate vicinity and using infiltration wells to compensate for the impact of the building itself;

- compensate for wooded areas that are destroyed by reforesting at least an equivalent area nearby.

4.6.1.3 Health-related and environmental impact of the construction materials and equipment used in the building

The following materials should not be used in the construction and equipment of the building:

- Asbestos for insulation. Asbestos has a carcinogenic effect on the respiratory tract. Asbestos present in existing buildings should be removed by specialist companies.
- Paints containing polychlorinated biphenyls (PCBs) or pigments containing toxic heavy metals (lead, mercury, cadmium), since these products can cause serious chronic conditions such as cancer or infertility for frequent users of the building.
- Chlorofluorocarbons (CFCs), such as the calorific fluid in refrigeration or air conditioning systems.

4.6.1.4 Energy required to use the building

Energy-saving measures protect the environment by reducing greenhouse gas emissions and preserving non-renewable resources (coal, oil), as well as enabling savings to be made in the functioning and maintenance of the building. With this in mind, it is advisable to:

- install the latest generation energy-efficient equipment (lighting, heating, air conditioning, hot water);
- maintain this equipment regularly and, if possible, replace it with more energy-efficient models when they become available;
- use alternative energy systems (active or passive solar energy, wind energy, heat pumps, geothermal energy, etc.);
- use thermal insulation;
- use natural light;
- use the building during the day rather than at night;
- When the building is not being used, ensure that lights, electrical and electronic devices (including the sleep mode), air conditioning and, if possible, heating are switched off.

4.6.1.5 Water required by users

The building should be equipped with a sufficient number of wash basins, showers and toilets for the number of users. However, water wastage should be prevented by installing taps that automatically turn off and dual flush toilets. Water-saving tips should be clearly displayed.

Where water is in short supply, it is a good idea to use the roof for the collection of rainwater. In areas without an efficient water distribution network, a water reserve should also be kept in case of fire.

4.6.1.6 Management of waste generated by the use of the building

Whether the building is used for competitions attended by the public or only by the athletes themselves, it must be equipped for the removal, or even treatment, of waste water and solid waste.

The rules on these matters should be clearly displayed so that users are aware of them.

As far as waste water is concerned, the best solution depends on the environment and the way water is used. If the building can be linked to a sewerage system that takes waste water to a purification station or discharges it without causing pollution, it is sufficient to connect the drains in the building to this network. Otherwise, one or more decentralised water treatment systems may be used (latrines, septic tanks), depending on whether occupation of the building is steady or varies according to when competitions are held.



Chapter 4: Environmental and sustainable development conditions specific to the various Olympic disciplines



The collection of solid waste depends heavily on the awareness of users, who should be kept informed, shown good examples and provided with a sufficient number of bins. Since plastic packaging has a very low biodegradability level, its use should be restricted, particularly by mobile vendors and canteens during events. Metal cans and glass can easily be recycled; special bins should be provided, as well as a deposit system that encourages users to return used packaging to the vendor. These measures should also apply in the area surrounding the building, particularly if public events are staged there.

In some situations (kitchens, large crowds, smoking areas, etc.), a ventilation or air purification system should be installed.

4.6.1.7 Maintaining the building and its installations in order to increase its durability

A building's durability includes the sustainability not only of the services it provides, but also of its long-term management. This primarily involves:

- cleaning the sanitary installations daily and sterilising them regularly;
- regularly changing the toilet paper and paper towels in the toilets;
- regularly washing the ground surrounding the building in order to prevent visitors bringing dirt inside;
- regularly servicing the boilers, air conditioners, ventilators and electrical systems;
- cleaning water and fuel tanks;
- repairing damaged objects (chairs, tables, desks, notice boards) and accessories (apparatus, backboards, nets, etc.);
- regularly repainting and varnishing walls and wood panelling;
- regularly emptying septic tanks.

4.6.1.8 Safety, approval and flexibility of use of facilities and sports halls

The whole building should be equipped with a fire safety system comprising either hoses or sprinklers connected to a centralised water network or individual extinguishers. Maintenance staff should be trained in fire protection. Lightning conductors should be fitted. Audible and visible warning systems should be installed. There should be a sufficient number of clear, well signposted evacuation routes and emergency exits. They should be arranged so everyone, including people with disabilities, can escape from any danger as quickly as possible. In large facilities, a direct telephone link to emergency services should be available.

Regular users and members of the public will be more likely to respect environmental rules and take care of facilities if they meet the standards they expect. In particular, there should be clearly separate changing rooms, showers and toilets for men and women. All installations (courts, changing rooms, toilets, viewing areas, etc.) should be accessible to people with a disability. As far as possible, all loudspeaker announcements during competitions should be repeated on electronic display boards for the hard of hearing.

The size and layout of the building should enable it to be used for several different sports as well as for social activities (meeting rooms for clubs or groups, games rooms for children, etc.). Portable partitions should be available, along with temporary seating.

4.6.1.9 Use of the building for the community

A sports centre that is compatible with sustainable development should benefit the general well-being not only of its users but also of the community in which it is based. Educational establishments without their own facilities should be able to use sports halls for physical education lessons. Sports halls should also be made available for other educational activities, especially in disadvantaged areas. Sports centres should also host events (fetes, parties, balls, etc.) that facilitate understanding between different communities and social groups and thus contribute to the positive image and attractiveness of sport. Finally, sports halls should also be designed to host and house the victims of natural disasters.

IOC Guide on Sport, Environment and Sustainable Development

4.6.2 Gymnastics

4.6.2.1 General

Gymnastics is a sport which combines physical performance with aesthetic or artistic perfection. It is practised by both sexes, although mostly by women. Gymnastics includes several individual and team events, divided into three disciplines:

- Artistic gymnastics (rings, uneven bars for women and parallel bars for men, pommel horse, vault, floor exercises and the balance beam for women);
- Rhythmic gymnastics (for women only) with rope, hoop, ball, clubs and ribbon;
- Trampoline, introduced for the first time at the Sydney Games in 2000.

Some facts

- In antiquity, gymnastics was composed of more dangerous events than it is today. Young, rather gaudily dressed men would perform somersaults between swords. In bull-leaping, the gymnast would run towards the bull, grab its horns, perform a circular movement with his body, stand on the bull's back and then land on the ground;
- At the first modern Olympic Games, gymnastics competitions included rope climbing;
- The first gymnast to receive the perfect score of 10 in artistic gymnastics was Nadia Comaneci at the Montreal Games in 1976. As the scoreboards at the time could only display three digits, her score of 10.00 appeared as 1.00!

4.6.2.2 An environment-friendly approach to gymnastics

An environment-friendly approach to gymnastics requires respect for a number of simple rules.

Rules of conduct for preserving the environment for gymnastics

- Whenever possible, travel to the gymnasium by public transport, bicycle or on foot;
- Consider, when possible, the use of products that conform to environmental and sustainable development criteria;
- Put all waste (leftover food, bottles, plastic bags, worn-out accessories, etc.) in the bins provided or take them home. Separate and recycle waste where possible;
- Use water sparingly in sanitary installations;
- Turn off lights and electrical equipment when they are not needed.

4.6.2.3 Impact of gymnastics competitions and the necessary facilities

The environmental impact of gymnastics competitions can be negligible as long as everyone involved adopts a responsible attitude which is simple to put into practice.

Responsibility of those involved in gymnastics competitions

For the organisers

- Choose buildings with good thermal insulation in order to reduce energy losses caused by heating or air conditioning;
- Choose installations with renewable energy systems such as wind, geothermal or solar energy systems;
- Ensure that there is no asbestos in the insulating material used;
- Offer the public an adequate number of toilet and waste collection facilities which are well maintained and allow for waste water to be treated and solid waste to be recycled or destroyed without risk to the environment;
- Inform users of the rules of conduct to be observed: keep the toilets clean, save water and collect rubbish;



Chapter 4: Environmental and sustainable development conditions specific to the various Olympic disciplines



- Ensure that worn-out accessories (bars, pommel horses, mats made of synthetic materials) are properly destroyed or recycled;
- After the event, be careful to ensure that lights, electrical and electronic devices (including the sleep mode), air conditioning and, if possible, the heating are switched off.

