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Mapping of good green practices in grassroots tennis sports

Green tennis research

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Introduction

Green sports mean sports that aims to reduce its environment impact according to research. Another explanation of green sports and green sports practices includes helping achieve sustainability. The most popular definition of sustainability is as follows: Sustainability consists of fulfilling the needs of current generations without compromising the needs of future generations, while ensuring a balance between economic growth, environmental care and social well-being.

The 2022 United Nations Climate Change Conference (COP27) took place in Sharm El-Sheik, Egypt, from 6 to 18 November 2022. World leaders gathered to discuss pressing climate issues. Sport was declared as a key driver for sustainable change, with initiatives in Europe already underway.

Global sports such as tennis are increasingly grappling with the question of how to reduce their environmental impact. Extensive travel, consumption of resources, construction of facilities and waste management all provide opportunities for organisers to reduce the current carbon footprints and to put into place policies for sustainable development.

Cem Tinaz, Tennis Europe's Development Committee Chair said, "One of our responsibilities as Tennis Europe is to promote sustainable practices and facilitate environmental protection. It's important for us to educate staff, partners and our collaborators to ensure that our events are held in the most ecologically responsible ways possible. While the European Federation is a relatively small organisation, the Board believes that we have a responsibility to lead and raise awareness of these issues among our member nations."



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Study approach

This study mainly approaches the environment sustainability in sports practices and events along with social sustainability in terms of promotion of health and well-being.

For this study, concerning environmental sustainability in sports , the topics considered were: (a) climate changes and energy consumption (CC); (b) environmental impact of sporting training and events (EI); (c) promotion of health and well-being (HW) (see Figure 1).

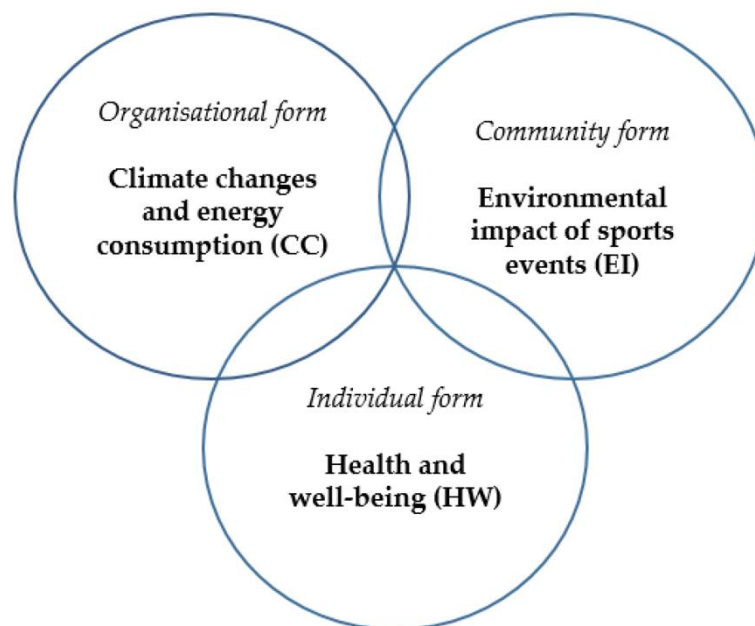


Figure 1. Sustainability forms in sports organizations' initiatives, adapted from Lindsey (2008)



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Where the tennis sport is nowadays regarding green approach and practices

Increasingly, it is recognized that there is a bidirectional relationship between sport and climate because sport both affects and is affected by the climate system¹. These associations are shaping a new subdiscipline of “Sport Ecology” that embraces human interaction with the natural environment, broadly and within a sport management context² (Ref. 2, p. 510).

[A carbon footprint \(CF\) may be defined as the total radiatively active greenhouse gas emissions \(as CO2 equivalent\) that can be directly \(Scopes 1 and 2\) or indirectly \(Scope 3\) attributed to an organization, activity, product, or asst life cycle.](#)

The allocation of emissions may vary, but this is a crucial first step in benchmarking before CF reduction. According to the IOC's methodology, greenhouse gas accounting is a four-stage process that involves measuring (the Games project's - organization, services, and products) emissions, identifying the activities that contribute most to emissions, acting to reduce emissions in the most practical manner, and inspiring others to practice sustainability.