For the competitors

- Behave impeccably in terms of fair play and respect for the environment (do not throw rubbish, such as water bottles or packaging, on the ground).

For the public

- Whenever possible, use public transport or a bicycle or travel on foot to and from competitions;
- Respect the rules of conduct on use of the toilet facilities and disposing of rubbish, particularly packaging and empty bottles.

4.6.2.4 Special waste, toxic products and sources of pollution linked to gymnastics

There are no specific forms of special waste linked to gymnastics. However, since the sport is practised on a synthetic surface, it is important to ensure that worn-out mats are properly destroyed. They should never be dumped in the natural environment, since they have a low level of degradability, nor burned without special equipment fitted with smoke filters, since they can release toxic fumes. As with most plastic materials, this waste can be useful if it is destroyed by incineration, when the heat from the combustion can be captured, or by pyrolysis, which produces heavy oils that can be used as boiler fuel. Worn-out metallic structures can also be recycled.

4.6.2.5 Other aspects of gymnastics linked to sustainable development

Gymnastics events generally contribute to the social dimension of sustainable development; they bring together a large number of participants of all ages and backgrounds and enable different communities to meet and get to know each other, share experiences and work together.



Figure 50: Large-scale gymnastics events enable different communities to meet and work together.

IOC Guide on Sport, Environment and Sustainable Development

4.6.3 Wrestling

4.6.3.1 General

The sport of wrestling dates back to earliest antiquity. It is depicted in Sumerian cave paintings dating back to 3,000 BC and was part of the programme of the Ancient Olympic Games held in 708 BC. It is an individual sport comprising three Olympic disciplines: freestyle wrestling (where participants can hold any part of their opponent's body), Greco-Roman wrestling (where participants can only hold the upper part of their opponent's body) and women's wrestling, which was introduced at the Athens Games in 2004. There are many different traditional forms of wrestling, the most famous being Japanese Sumo wrestling, as well as Turkish, Nigerian, Indian and Russian versions, for example.

Some facts

- The most successful Olympic wrestling champion was Milo of Croton, who won six titles in the Ancient Olympic Games (between 540 and 516 BC).
- In Europe, wrestling was popular amongst the aristocracy during the medieval and renaissance eras. For example, when they met, François I, king of France, and Henry VIII, king of England, wrestled each other. Henry VIII won.
- In Nigerian forms of wrestling, drums, griots and clowns accompany each wrestler. The griot sings and shouts at the wrestlers throughout the fight, accompanied by the drums. The clowns then entertain the crowd by mimicking the fight that has just taken place. Traditional African wrestling plays an important role in education and social integration.

4.6.3.2 An environment-friendly approach to wrestling

An environment-friendly approach to wrestling requires only respect for a number of simple rules.

Rules of conduct for preserving the environment for wrestling

- Whenever possible, travel to competitions by public transport, bicycle or on foot;
- Consider when possible, the use of products that conform to environmental and sustainable development criteria;
- Put all waste (leftover food, bottles, plastic bags, worn-out accessories, etc.) in the bins provided or take them home. Separate and recycle waste where possible.
- Use water sparingly in sanitary installations;
- Turn off lights and electrical equipment when they are not needed.

4.6.3.3 Impact of wrestling competitions and the necessary facilities

The environmental impact of wrestling can be negligible as long as everyone involved adopts a responsible attitude which is simple to put into practice.

Responsibility of those involved in wrestling events

For the organisers

- Choose buildings with good thermal insulation in order to reduce energy losses caused by heating or air conditioning;
- Choose installations with renewable energy systems such as wind, geothermal or solar energy systems;
- Ensure that there is no asbestos in the insulating material used;
- Offer the public an adequate number of toilet and waste collection facilities which are well maintained and



Chapter 4: Environmental and sustainable development conditions specific to the various Olympic disciplines



allow for waste water to be treated and solid waste to be recycled or destroyed without risk to the environment;

- Inform users of the rules of conduct to be observed: keep the toilets clean, save water and collect rubbish;
- Ensure that worn-out mats made of synthetic materials are properly destroyed or recycled;
- After the event, be careful to ensure that lights, electrical and electronic devices (including the sleep mode), air conditioning and, if possible, the heating are switched off.

For the competitors

- Behave impeccably in terms of fair play and respect for the environment (do not throw rubbish, such as water bottles or packaging, on the ground).

For the public

- Whenever possible, use public transport or a bicycle or travel on foot to and from competitions;
- Respect the rules of conduct on use of the toilet facilities and disposing of rubbish, particularly packaging and empty bottles.

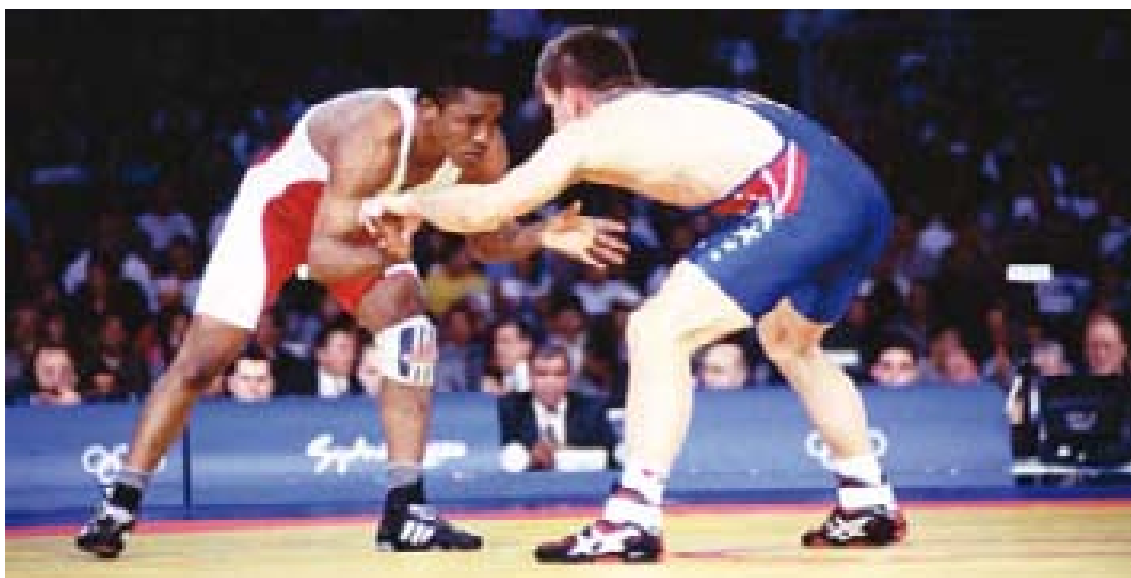


Figure 51: Wrestling is a means of learning self-control, respect for opponents and controlled aggression.

4.6.3.4 Special waste, toxic products and sources of pollution linked to wrestling

There are no specific forms of special waste linked to wrestling. However, it is important to ensure that worn-out mats are destroyed properly. They should never be dumped in the natural environment, since they have a low level of degradability, nor burned without special equipment fitted with smoke filters, since they can release toxic fumes. As with most synthetic materials, this waste can be useful if it is destroyed by incineration, when the heat from the combustion can be captured, or by pyrolysis, which produces heavy oils that can be used as boiler fuel.

4.6.3.5 Other aspects of wrestling linked to sustainable development

Wrestling is an ideal sport for disadvantaged areas and schools because it does not require any expensive apparatus and can be practised in gymnasiums without special equipment, or even outdoors. It is a discipline which encourages youngsters to engage in sport, whatever their physical abilities, since it respects the principle of equal opportunities by dividing participants into different weight categories.

IOC Guide on Sport, Environment and Sustainable Development

Finally, like all combat sports, wrestling can teach self-control, respect for opponents and controlled aggression, which are indispensable qualities for the peaceful, sustainable development of individuals and society.

4.6.4 Judo

4.6.4.1 General

Judo was the first Olympic sport originating from the Asian continent. Judo has been an Olympic discipline since the Tokyo Games in 1964. Since then it has been on the programme of all the Olympic Games except those in Mexico City in 1968. Women's judo was added to the Olympic programme as from the 1992 Barcelona Games. There are seven weight categories for men and women.

Some facts

- The term judo means “the pliant way”. Dangerous techniques are prohibited to respect the integrity of the opponent.
- The rules of judo were established in 1882 from fighting techniques used by schools of jujitsu for a long time. Dr Jigoro Kano (1860-1938), a long-standing member of the International Olympic Committee, dedicated his life to education and the popularisation of judo.



Figure 52: Knowledge, respect and flexibility towards one's opponent are the basic qualities of judo which can be used to promote sustainable development.

4.6.4.2 An environment-friendly approach to judo

An environment-friendly approach to judo means simply following a number of basic rules.

Rules of conduct for preserving the environment when practising judo

- Wherever possible, use public transport or a bicycle or travel on foot to and from the judo club (dojo);



Chapter 4: Environmental and sustainable development conditions specific to the various Olympic disciplines



- Consider, when possible, the use of products that conform to environmental and sustainable development criteria;
- Place all rubbish (leftover food, bottles, plastic bags, damaged accessories, etc.) in the bins provided, or hold on to them and put them in the waste bin at home. Wherever possible, separate out items that can be recycled;
- Do not waste water in the toilet facilities;
- Switch off lights and electrical equipment when these are not being used.

4.6.4.3 *The impact of judo competitions and the necessary facilities*

The impact of judo competitions on the environment can be negligible, provided that everyone involved adopts a responsible attitude which is easy to apply.

Responsibility of those involved in judo competitions

For the organisers

- Choose premises with good thermal insulation to minimise energy losses due to heating or air conditioning;
- Opt for facilities with renewable energy systems (e.g. wind, geothermal or solar);
- Ensure there is no asbestos in the insulating materials used;
- Provide the public with an adequate number of well-maintained toilets and rubbish disposal facilities, to enable waste water to be treated and solid waste to be recycled or destroyed with no risk;
- Inform users of the rules of conduct to be followed: keep toilets clean, save water and collect rubbish;
- Ensure the appropriate destruction or recycling of used mats (tatamis) made of synthetic materials;
- After the event, ensure that all lights and electric and electronic, air conditioning and, when possible, heating equipment are switched off (not left on standby).

For the competitors

- Set an example in terms of fair play and respect for the environment. Do not drop used accessories or rubbish such as bottles or packaging.

For the public

- Whenever possible, travel to the competition venue by public transport, bicycle or on foot;
- Respect the rules of conduct with regard to the use of toilet facilities and waste disposal, particularly for packaging and empty bottles.

4.6.4.4 *Special waste, toxic products and pollutants linked to judo*

There is no special waste linked to judo. Attention must however be given to the destruction of old synthetic tatamis. In no cases should these mats be left in the natural environment, as they are difficult to biodegrade. Nor should they be burned without a special smoke filter, as they can give off toxic fumes. As with other synthetic materials, it is possible to make use of old tatamis by burning them and recovering the heat, or through pyrolysis, to produce heavy oils which can be used as fuel for boilers.

4.6.4.5 *Other aspects of judo linked to sustainable development*

Judo is a combat sport which pays particular attention to people with disabilities, particularly the visually-impaired. Like all combat sports, judo is an apprenticeship in self-control, respect for one's opponent and controlling aggression, which are indispensable qualities for the peaceful and sustainable development of the individual and society. The values upheld by the philosophy of judo, based on knowledge, respect and flexibility vis-à-vis one's opponent, can be useful in developing strategies, campaigns and actions to promote sustainable development.

4.6.5 Taekwondo

4.6.5.1 General

Taekwondo, which dates back more than 2,000 years, is Korea's main traditional martial art. It is distinct from other Asian martial arts because of the high levels of mobility and speed it requires. Competitors wear protective clothing in order to preserve their safety and integrity. After featuring as a demonstration sport in Seoul and Barcelona, it became an Olympic sport on the programme for both men and women at the Sydney Games in 2000.

Some facts

- Taekwondo (the word means: "martial art using bare feet and hands") is a combination of different Asian martial arts and traditional Korean boxing.
- Taekwondo has been an important means of preserving the Korean identity and culture in a country for a long time under pressure from Japan.



Figure 53: Mobility and the protection of athletes distinguish taekwondo from other martial arts.

4.6.5.2 An environment-friendly approach to taekwondo

Taekwondo can be practised in any open-air and indoor space without any particular facilities. An environment-friendly approach to taekwondo only requires respect for a number of simple rules.

Rules of conduct for preserving the environment for taekwondo

- Whenever possible, travel to the gymnasium by public transport, bicycle or on foot;



Chapter 4: Environmental and sustainable development conditions specific to the various Olympic disciplines



- Consider, when possible, the use of products that conform to environmental and sustainable development criteria;
- Put all waste (leftover food, bottles, plastic bags, worn-out accessories, etc.) in the bins provided or take them home. Separate and recycle waste where possible;
- Use water sparingly in sanitary installations;
- Turn off lights and electrical equipment when they are not needed.

4.6.5.3 Impact of taekwondo competitions and the necessary facilities

The environmental impact of taekwondo can be negligible as long as everyone involved adopts a responsible attitude which is simple to put into practice.

Responsibility of those involved in taekwondo competitions

For the organisers

- Choose buildings with good thermal insulation in order to reduce energy losses caused by heating or air conditioning;
- Choose installations with renewable energy systems such as wind, geothermal or solar energy systems;
- Ensure that there is no asbestos in the insulating material used;
- Offer the public an adequate number of toilet and waste collection facilities which are well maintained and allow for waste water to be treated and solid waste to be recycled or destroyed without risk to the environment;
- Inform users of the rules of conduct to be observed: keep the toilets clean, save water and collect rubbish;
- Ensure that worn-out accessories and mats made of synthetic materials are properly destroyed or recycled;
- After the event, be careful to ensure that lights, electrical and electronic devices (including the sleep mode), air conditioning and, if possible, the heating are switched off.

For the competitors

- Behave impeccably in terms of fair play and respect for the environment (do not throw rubbish, such as water bottles or packaging, on the ground).

For the public

- Whenever possible, use public transport or a bicycle or travel on foot to and from competitions;
- Respect the rules of conduct on use of the toilet facilities and disposing of rubbish, particularly packaging and empty bottles.

4.6.5.4 Special waste, toxic products and sources of pollution linked to taekwondo

There are no specific forms of special waste linked to taekwondo. However, it is important to ensure that worn-out mats and accessories made of synthetic materials are properly destroyed. They should never be dumped in the natural environment, since they have a low level of degradability, nor burned without special equipment fitted with smoke filters, since they can release toxic fumes. As with most synthetic materials, this waste can be useful if it is destroyed by incineration, when the heat from the combustion can be captured, by shredding (helmets), which can produce building materials in granule form, or by pyrolysis, which produces heavy oils that can be used as boiler fuel.

4.6.5.5 Other aspects of taekwondo linked to sustainable development

Like all martial arts, taekwondo can teach self-control, respect for opponents and controlled aggression, which are indispensable qualities for the peaceful, sustainable development of individuals (particularly young people) and society. Taekwondo is a sport which pays particular attention to people with disabilities. The World Taekwondo Federation is

IOC Guide on Sport, Environment and Sustainable Development

endeavouring to adapt the rules of the sport in order to enable people with disabilities to practise it, with the ambition of its becoming an official Paralympic discipline.

4.6.6 Boxing

4.6.6.1 General

Boxing is a combat sport that has been part of the Olympic Games since 1904. Women's boxing is not an Olympic discipline. Boxing is split into several different weight categories, known as featherweight, bantamweight, flyweight, lightweight, middleweight, heavyweight and super-heavyweight. Amateur boxing pays particular attention to the protection of participants.