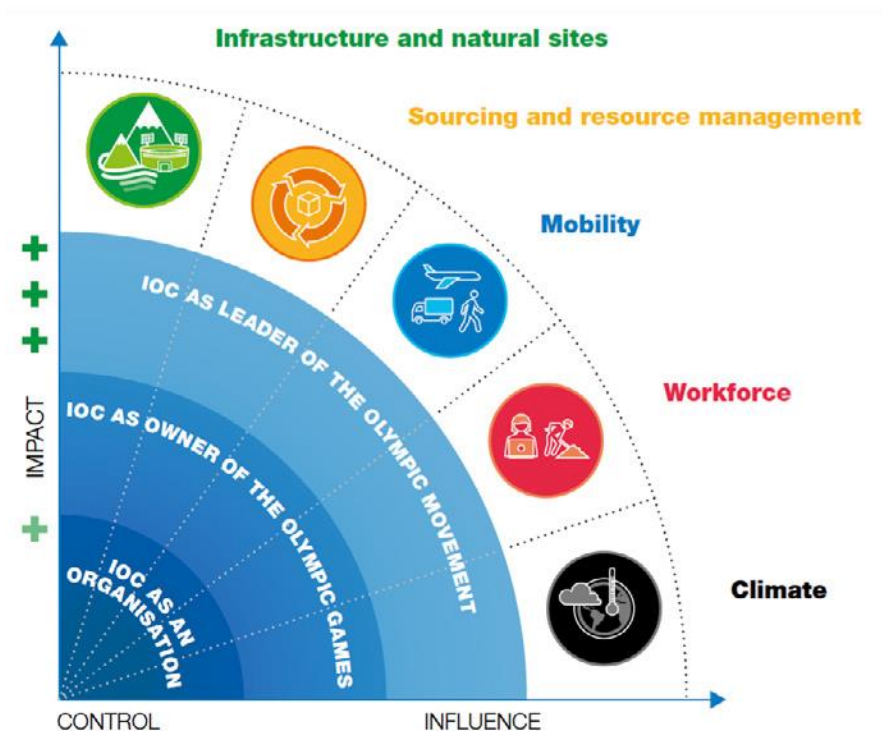
¹ Bernard, P., Chevance, G., Kingsbury, C., Baillot, A., Romain, A. J., Molinier, V., Gadais, T., & Dancause, K. N. (2020). Climate change, physical activity and sport: A systematic review. *Sports Medicine*, 51, 1041–1059.

² McCullough, B. P., Orr, M., & Kellison, T. (2020). Sport ecology: Conceptualizing an emerging subdiscipline within sport management. *Journal of SportManagement*, 1, 1–12.



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[IOC sustainability strategy](#)

The study “The impacts of sport emissions on climate: Measurement, mitigation, and making a difference³” Table 1 provides some indicative CFs for selected units of assessment, all converted to a common currency of metric tons of CO₂e to facilitate comparison. Table 2 of the same study shows a good example of grassroots soccer club's actions to reduce carbon emissions.

³ Wilby, R. L., Orr, M., Depledge, D., Giulianotti, R., Havenith, G., Kenyon, J. A., ... & Taylor, L. (2023). The impacts of sport emissions on climate: Measurement, mitigation, and making a difference. *Annals of the New York Academy of Sciences*, 1519(1), 20-33.



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Table 1. Example of CFs for selected sports, equipment, facilities, and events expressed as tons CO₂e

Scope	Unit	Tons CO ₂ e	Source
Emissions from participant training, competitions, day trips, and vacations (per capita per year)	Climbing	1.156	Wicker, P. (2019). The carbon footprint of active sport participants. <i>Sport Management Review</i> , 22, 513–526.
Emissions from participant training, competitions, day trips, and vacations (per capita per year)	Diving	2.841	Wicker, P. (2019). The carbon footprint of active sport participants. <i>Sport Management Review</i> , 22, 513–526.
Emissions from participant training, competitions, day trips, and vacations (per capita per year)	Field hockey	0.874	Wicker, P. (2019). The carbon footprint of active sport participants. <i>Sport Management Review</i> , 22, 513–526.
Emissions from participant training, competitions, day trips, and vacations (per capita per year)	Fitness (gym) 0.228	0.228	Wicker, P. (2019). The carbon footprint of active sport participants. <i>Sport Management Review</i> , 22, 513–526.
Emissions from participant training, competitions, day trips, and vacations (per capita per year)	Golf 2.195 Soccer 0.337	2.195 0.337	Wicker, P. (2019). The carbon footprint of active sport participants. <i>Sport Management Review</i> , 22, 513–526.
Emissions from participant training, competitions, day trips, and vacations (per capita per year)	Tennis 0.243	0.243	Wicker, P. (2019). The carbon footprint of active sport participants. <i>Sport Management Review</i> , 22, 513–526.



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Table 2. Actions taken by the Forest Green Rovers soccer club to achieve carbon neutrality⁴

Category	Action
	<ul style="list-style-type: none">• Stadium powered by 100% renewable energy
	<ul style="list-style-type: none">† Use of solar panels
Energy efficiency	<ul style="list-style-type: none">† Automated lawn mowing by electric equipment
Transport	<ul style="list-style-type: none">• Electric charging station
	<ul style="list-style-type: none">† Team uses 100% electric vehicles† Promotion of cycling, car sharing, and public transport for home and away supporters
Waste management	<ul style="list-style-type: none">† Shirts made from bamboo waste and recycled plastic† Composting and recycling of used lawn mats† Replacement of single-use plastics
	<ul style="list-style-type: none">• Providing only vegan food for fans and players

⁴ Papp-Vary, A. F., & Farkas, M. (2022). The world's first carbon neutral football club: The case study of Forest Green Rovers. *Economic and Social Development: Book of Proceedings*. 17496632, 2023, 1, Downloaded from <https://nyaspubs.onlinelibrary.wiley.com/doi/10.1111/nyas.14925> by Loughborough University, Wiley Online Library on [13/01/2023]. See the Terms and Conditions (<https://onlinelibrary.wiley.com/terms-and-conditions>) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License



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Communications

- Literal “greening” of official club colors
- Promoting actions to reduce the ecological footprint and rewarding well-performing supporters
- Involving sponsors and business partners with green values plus organizing joint actions and promotions

The study cited above reconfirms the Tricarico, E., & Simms, A.(2021) suggestions in the research paper “Sweat not oil: Why sports should drop advertising and sponsorship from high-carbon polluters” regarding steps that clubs could take to reduce emissions as shown in table 3 below.

Table 3. Steps to be taken by clubs, governing bodies, and tournaments to phase out high carbon sponsors from sport

- **Screen sponsors and owners** to exclude companies that promote high-carbon lifestyles, products, and services, especially those in the automotive, airlines, and fossil fuel industries.
- **Sign the *UN Sport for Climate Action Framework*** and publish a detailed 10-year plan to ensure that their own activities and that of their sport (including spectator travel) are decarbonizing.
- **Set annual emissions targets** with steps to achieve them and clear lines of responsibility for their delivery.
- **Establish robust monitoring** and reporting of progress against targets, reviewed by an independent body.
- **Exclude any global sports events, tours, or federations** that are not zero carbon by 2030.



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- † **Cut reliance on air travel** by holding fewer tournaments and by rationalizing the logistics of schedules and venues.
- † **Make zero carbon plans a condition of public funding** of sporting organizations.
- † **Prioritize support for low-carbon, local, and grass-roots sport** over the high-carbon global and professional sport.

In the mid to long term, Tennis Europe will conduct pilot projects aimed at measuring and reducing the carbon footprint of Junior Tour events and aims to commit to the UN's Race to Zero campaign.

[Tennis Europe's Sustainability Strategy is launched.](#)

Usual tennis clubs could consider implementing:

- Installing solar panels: Installing solar panels on the roofs of club buildings can generate renewable energy and reduce reliance on non-renewable sources of energy.
- Water conservation: Implementing low-flow toilets and faucets, and using drought-resistant plants for landscaping can help conserve water resources. Additionally, collecting rainwater in a cistern and using it for irrigation can reduce water consumption.
- Recycling: Setting up recycling bins for paper, plastic, glass, and other recyclable materials can help reduce the amount of waste produced by the club. The collected materials can be sent to a recycling center for proper processing.
- Composting: Creating a composting system for organic waste can reduce the amount of waste sent to landfills and produce nutrient-rich soil for landscaping.
- Encouraging sustainable transportation: Encouraging members and staff to use public transportation, bike, or carpool to the club can reduce the environmental impact of transportation. Providing bike racks and offering incentives for biking to the club can promote sustainable transportation.
- Energy-efficient lighting: Installing LED lighting fixtures throughout the club can help reduce energy consumption and lower electricity bills.



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- Sustainable purchasing: Choosing environmentally-friendly products and materials, such as recycled paper, non-toxic cleaning supplies, and eco-friendly tennis balls, can help reduce the club's environmental impact.