Some facts

- Modern boxing originated in the 17th century, based on the ancient form of boxing, which first appeared in the Ancient Olympic Games in 688 BC.
- In the ancient form of boxing, the combatants, who were sometimes completely nude, bound their hands with leather thongs, sometimes studded with lead balls, which accentuated the impact of the blows and inflicted terrible, sometimes fatal injuries. In Europe, the sport survived in various forms until the 11th century, when it was banned by the church.
- The United States of America won all the medals when boxing was introduced to the Olympic Games programme in Saint Louis in 1904: they were the only team to enter the competition!
- Boxing is the only Olympic sport in which bronze medals are awarded to both losing semi-finalists.

4.6.6.2 An environment-friendly approach to boxing

An environment-friendly approach to boxing requires only respect for a number of simple rules.

Rules of conduct for preserving the environment for boxing

- Whenever possible, travel to the venue by public transport, bicycle or on foot;
- Consider when possible, the use of products that conform to environmental and sustainable development criteria;
- Put all waste (leftover food, bottles, plastic bags, worn-out accessories, etc.) in the bins provided or take them home. Separate and recycle waste where possible;
- Use water sparingly in sanitary installations;
- Turn off lights and electrical equipment when they are not needed.

4.6.6.3 Impact of boxing competitions and the necessary facilities

The environmental impact of boxing can be negligible as long as everyone involved adopts a responsible attitude which is simple to put into practice.



Chapter 4: Environmental and sustainable development conditions specific to the various Olympic disciplines



Figure 54: Amateur boxing pays particular attention to the protection of the participants.

Responsibility of those involved in boxing events

For the organisers

- Choose buildings with good thermal insulation in order to reduce energy losses caused by heating or air conditioning;
- Choose installations with renewable energy systems such as wind, geothermal or solar energy systems;
- Ensure that there is no asbestos in the insulating material used;
- Offer the public an adequate number of toilet and waste collection facilities which are well maintained and allow for waste water to be treated and solid waste to be recycled or destroyed without risk to the environment;
- Inform users of the rules of conduct to be observed: keep the toilets clean, save water and collect rubbish;
- Ensure that worn-out accessories, ropes and mats made of synthetic materials are properly destroyed or recycled;
- After the event, be careful to ensure that lights, electrical and electronic devices (including the sleep mode), air conditioning and, if possible, the heating are switched off.

For the competitors and their trainers

- Behave impeccably in terms of fair play and respect for the environment (do not leave worn-out accessories or rubbish, such as water bottles or packaging, on the ground or in the ring).

For the public

- Whenever possible, use public transport or a bicycle or travel on foot to and from competitions;
- Respect the rules of conduct on use of the toilet facilities and disposing of rubbish, particularly packaging and empty bottles;
- Encourage your favourite boxer while showing an attitude of fair play towards his opponent, and avoid any verbal or physical violence;
- Stamp out any expressions of racism.

IOC Guide on Sport, Environment and Sustainable Development

4.6.6.4 Special waste, toxic products and sources of pollution linked to boxing

There are no specific forms of special waste linked to boxing. However, it is important to ensure that worn-out mats and accessories made of synthetic materials (headgear, gum shields) are properly destroyed. They should never be dumped in the natural environment, since they have a low level of degradability, nor burned without special equipment fitted with smoke filters, since they can release toxic fumes. As with most synthetic materials, this waste can be useful if it is destroyed by incineration, when the heat from the combustion can be recovered, by shredding (helmets and gum shields), which can produce building materials in granule form, or by pyrolysis, which produces heavy oils that can be used as boiler fuel.

4.6.6.5 Other aspects of boxing linked to sustainable development

Like all combat sports, boxing can teach self-control, respect for opponents and controlled aggression, which are indispensable qualities for the peaceful, sustainable development of individuals and society. Traditionally, boxing has always been an effective means of integration and development for members of the most disadvantaged social classes or marginalised groups. It can help to channel personal and social frustrations in a positive way.

4.6.7 Weightlifting

4.6.7.1 General

Weightlifting is a sport requiring strength and concentration which has been part of the Olympic Games programme since 1896 for men and 2000 for women. It consists of two different movements: the snatch and the clean and jerk. There are several weight categories: 7 for women and 8 for men. Weightlifting can be practised from a lying position by people with leg disabilities.

Some facts

- Weight-lifting is a natural way of measuring strength and power; it was practised in Ancient Egypt and Greek civilisation.
- Several other sports are similar to weight-lifting. "Powerlifting" is a form of weight-lifting that also uses bars, but it involves more basic movements and heavier weights. All over the world, there are several traditional forms of weight-lifting that use stones.

4.6.7.2 An environment-friendly approach to weightlifting

An environment-friendly approach to weightlifting requires only respect for a number of simple rules.

Rules of conduct for preserving the environment for weightlifting

- Whenever possible, use public transport or a bicycle or travel on foot to and from the gym;
- Consider, when possible, the use of products that conform to environmental and sustainable development criteria;
- Put all waste (leftover food, bottles, plastic bags, worn-out clothing, dirty magnesia, etc.) in the bins provided or take them home. Recycle metallic accessories (bars, discs, collars);
- Use water sparingly in sanitary installations;
- Turn off lights and electrical equipment when they are not needed.

4.6.7.3 Impact of weightlifting competitions and the necessary facilities

The environmental impact of weightlifting can be negligible as long as everyone involved adopts a responsible attitude which is simple to put into practice.



Chapter 4: Environmental and sustainable development conditions specific to the various Olympic disciplines



Responsibility of those involved in weightlifting competitions

For the organisers

- Choose buildings with good thermal insulation in order to reduce energy losses caused by heating or air conditioning;
- Choose installations with renewable energy systems such as wind, geothermal or solar energy systems;
- Ensure that there is no asbestos in the insulating material used;
- Offer the public an adequate number of toilet and waste collection facilities which are well maintained and allow for waste water to be treated and solid waste to be recycled or destroyed without risk to the environment;
- Inform users of the rules of conduct to be observed: keep the toilets clean, save water and collect rubbish;
- Ensure that the metallic parts of damaged or worn-out accessories (bars, discs, collars) are recycled;
- After the event, be careful to ensure that lights, electrical and electronic devices (including the sleep mode), air conditioning and, if possible, the heating are switched off.

For the competitors and their coaches

- Behave impeccably in terms of fair play and respect for the environment (do not throw worn-out accessories or rubbish, such as water bottles or packaging, on the ground).

For the public

- Whenever possible, use public transport or a bicycle or travel on foot to and from competitions;
- Respect the rules of conduct on use of the toilet facilities and disposing of rubbish, particularly packaging and empty bottles.

4.6.7.4 Special waste, toxic products and sources of pollution linked to weightlifting

There are no specific forms of special waste linked to weightlifting. It is sufficient to ensure that metallic accessories such as bars, discs and collars are recycled.

4.6.7.5 Other aspects of weightlifting linked to sustainable development

Weightlifting requires not only strength, but also high powers of concentration. Learning how to concentrate can teach the individual how to act in a reasoned, determined way in a complex or difficult environment. It produces mental discipline and a way of acting which can only foster decision-making that favours sustainable development.

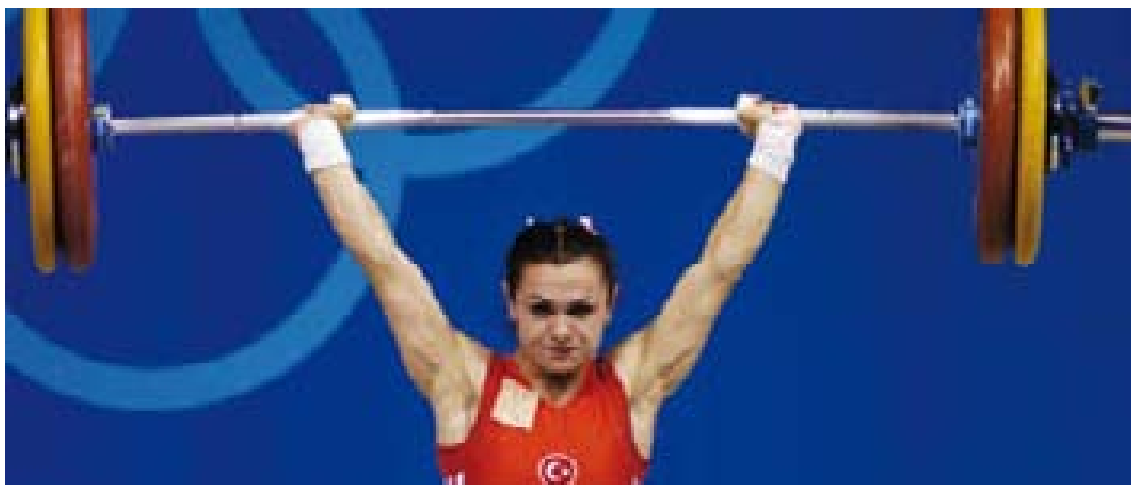


Figure 55: Strength and concentration are the principal characteristics of weightlifting.

4.6.8 Table tennis

4.6.8.1 General

Table tennis is a popular sport which can be played on a recreational basis between family members or friends and does not require complicated facilities or equipment. It can be played outdoors or indoors, although official competitions must be played inside, under artificial lighting.

Some facts

- The celluloid used to make table tennis balls was discovered in the 19th century by American John Wesley Hyatt, who wanted to replace ivory billiard balls in order to combat the slaughter of elephants. An ecological measure ahead of its time!
- In many countries, table tennis is a traditional family pastime and is sometimes called ping-pong.
- Thanks to the opportunities it creates for social interaction, table tennis has often been a forerunner to political recognition. In the 1930s, for example, the first President of the International Table Tennis Federation, Englishman Ivor Montagu, allowed a team of Jews from Palestine to enter the world championships. Forty years later, table tennis also became the first sport to invite a team from Gaza to play in official events. In April 1971, a visit to China by the United States table tennis team was the prelude to the re-establishment of diplomatic relations between the two countries.
- In the past, top-level table tennis was sometimes an endurance sport. In Prague in 1936, a match between a Romanian and a Frenchman had to be interrupted because it had been going on for 7 hours 30 minutes! The ITTF judges decided to toss a coin to determine the winner. Fortune smiled on the Romanian and the rules were changed to avoid a repetition of this kind of situation.



Figure 56: The recycling of used balls and the composition of the glue used on bats are the two aspects of table tennis that affect the environment.



Chapter 4: Environmental and sustainable development conditions specific to the various Olympic disciplines



4.6.8.2 An environment-friendly approach to table tennis

At first glance, it would seem that table tennis has no impact on the environment. It does not generate any waste, has no perceptible influence on the natural environment and, apart from high-level competitions, does not involve much energy consumption.

Rules of conduct for preserving the environment for table tennis

- Whenever possible, use public transport or a bicycle or travel on foot to and from competitions;
- Consider, when possible, the use of products that conform to environmental and sustainable development criteria;
- Use non-toxic paint (free from heavy metals and organochlorine compounds) on the table;
- Do not dump in the natural environment synthetic floors, nets, bats and used balls which are poorly degradable;
- Used balls should either be destroyed by incineration, taking care with the celluloid fumes which have irritant effects, or recycled by specialist companies.

4.6.8.3 Impact of table tennis competitions and the necessary facilities

High-level table tennis competitions must be played indoors under artificial lighting. It is therefore important to ensure that the buildings and energy used do not have any impact on sanitation or the environment (see paragraph 3.5 for more details).

Responsibility of those involved in table tennis competitions

For the organisers

- Choose buildings with good thermal insulation in order to reduce energy losses caused by heating or air conditioning;
- Choose installations with renewable energy systems such as wind, geothermal or solar energy systems;
- Ensure that there is no asbestos in the insulating material used;
- Offer the public an adequate number of toilet and waste collection facilities which are well maintained and allow for waste water to be treated and solid waste to be recycled or destroyed without risk to the environment;
- Inform users of the rules of conduct to be observed: keep the toilets clean, save water and collect rubbish;
- Collect used balls and ensure they are properly destroyed or recycled;
- Ensure that competitors do not use glues with toxic solvents on their bats.

For the competitors

- Behave impeccably in terms of fair play and respect for the environment (do not throw rubbish, such as water bottles or packaging, on the ground);
- Do not use glues with toxic solvents on bats;
- Do not dispose of balls, bats, nets or synthetic flooring in the natural environment.

For the public

- Whenever possible, use public transport or a bicycle or travel on foot to and from competitions;
- Respect the rules of conduct on use of the toilet facilities and disposing of rubbish, particularly packaging and empty bottles.

4.6.8.4 Special waste, toxic products and sources of pollution linked to table tennis

Table tennis bats are made of a wooden blade covered in a layer of foam and a rubber surface. These different components are stuck together with glue containing solvents that can sometimes be toxic, such as aromatic

IOC Guide on Sport, Environment and Sustainable Development

hydrocarbons (benzene, toluene, xylene), organochlorates (trichloroethylene) or hexane. These volatile compounds can damage the respiratory tract and are also carcinogenic. It is therefore advisable to use only glues containing mineral solvents.

In official competitions, the International Table Tennis Federation (ITTF) prohibits their use inside competition venues from 1 September 2006 and will ban them completely from 1 September 2007.

4.6.8.5 Other aspects of table tennis linked to sustainable development

Table tennis can easily be played between people of different sexes and ages. It is easy to learn, simple to set up in all kinds of places and does not require much in the way of money or equipment. It can therefore be an excellent vehicle for social interaction.

For the same reasons, table tennis is a sport that can easily be played by people in crisis situations (refugee camps, displaced or marginalised populations) and can therefore help them forget their circumstances and enjoy engaging in a physical activity.

4.6.9 Badminton

4.6.9.1 General

Badminton is generally an indoor sport in which reflexes, speed and endurance are essential qualities.

Some facts

- The shuttlecocks used in competitions are made up of 16 feathers, with the best ones taken from the left wing of a goose, and have a weight close to 5 grams.
- Originating in India, modern badminton was named after the home of the Duke of Gloucester, who popularised it in England.
- In high-level competitions, the shuttlecock can reach 260 km/h when smashed.

4.6.9.2 An environment-friendly approach to badminton

At first glance, it would seem that badminton has little impact on the environment. It does not generate waste and has no perceptible effect on the natural environment.

Rules of conduct for preserving the environment for badminton

- Whenever possible, use public transport or a bicycle or travel on foot to and from courts;
- Consider, when possible, the use of products that conform to environmental and sustainable development criteria;
- Do not dump worn-out shuttlecocks or rackets in the natural environment. They should be thrown away as solid waste or recycled rather than incinerated (even plastic shuttlecocks);
- Use shuttlecocks from suppliers who guarantee that the geese they are taken from are properly treated.



Chapter 4: Environmental and sustainable development conditions specific to the various Olympic disciplines



Figure 57: Badminton is a reflex and endurance sport which has very little impact on the environment.

4.6.9.3 Impact of badminton competitions and the necessary facilities

Official badminton competitions are usually played indoors under artificial lighting. It is therefore important to ensure that the buildings and energy used do not have any impact on sanitation or the environment (see paragraph 3.5 for more details).

Responsibility of those involved in badminton competitions

For the organisers

- Choose buildings with good thermal insulation in order to reduce energy losses caused by heating or air conditioning;
- Choose installations with renewable energy systems such as wind, geothermal or solar energy systems;
- Ensure that there is no asbestos in the insulating material used;
- Offer the public an adequate number of toilet and waste collection facilities which are well maintained and allow for waste water to be treated and solid waste to be recycled or destroyed without risk to the environment;
- Inform users of the rules of conduct to be observed: keep the toilets clean, save water and collect rubbish;
- Collect used shuttlecocks and ensure they are properly destroyed.

For the competitors

- Behave impeccably in terms of fair play and respect for the environment (do not throw rubbish, such as water bottles or packaging, on the floor).