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Good green practices in grassroots tennis sports

- 1) The ITF has entered an agreement with AQ Green Tec, which seeks to invest into development-stage renewable energy and is exploring the field of climate neutrality and green power - in particular with regard to developing and marketing solutions for the measurement, reduction and offsetting of carbon emissions. (CC practice)

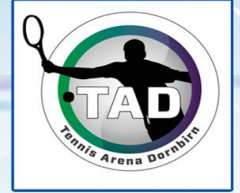
This project will align the ITF's sustainability objectives with the United Nations Framework Convention on Climate Change (UNFCCC), Sports for Climate Action Framework (SCAF) and the International Olympic Committee's sustainability strategy.
<https://www.itftennis.com/en/about-us/governance/sustainability/>

- 2) Renewaball is the world's first circular tennis ball, made from old tennis balls. Renewaball collects old tennis balls from tennis clubs and gives them a second life by recycling them. The rubber is reused and the polyester and nylon (microplastics that get into the ground every time you hit them) are taken off and 100% organic felt is put back on, which consists of sheep wool from Europe. A Renewaball has 30% less CO2 emissions than an ordinary tennis ball due to local production. An ordinary tennis ball travels 80,000 km before reaching Europe. They are therefore very harmful to the environment. In the Netherlands, we use 5.5 million of them every year. And they almost all end up in the incinerator. (CC practice)
<https://renewaball.com/sustainable-brand-index-initiative-year-2022>

- 3) TC Bonnevoie/Luxemburg - Tennis Club Bonnevoie, one of the most beautiful and prestigious tennis clubs in the Grand Duchy of Luxembourg (CC practice). Located on the edge of the forest, the club offers 7 indoor courts during the winter season and 7 outdoor courts during the summer season. It is an idyllic setting:

Century-old trees, a green landscape, and nature... the TC Bonnevoie is a green setting at the gates of Luxembourg City! Conscious of the privilege of benefiting from such an exceptional setting, we are committed to respecting nature and working towards sustainable development:

- recycling station



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- control of energy and water consumption
- cigarette butt collection, we also have a butt recycling project
- limiting the use of paper for communication
- no use of plastic cups or straws at our events.

4) HALTON PROJECT ZERO – PHASES 1-4. A future-focused club, always looking over the horizon, Halton desires to operate with positive social, environmental and economic impact. Reducing carbon emissions and improving the club's environmental performance through Halton Project Zero will, in turn, support the health and wellbeing of staff, customers and members. How long before our Carbon footprint becomes just as important as our physical facilities for potential new members. https://www.sportenglandclubmatters.com/pluginfile.php/46582/mod_resource/content/1/ta-case-study-halton-tennis-centre.pdf (CC and HW practice)

5) Caversham Lawn Tennis club, UK - January 2021 (CC practice)

Caversham Lawn Tennis Club believes that it is appropriate and beneficial for its present and future members to define and operate an Environmental Policy to help to minimise the club's impact on the local and global environment. <https://www.cavershamltc.co.uk/environmental.html>

It is the club's policy to:

- Operate a strong culture of environmental responsibility and promote environmental awareness within the club;
- Comply with and support the requirements of local and national environmental legislation and guidelines;
- Comply with or exceed the requirements and guidelines of the Lawn Tennis Association, to which the club is affiliated;
- Minimise energy use and use sustainable suppliers;
- Minimise water usage and reduce any losses;
- Minimise wastage in all areas such as consumables;
- Maximise re-use and recycling where possible;
- Minimise disturbance to wildlife and improve the local environment to their benefit;



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- Minimise excess light and noise where possible;
- Encourage environmentally secure transport methods to/from the club and to away fixtures;
- Minimise impact of cleaning and maintenance materials;
- Apply a policy of continual improvement with periodic review of performance;
- Support local environmental initiatives in the community;

6) Tennis Club Lombardo, Italy

The collaboration of Free2move eSolutions and NHOA with Tennis Club Lombardo, the oldest tennis club in Milan, began with the Women's Open tournament ended on Saturday and dedicated to Gabriele Mazzalveri. (CC and EI practice)