For the public

- Whenever possible, use public transport or a bicycle or travel on foot to and from competitions;
- Respect the rules of conduct on use of the toilet facilities and disposing of rubbish, particularly packaging and empty bottles.

IOC Guide on Sport, Environment and Sustainable Development

4.6.9.4 Special waste, toxic products and sources of pollution linked to badminton

There are no forms of special waste, toxic products or specific sources of pollution linked to badminton.

4.6.9.5 Other aspects of badminton linked to sustainable development

Badminton is a sport that does not require expensive equipment and can easily be played between people of different sexes, ages and social backgrounds.

4.6.10 Fencing

4.6.10.1 General

Fencing involves three types of weapon: foil, épée and sabre. It is practised individually and in teams. It is a sport with a long tradition of fair play and requires participants to exercise the necessary discipline to respect the numerous rules and conventions that govern it.

Some facts

- Fencing is one of the four Olympic sports that has been included in every edition of the modern Olympic Games since 1896;
- The modern rules of fencing originated in fencing treaties that date back to 16th century Italy.
- The Chevalier de Saint-Georges, a 18th century black French gentleman, born in Guadeloupe and the son of a slave, owed much of his climb up the social ladder to his brilliance as a fencer as well as his talent as a composer, admired by Haydn and Mozart.

4.6.10.2 An environment-friendly approach to fencing

Fencing has little impact on the environment. Apart from broken or worn-out weapons and equipment, it does not produce any waste and has no perceptible effect on the natural environment.

Fencing also uses a small amount of energy, since electrical equipment was introduced in official competitions (in 1933 for the épée, 1955 for the foil and 1986 for the sabre).

Rules of conduct for preserving the environment for fencing

- Whenever possible, use public transport or a bicycle or travel on foot to and from arms rooms;
- Consider, when possible, the use of products that conform to environmental and sustainable development criteria;
- Take broken or worn-out weapons to a fencing instructor or club officials, who will ensure they are given to a metal recycling firm;
- Ensure that masks and clothing, particularly jackets made of conductive materials, are destroyed or recycled by specialist companies.

4.6.10.3 Impact of fencing competitions and the necessary facilities

Official fencing competitions are held indoors under artificial lighting and require special equipment. It is therefore important to ensure that the buildings and energy used do not have any impact on sanitation or the environment (see paragraph 3.5 for more details), and that the same is true of the special materials and equipment used in fencing.



Chapter 4: Environmental and sustainable development conditions specific to the various Olympic disciplines



Responsibility of those involved in fencing competitions

For the organisers

- Ensure that pistes and electrical equipment work safely and are not dangerous;
- Use energy-efficient electrical equipment;
- Choose buildings with good thermal insulation in order to reduce energy losses caused by heating or air conditioning;
- Choose installations with renewable energy systems such as wind, geothermal or solar energy systems;
- Ensure that there is no asbestos in the insulating material used;
- Offer the public an adequate number of toilet and waste collection facilities which are well maintained and allow for waste water to be treated and solid waste to be recycled or destroyed without risk to the environment;
- Inform users of the rules of conduct to be observed: keep the toilets clean, save water and collect rubbish;
- Ensure that used batteries are properly destroyed.

For the competitors

- Behave impeccably in terms of fair play and respect for the environment (do not throw rubbish, such as water bottles or packaging, on the ground).

For the public

- Whenever possible, use public transport or a bicycle or travel on foot to and from competitions;
- Respect the rules of conduct on use of the toilet facilities and disposing of rubbish, particularly packaging and empty bottles.



Figure 58: Fencing requires the use of clothing made from complex materials and electrical equipment that needs to be managed carefully from an environmental point of view.

IOC Guide on Sport, Environment and Sustainable Development

4.6.10.4 Special waste, toxic products and sources of pollution linked to fencing

The only types of special waste linked to fencing are the batteries that power the electronic scoring equipment and jackets made of various materials.

Used batteries particularly contain lead and acid, which can be harmful to human health and cause lasting damage to the environment if batteries are not properly destroyed or treated. They should therefore be handed over to professionals, who should neutralise the acid and recycle the lead.

Fencing jackets should be conductive and, for women, include a chest protector made of metal or some other hard material. Worn-out jackets therefore contain, at the very least, fabric, a conductive film, and, for women, a piece of metal or resin. Once they are thrown away, they are not biodegradable and therefore need to be dealt with by specialist companies, which separate out the various components before destroying or recycling them. The same process applies to worn-out masks.

4.6.10.5 Other aspects of fencing linked to sustainable development

The other aspects of fencing that are linked to sustainable development mainly concern its educational value in terms of personal discipline. Fencers need to learn a number of rules and conventions, to respect their opponents and control their emotions, which are all important social skills.

All fencers wear the same outfit, which masks differences of age, skin colour or dress code – factors which often give rise to marginalisation or exclusion. Moreover, the independence of the legs and torso in this sport make it particularly accessible and appealing for people with disabilities.

4.6.11 Basketball

4.6.11.1 General

Basketball was invented in the United States by a Canadian teacher, Dr James Naismith. After the first match was played in Springfield, Massachusetts in 1891, it quickly grew in popularity. Men's basketball became an official Olympic sport at the 1936 Olympic Games, while the women's game was first included in 1976. The distinction between amateurs and professionals was eliminated in 1989 thus allowing NBA players to participate at the Barcelona Games, including the players of the United States team called the "Dream Team". Basketball is popular throughout the world and is played not only in gyms and arenas but also in streets and playgrounds.

Some facts

- The Canadian inventor of basketball, Dr James Naismith, was a teacher in Springfield, Massachusetts, USA. He wanted to create a sport that could be played indoors during the winter, and which was sufficiently dynamic to keep even the most unruly children interested. He laid down a small number of rules and, on 21 December 1891, nailed two fruit baskets to the balconies of the gymnasium at his school in Springfield and the first basketball match took place.
- Basketball was quickly adopted by the Young Men's Christian Association (YMCA), which spread it all over the United States. The first international match was held in Saint Petersburg in 1909 between a YMCA team and a Russian team.

4.6.11.2 An environment-friendly approach to basketball

At first glance, it would seem that basketball has little impact on the environment. An environment-friendly approach to basketball, whether it is played in an enclosed stadium or in the open air, requires only respect for a number of



Chapter 4: Environmental and sustainable development conditions specific to the various Olympic disciplines



simple rules. Basketball, which may be played informally in all kinds of settings, can also provide an opportunity to support the environment by renovating derelict land for this purpose.

Rules of conduct for preserving the environment for basketball

- Whenever possible, travel to the arena, gymnasium or court by public transport, bicycle or on foot;
- Consider when possible, the use of products that conform to environmental and sustainable development criteria;
- Never leave behind any waste (leftover food, bottles, cans, plastic bags, worn-out clothes, burst balls, etc.) in the gym and on the court or in the changing rooms. Place them in the bins provided or take them home. Recycle glass and cans;
- Use water sparingly in sanitary installations;
- Turn off lights and electrical equipment when they are not needed;
- When creating a new basketball court, consider first of all whether neglected land, such as waste ground, industrial wasteland, disused fields, etc. might be renovated for this purpose;
- Negotiate the lease and management of this land with its owner and clean, maintain and, if possible, service it by installing basic sanitary facilities and organising waste disposal;
- Ensure the club or team participates in environmental activities: Environment Day, cleaning of the district or town, tree-planting, etc. Failing this, take the initiative of promoting such activities.



Figure 59: The simplicity of the rules of basketball keeps the game very fast-moving, which was the intention, for educational reasons, of its inventor, Dr James Naismith.

IOC Guide on Sport, Environment and Sustainable Development

4.6.11.3 Impact of basketball competitions and the necessary facilities

The environmental impact of basketball matches played indoors or outdoors can be negligible as long as everyone involved adopts a responsible attitude which is simple to put into practice.

Responsibility of those involved in basketball events

For the organisers

- Choose buildings with good thermal insulation in order to reduce energy losses caused by heating or air conditioning;
- Choose installations with renewable energy systems such as wind, geothermal or solar energy systems;
- Ensure that there is no asbestos in the insulating material used;
- Offer the public an adequate number of toilet and waste collection facilities which are well maintained and allow for waste water to be treated and solid waste to be recycled or destroyed without risk to the environment;
- Inform users of the rules of conduct to be observed: keep the toilets clean, save water and collect rubbish.