Founded in 1946, the Tennis Club Lombardo has always combined a strong spirit of innovation with its long tradition. Today, thanks to Free2move eSolutions and NHOA, it opens up to electric vehicles in order to meet the increasingly urgent need for sustainable mobility. NHOA is the international group that develops technologies to enable the global transition to clean energy and sustainable mobility. Together with Free2move eSolutions – the joint venture between Stellantis and NHOA dedicated to electric mobility technology – it has installed a station within the clubhouse that allows five electric or plug-in hybrid vehicles to be recharged simultaneously. The collaboration between Free2move eSolutions, NHOA and the Tennis Club Lombardo is not limited to the installation of the charging infrastructure: it will develop into a series of initiatives dedicated to encouraging environmental sustainability, and social inclusiveness through sport. It is with this in mind that Free2move eSolutions and NHOA have created the first edition of a prize that – in the context of the Women's Open Mazzalveri Tournament organized by the Tennis Club Lombardo – was awarded to the under-16 athlete who achieved the best placement in the competition: the winner of the first edition of this trophy was Lucrezia Nicolai, athlete of the Oltrepò Tennis Academy. <https://www.esolutions.free2move.com/es/2021/09/free2move-esolutions-and-nhoa-with-the-tennis-club-lombardo-to-promote-sustainability/>



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7) ANA Tennis Club in Bucharest, Romania (CC practice)

The club has 33 outdoor clay tennis courts, 4 indoor clay tennis courts, and a seating capacity of 3,500 spectators. ANA Tennis Club has hosted numerous professional tennis tournaments, including the Bucharest Open and the Fed Cup. The club also provides tennis lessons and programs for all ages and skill levels.

- Implementing a waste reduction and recycling program for paper, plastic, glass, and other recyclable materials.
- Using eco-friendly products and materials, such as non-toxic cleaning supplies, LED lighting fixtures, and organic fertilizers for landscaping.
- Encouraging sustainable transportation, such as public transportation, bike riding, and carpooling to and from the club.
- Conserving water through the use of low-flow toilets and faucets, and drought-resistant plants for landscaping.
- Using renewable energy sources, such as solar panels or wind turbines, to generate energy for the club.

8) Federazione Italiana Tennis (Italian Tennis Federation) has launched a sustainability project called "Tennis for the Future", which aims to promote sustainable practices and waste reduction in tennis clubs throughout Italy. The project includes recommendations for waste management, energy efficiency, water conservation, and other sustainability practices. (CC practice)

9) All England Lawn Tennis and Croquet Club, UK

The All England Lawn Tennis and Croquet Club, which hosts the Wimbledon tennis tournament, has taken several steps to reduce its environmental impact. (CC and EI practice)



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The All England Lawn Tennis and Croquet Club is a private tennis club located in Wimbledon, London, England. The club was founded in 1868 and is best known for hosting the Wimbledon Championships, one of the four Grand Slam tennis tournaments. The club has 18 grass tennis courts, including the famous Centre Court, where the Wimbledon men's and women's singles finals are played. In addition to tennis facilities, the club has a museum, a shop, and several restaurants and bars.

The All England Lawn Tennis and Croquet Club is also committed to sustainability and has implemented several environmentally-friendly initiatives to reduce its carbon footprint. For example, the club has installed solar panels and rainwater harvesting systems to reduce its energy and water consumption. The club also uses electric vehicles and bicycles for transportation, recycles waste, and has introduced a range of environmentally-friendly products in its shops and restaurants.

The Wimbledon Championships are considered one of the most prestigious tennis events in the world, and the All England Lawn Tennis and Croquet Club is widely recognized as one of the most iconic venues in tennis.

10) Tennis Club Weissenhof, Germany (CC practice)

The Tennis Club Weissenhof in Stuttgart has been recognized for its eco-friendly practices, which include using solar power, rainwater harvesting, and recycling. Tennis Club Weissenhof is a tennis club located in the city of Stuttgart, Germany. The club was founded in 1950 and has a long history of hosting international tennis tournaments.

The club has 17 tennis courts, including 12 outdoor clay courts, 3 indoor courts, and 2 grass courts. In addition to tennis facilities, the club offers a range of services to its members, including a fitness center, sauna, and a restaurant.

Tennis Club Weissenhof is known for its commitment to sustainability and has implemented several environmentally-friendly initiatives to reduce its carbon footprint. For example, the club has installed solar panels to generate electricity, uses rainwater



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for irrigation, and has implemented a recycling program. The club also encourages members to use electric vehicles and bicycles to get to the club.

The club hosts several international tennis tournaments throughout the year, including the MercedesCup, a prestigious ATP World Tour 250 event. The club has also hosted several Davis Cup and Fed Cup matches. Tennis Club Weissenhof is a popular destination for tennis enthusiasts from around the world and has a strong reputation for its world-class tennis facilities and commitment to sustainability.

11) Club Tennis Barcelona, Spain (CC and EI practice)

Club Tennis Barcelona has implemented several green initiatives, such as using solar panels to generate electricity and rainwater for irrigation, and recycling waste. Club Tennis Barcelona is a tennis club located in the Les Corts neighborhood of Barcelona, Spain. The club was founded in 1899 and has a long history of promoting tennis in Spain. The club has 18 tennis courts, including 10 clay courts, 6 hard courts, and 2 padel courts. In addition to tennis facilities, the club offers a range of services to its members, including a fitness center, a swimming pool, and a restaurant.

Club Tennis Barcelona is also known for its commitment to sustainability and has implemented several environmentally-friendly initiatives to reduce its carbon footprint. For example, the club has installed solar panels to generate electricity, uses rainwater for irrigation, and has implemented a recycling program. The club also encourages members to use electric vehicles and bicycles to get to the club and offers charging stations for electric vehicles.

The club is home to several tennis tournaments throughout the year, including the Barcelona Open Banc Sabadell, a prestigious ATP World Tour 500 event. The club has also hosted several Davis Cup and Fed Cup matches, as well as other international tennis events.



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12) Monte Carlo Country Club, Monaco

The Monte Carlo Country Club has a comprehensive environmental policy that includes recycling, water conservation, and reducing energy consumption. (CC and EI practice)

Tennis Club Monte Carlo Country Club is a prestigious tennis club located in Roquebrune-Cap-Martin, near Monte Carlo in Monaco. The club was founded in 1928 and is known for its stunning location overlooking the Mediterranean Sea. The club has 21 tennis courts, including 2 indoor courts, 2 padel courts, and 17 clay courts, and hosts several tennis tournaments throughout the year, including the Monte Carlo Rolex Masters, a prestigious ATP World Tour Masters 1000 event.

In addition to its world-class tennis facilities, the Monte Carlo Country Club has a strong commitment to sustainability and has implemented several environmentally-friendly initiatives to reduce its carbon footprint. For example, the club has a comprehensive environmental policy that includes recycling, reducing energy consumption, and conserving water. The club also uses electric vehicles for its transportation needs and has a fleet of bicycles that members can use.

The Monte Carlo Country Club is a popular destination for tennis enthusiasts from around the world and offers a range of services to its members, including tennis lessons, fitness classes, and a spa. The club also has a restaurant that serves Mediterranean cuisine, as well as a bar and lounge area.

13) Tennis Club Milano Alberto Bonacossa is a tennis club located in Milan, Italy. The club has been in operation since 1956 and has six red clay tennis courts, two indoor tennis courts, and a swimming pool. (CC practice)

The club has a strong focus on sustainability and has implemented several measures to reduce its carbon footprint, such as using solar panels to generate electricity, using LED lighting, and implementing a recycling program. The club also has a system for rainwater collection, which is used to irrigate the tennis courts and gardens.



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In addition to tennis facilities, the club offers a range of services to its members, including fitness classes, swimming lessons, and a restaurant. The club also hosts various social events throughout the year, such as parties, tournaments, and cultural events.

The map of good green practices in grassroots tennis sports is available on the following link <https://www.greentennisproject.eu/green-practices/>



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Useful links:

1. The Sustainable Development Goals (SDGs): A global and cross-sectoral approach
The Contribution of Sports to the Achievement of the Sustainable Development Goals – A Toolkit for Action https://www.sdgfund.org/sites/default/files/report-sdg_fund_sports_and_sdgs_web.pdf
2. Playing for Our Planet How sports win from being sustainable (report)
<https://greensportsalliance.org/wp-content/uploads/2019/02/Report-PlayingforOurPlanetFINAL-2018-05-02.pdf>
3. Green Sports Hub Europe – Erasmus Plus funded project - [Green Sports Hub Europe – Erasmus Plus funded project](#)
4. As Sustainable as Possible – Erasmus Plus funded project - <https://www.asap-sport.com/about>, <https://www.asap-sport.com/admin-data/storage/get/15-asapintro-to-sustainability-trainingfinal.pdf>
5. [Play Green – Erasmus Plus funded project](#)
6. [Green Education Through Sports \(GETS\)](#)
7. Regulation of European Parliament AND OF THE COUNCIL of 30 June 2021 on establishing the framework for achieving climate neutrality and amending Regulations (EC) No 401/2009 and (EU) 2018/1999 ('European Climate Law') [Framework at https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32021R1119](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32021R1119)
8. Examples of European projects and partnerships webinar
<https://youtu.be/E0Aaen7iVLk>