For the players and their entourage

- Behave impeccably in terms of fair play and respect for the environment (do not throw rubbish, such as water bottles or packaging, on the ground);
- Avoid making aggressive, insulting or racist remarks during the match and in media interviews.

For the public

- Wherever possible, use public transport or a bicycle or travel on foot to and from competitions;
- Respect the rules of conduct on use of the toilet facilities and disposing of rubbish, particularly packaging and empty bottles;
- Encourage the team whilst demonstrating fair play towards opponents, and act as a peacemaker if there is any verbal or physical violence; clamp down on any demonstrations of racism.

4.6.11.4 Special waste, toxic products and sources of pollution linked to basketball

There are no forms of special waste, toxic products or specific sources of pollution linked to basketball.

4.6.11.5 Other aspects of basketball linked to sustainable development

Due to its popularity, the fact that little equipment is required and the simplicity of the rules (which its inventor deliberately designed to make the game attractive for unruly teenagers), basketball possesses a universality and appeal that enable it to offer character-building experiences and social advancement to those who play it.



Chapter 4: Environmental and sustainable development conditions specific to the various Olympic disciplines



Figure 60: Street basketball is a social phenomenon that helps people to adapt their urban environment to their own needs.

The phenomenon of street basketball or “streetball” is an example of this. Basketball is not the only sport involved, but it is the most symbolic, particularly since street basketball has become extraordinarily popular in urban areas all around the world. It shows how a sport can shift from an indoor activity into an outdoor sport in urban areas, growing rapidly as it does so. It is mainly an urban phenomenon, adapting and humanising an increasingly hostile environment, amplified in situations of exclusion and economic hardship. It also meets the aspirations of younger generations, whose mentality has changed and who are not afraid to break away from society and traditional sports culture in particular: “no coach, no referee, no rules” is the watchword.

In fact, in the interests of the game, this freedom quickly leads to participants taking responsibility and deciding a set of rules amongst themselves. Before a match, the teams negotiate the rules (point scoring, changes, possession of the ball, etc.), and the higher the standard of play, the more similar the rules become to those of club basketball. Street sports, particularly basketball, can therefore be considered a kind of recreational rite of social integration or reintegration. The proof of this lies in the fact that some of today’s top basketball players began playing on the streets. This aspect of basketball makes a particularly positive contribution to the social dimension of sustainable development.

4.6.12 Volleyball

4.6.12.1 General

Volleyball is a team sport played by men and women. It was invented in the United States at the end of the 19th century and became an Olympic sport at the Tokyo Games in 1964. Beach volleyball was first included in the Olympic programme in Atlanta in 1996. This discipline owes much of its popularity to the fact that it emerged at the same time as other beach-based leisure activities, becoming the beach sport par excellence, and also due to the games and events organised by the International Volleyball Federation (FIVB).

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Some facts

- Volleyball, which was initially called “mintonette”, was invented in 1895 in Massachusetts, where basketball also originated. Pastor William G. Morgan, director of physical education at a Young Men’s Christian Association (YMCA) and a friend of the inventor of basketball, devised mintonette, combining elements of tennis and basketball. Mintonette was renamed volleyball in 1917.
- As with basketball, the YMCA was instrumental in the world-wide success of volleyball. For example, it was already being played in Japan only a year after it was invented.
- Beach volleyball was first played in California in the 1920s and has retained the light-hearted atmosphere of that setting. In the second half of the 20th century, it was played by famous pop groups, such as the Beatles and, of course, the Beach Boys.

4.6.12.2 An environment-friendly approach to volleyball

At first glance, it would seem that volleyball has little impact on the environment. An environment-friendly approach to volleyball, whether it is played in an enclosed stadium or in the open air, requires only respect for a number of simple rules. As far as beach volleyball is concerned, attention should be paid to its possible impact on beaches and to any pollutants that might be contained in suntan lotions.

Rules of conduct for preserving the environment for volleyball

- Whenever possible, travel to the stadium or court by public transport, bicycle or on foot;
- Consider, when possible, the use of products that conform to environmental and sustainable development criteria;
- Never leave behind any rubbish (leftover food, bottles, cans, plastic bags, worn-out clothes, burst balls, etc.) in the stadium, on the court or in the changing rooms. Place it in the bins provided or take it home. Recycle glass and cans;
- Use water sparingly in sanitary installations;
- Turn off lights and electrical equipment when they are not needed.

For beach volleyball:

- When deciding where to play, avoid sites of ecological importance (for example, beaches where turtles reproduce or near reproduction sites for birds, frogs, etc.);
- Examine the condition of the sand (presence of animal faeces, rubbish, etc.), clean it with a rake if necessary and ban pets from the beach;
- Avoid dropping suntan lotions on the sand;
- After the game, restore the site to its original condition and remove all rubbish.



Chapter 4: Environmental and sustainable development conditions specific to the various Olympic disciplines



Figure 61: Indoor volleyball has a negligible impact on the environment as long as everyone involved adopts a responsible attitude.

4.6.12.3 Impact of volleyball competitions and the necessary facilities

The environmental impact of volleyball matches played indoors or outdoors can be negligible as long as everyone involved adopts a responsible attitude which is simple to put into practice. Particular attention should be paid to beach volleyball competitions.

Responsibility of those involved in volleyball competitions

For the organisers

- Choose buildings with good thermal insulation in order to reduce energy losses caused by heating or air conditioning;
- Choose installations with renewable energy systems such as wind, geothermal or solar energy systems;
- Ensure that there is no asbestos in the insulating material used;
- Offer the public an adequate number of toilet and waste collection facilities which are well maintained and allow for waste water to be treated and solid waste to be recycled or destroyed without risk to the environment;
- Inform users of the rules of conduct to be observed: keep the toilets clean, save water and collect rubbish.

For beach volleyball competitions (in addition to the above recommendations)

- Avoid sites of ecological importance (for example, beaches where turtles reproduce or near reproduction sites for birds, frogs, etc.);
- For public access to the stadium, create gravel or geotextile paths in order to avoid compression of the sand;
- In and around the stadium, offer the public an adequate number of toilet and waste collection facilities;
- Carry out a bacteriological analysis of the sand before holding events on it;
- Ban all animals from the site;
- Restore temporary courts to their original condition after use;
- For permanent courts created on soil, pour the sand into a frame on an impermeable cloth, which will prevent the soil from coming through and facilitate rainwater drainage.

IOC Guide on Sport, Environment and Sustainable Development

For the players and their entourage

- Behave impeccably in terms of fair play and respect for the environment (do not throw rubbish, such as water bottles or packaging, on the ground);
- Avoid making aggressive, insulting or racist remarks during the match and in media interviews.

For the public

- Wherever possible, use public transport or a bicycle or travel on foot to and from competitions;
- Respect the rules of conduct on the use of the toilet facilities and disposing of rubbish, particularly packaging and empty bottles;
- Encourage the team whilst demonstrating fair play towards opponents and act as a peacemaker if there is any verbal or physical violence; clamp down on any demonstrations of racism.

4.6.12.4 Special waste, toxic products and sources of pollution linked to volleyball

There are no forms of special waste, toxic products or specific sources of pollution linked to indoor volleyball. With regard to beach volleyball, care should be taken with suntan lotions, which are quite rightly used in significant quantities by players and spectators. Some products that are contained in these lotions (benzophenone 3, homosalate, 4-methylbenzylidene camphor, octyl methoxycinnamate and octyl dimethyl p-aminobenzoic acid) can accumulate in fish and are thought to have a sterilising effect, since they are endocrine disruptors. Anti-UV creams containing these five substances should therefore be avoided.

4.6.12.5 Other aspects of volleyball linked to sustainable development

As in all team sports, the team aspect can be used to develop environmental and social activities which, if successful, can only benefit a team's performances on the court. Environmental protection activities carried out together can help to unite a group of people in a fun and useful way. Teams and clubs can also play a decisive role in sustainable development by providing socialisation and integration opportunities for disadvantaged or marginalised groups.

4.6.13 Handball

4.6.13.1 General

Handball is a team sport that was initially played outdoors with teams of eleven players, as at the 1936 Olympic Games in Berlin. Since the 1950s, teams have comprised seven players, and official competitions have been held indoors. Men's handball with teams of seven was first included in the Olympic Games programme in Munich in 1972, while women's handball was introduced in Montreal four years later. Over the last few years beach handball has been increasing.

Some facts

- Ball games involving the hands were played by the Greeks and Romans in ancient times. During the Middle Ages, German poet Walther von der Vogelweide (1170-1230) referred to them in one of his songs and, a little later, in France, François Rabelais (1494-1533) mentioned a game in which the ball was thrown with the hand.
- Modern handball is in fact descended from several ball games involving the hands that were practised at the end of the 19th century. These include "hazena" from Czechoslovakia, "torball" (goal ball), which was played by German women, and "haanbold", which originated in Denmark in 1898. However, other forerunners of this sport also existed in Ireland, the United States, Australia and elsewhere during this period.



Chapter 4: Environmental and sustainable development conditions specific to the various Olympic disciplines



4.6.13.2 An environment-friendly approach to handball

At first glance, it would seem that handball has little impact on the environment. An environment-friendly approach to handball requires only respect for a number of simple rules.

Rules of conduct for preserving the environment for handball

- Whenever possible, travel to the stadium or court by public transport, bicycle or on foot;
- Consider, when possible, the use of products that conform to environmental and sustainable development criteria;
- Use water sparingly in sanitary installations;
- Never leave behind any waste (leftover food, bottles, cans, plastic bags, worn-out clothes, burst balls, etc.) in the stadium, on the court or in the changing rooms. Place them in the bins provided or take them home. Recycle glass and cans;
- Turn off lights and electrical equipment when they are not needed.

4.6.13.3 Impact of handball competitions and the necessary facilities

The environmental impact of handball matches played indoors can be negligible as long as everyone involved adopts a responsible attitude which is simple to put into practice.



Figure 62: Handball has little impact on the environment.

IOC Guide on Sport, Environment and Sustainable Development

Responsibility of those involved in handball events

For the organisers

- Choose buildings with good thermal insulation in order to reduce energy losses caused by heating or air conditioning;
- Choose installations with renewable energy systems such as wind, geothermal or solar energy systems;
- Ensure that there is no asbestos in the insulating material used;
- Offer the public an adequate number of toilet and waste collection facilities which are well maintained and allow for waste water to be treated and solid waste to be recycled or destroyed without risk to the environment;
- Inform users of the rules of conduct to be observed: keep the toilets clean, save water and collect rubbish.

For the players and their entourage

- Behave impeccably in terms of fair play and respect for the environment (do not throw rubbish, such as water bottles or packaging, on the ground);
- Avoid making aggressive, insulting or racist remarks during the match and in media interviews.

For the public

- Whenever possible, use public transport or a bicycle or travel on foot to and from competitions;
- Respect the rules of conduct on use of the toilet facilities and disposing of rubbish, particularly packaging and empty bottles;
- Encourage the team whilst demonstrating fair play towards opponents, and act as a peacemaker if there is any verbal or physical violence; clamp down on any demonstrations of racism.

4.6.13.4 Special waste, toxic products and sources of pollution linked to handball

There are no forms of special waste, toxic products or specific sources of pollution linked to handball.

4.6.13.5 Other aspects of handball linked to sustainable development

As in all team sports, the team aspect can be used to develop environmental and social activities which, if successful, can only benefit a team's performances on the court. Environmental protection activities carried out together can help to unite a group of people in a fun and useful way. Teams and clubs can also play a decisive role in sustainable development by providing socialisation and integration opportunities for disadvantaged or marginalised groups.

4.6.14 Softball

4.6.14.1 General

Softball is a team sport for women and men, adults and children that originally used a boxing glove and broom stick as equipment. It is was played on a hard indoor surface or outdoors on a grass outfield and soil infield. It became an Olympic sport at the Atlanta Games in 1996.

Some facts

- Softball was invented in the United States in 1887 by Chicago journalist George Hancock.
- Its first names were "Kitten league ball", "Kitten ball", and "Diamond Ball" until 1926, when the term "softball" was used to refer to the sport.



Chapter 4: Environmental and sustainable development conditions specific to the various Olympic disciplines



4.6.14.2 An environment-friendly approach to softball

Official softball competitions are held both indoors and outdoors. In the normal way, softball has little impact on the environment, as long as worn-out accessories are disposed of properly.

Rules of conduct for preserving the environment for softball

- Whenever possible, use public transport or a bicycle or travel on foot to and from competitions;
- Consider, when possible, the use of products that conform to environmental and sustainable development criteria;
- Never throw away empty bottles, packaging or food waste in the hall, on the pitch or in the natural environment. Place them in the bins provided or take them away and dispose of them at the club or at home;
- Never leave behind worn-out or damaged equipment (balls, bats, gloves, helmets, shin guards, etc.) in the hall or in the natural environment. Give them to a company that treats, recovers or recycles solid waste;
- Ensure the club or team participates in environmental activities: Environment Day, cleaning of the district or town, tree-planting, etc. Failing this, take the initiative of promoting such activities.

4.6.14.3 Impact of softball competitions and the necessary facilities

The impact of softball competitions depends on the attitude of the public, organisers and players.

Responsibility of those involved in softball competitions

For the organisers

- Provide spectators with a convenient public transport system for travelling to the event;
- In and around the stadium, offer the public an adequate number of toilet and waste collection facilities which are well maintained and allow for waste water to be treated and solid waste to be recycled or destroyed without risk to the environment;
- Inform users of the rules of conduct to be observed: keep the toilets clean, save water and collect rubbish;
- Collect damaged or abandoned equipment or accessories and ensure they are properly destroyed or recycled (balls, bats, gloves, helmets, shin guards, etc.).

For indoor matches

- Choose buildings with good thermal insulation in order to reduce energy losses caused by heating or air conditioning;
- Choose installations with renewable energy systems such as wind, geothermal or solar energy systems;
- Ensure that there is no asbestos in the insulating material used;
- Offer the public an adequate number of toilet and waste collection facilities which are well maintained and allow for waste water to be treated and solid waste to be recycled or destroyed without risk to the environment;
- Inform users of the rules of conduct to be observed: keep the toilets clean, save water and collect rubbish.

For outdoor matches

- Preference should be given to day-time competitions if renewable energy is not available for lighting;
- After the event, repair any part of the stadium or its surroundings that may have been damaged by spectators.

For the players and their entourage

- Behave impeccably in terms of fair play and respect for the environment (do not throw rubbish, such as water bottles or packaging, accessories, etc. in the stadium);

IOC Guide on Sport, Environment and Sustainable Development

- Avoid making aggressive, insulting or racist remarks during the match and in media interviews.

For the public

- Whenever possible, use public transport or a bicycle or travel on foot to and from competitions;
- Respect the rules of conduct on use of the toilet facilities and disposing of rubbish, particularly packaging and empty bottles.



Figure 63: Outdoor softball is played on a mixed surface of sand clay mixture (infield) and grass/sod (outfield).

4.6.14.4 Special waste, toxic products and sources of pollution linked to softball

Accessories made of synthetic materials such as helmets and shin guards should be destroyed or recycled by a specialist company. They should never be dumped in the natural environment, since they have a low level of degradability, nor burned because they can release toxic fumes. The aluminium in softball bats should be recycled.

4.6.14.5 Other aspects of softball linked to sustainable development

As in all team sports, the team aspect can be used to develop environmental and social activities which, if successful, can only benefit a team's performances on the field. Environmental protection activities carried out together can help to unite a group of people in a fun and useful way. Teams and clubs can also play a decisive role in sustainable development by providing socialisation and integration opportunities for disadvantaged or marginalised groups.

