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Sustainable Environment Problems Arising from Sports Facilities

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ANNOTATION

The article aims to discuss issues of sustainable environment, focusing on the sports sector. The acceleration of resource consumption has increased the demand for consumption itself. Especially with the rapid increase in population and the associated urban population, urbanization, increasing and diversified consumption are increasing the pressure on natural resources and their use is accelerating. Sports can be said to be at the beginning of these sectors. It can be said that public interest in sports and demands on the sports sector are increasing, and this situation negatively affects the relationship between sports and the environment. In fact, mass movements, such as the high energy use of sports and intense human activity, can have a negative impact on the environment. The source of all these negative changes is the proliferation of sports sector infrastructure and organized events and organizations, so it can be said that the facilities for hosting these organizations have become important after their abolished. The article states that it is necessary to pay attention to the construction of sports facilities in urban planning. The second is to be ecological by conserving natural resources.

Keywords: sustainable environment, sports, nature, problems.

INTRODUCTION

The acceleration of societal life, the effort to ensure the balance of production and consumption, and the spread of mass media have brought about a significant development in human life. However, this acceleration has increased the need for resources. In meeting this need, it may cause people to turn more to natural resources and the environment. Especially with the rapid increases in population and the increase in urban populations related to this, urbanization, increasing and diversifying consumption need increase the pressure on natural resources and their use accelerates. This situation brings global climate problems, climate change and ultimately global warming (Özsoy, 2015). The basis of this process is, of course, people and the attitudes and behaviours they exhibit: the behaviours exhibited by people in their basic life cycles cause environmental destruction (Balteanu and Dogaru, 2011,1; Keleş 2015, 34).

While the rapid change and development in technology makes people's vital activities much easier, it causes the environment we live in to be rapidly damaged and natural resources to be consumed. In fact, due to the increasing mobility in social life and diversifying consumption habits, environmental problems and sustainability issues are frequently discussed nowadays (Shahroh et al., 2020). Research shows that these negative effects of humans on the environment and the negative effects of all developments that will cause the consumption of natural resources are called the "carbon footprint".

Scientific problem of the article. Carbon Footprint is defined as the emission of greenhouse gases and carbon dioxide resulting from human activity. This damage is gradually magnified in the negative effects on the environment as the emission of gases increases. To make a more comprehensive definition, carbon footprint is a common definition used for environmental pollution, greenhouse gas and carbon dioxide emissions caused by people, businesses, organized events and organizations (Global Footprint Network, 2007). The carbon footprint, which results from human behaviour, is considered the most important threat to a sustainable environment and life.

The purpose of the article. It is very important to quantitatively determine and calculate the negative environmental impacts that arise as a result of all vital activities in which people take part, and to make carbon footprint measurements. In other words, the carbon footprint, which is also expressed as ecological footprint, aims to address natural resource consumption and negative environmental impacts in multiple dimensions, to increase awareness and to draw attention to these problems. At some point, it aims to ensure understanding that natural resources are not unlimited, and that people are sensitive to the environment they live in (Kaypak, 2013).

These negative advances and developments between natural resources, the environment and human behaviour have been associated with many sectors over time. It can be said that sports are at the beginning of these sectors. It can be said that the interest of societies in sports and their demands from the sports sector are increasing, and this situation adversely affects the relationship between sports and the environment. As a matter of fact, mass movements such as high energy use in sports and intensive human activities can have negative effects on the environment. The International Olympic Committee reports that the source of all these negative developments is the increasing facilities in the sports sector and the events and organizations organized (International Olympic Committee, 2009). Especially in the sports sector, the construction of new facilities, the maintenance and repair of existing facilities can increase the use of natural resources and negative environmental impacts. Drawing attention to the importance and danger of the carbon footprint produced by the sports sector, Pereira et al. (2019) state that the negative environmental effects of sports are increasing and that it is a sector that needs to be taking measures as soon as possible.

Especially due to the increasing number of events and organizations, the sports sector is growing day by day and therefore it can be said that the facilities to host these organizations have become an important issue. These facilities, which are an important promotional opportunity for countries and cities, are expected to be in accordance with the criteria for the sports event to be held. It can then contribute to the branding of the host country or city. In order to make this contribution, one of the most important requirements for sports facilities today is to comply with the understanding of environmental sustainability (Ünal, Bağcı, 2017).

THE CARBON FOOTPRINT CONCEPT

Carbon footprint can be expressed as the effects of attitudes and behaviours on the natural environment to meet the basic needs of people in the environment they live in. From a broader perspective,

carbon footprint can be defined as a decisive and important detection and solution tool in determining and comparing the impact of the consumption activities of individuals or societies on nature, and in producing solutions to emerging global and local problems (Şahin, 2019, 42). As a matter of fact, it is obvious that every activity of every individual or institution and organization has an effect on nature.

In other words, carbon footprint is defined as the carbon footprint of people's attitudes and behaviours measured in terms of carbon dioxide and the measure of damage to the environment in terms of the amount of greenhouse gases produced (Bekiroğlu, 2011). The formation of the 'Footprint', which expresses the basis in naming; It is the trace that occurs there as a result of the pressure applied to the point where any living being presses, depending on the mass and the size of its feet, and which may change from time to time (Özer, 2002).

"The advent of carbon footprint has emerged as a result of people's needs and efforts to meet those needs. As the boundaries of human behaviour expand, it is becoming increasingly difficult to limit this carbon footprint problem to just one country, region or continent and becomes a global problem. Especially with the industrial revolution that accelerated mechanization, the increase and acceleration of environmental pollution has expanded its sphere of influence and has become widespread all over the world. With pollution known among people, this pollution is more diverse and wider. The need to express it in terms of concepts has become evident. Carbon footprint is also considered one of these concepts and the most common. The need to quantify this pollution caused by people's attitudes and behaviours has provided an opportunity for carbon footprint measurements" (Ünaldı, 2016, 32).

Carbon footprint, which is also expressed as ecological footprint in theory and practice, can contribute to the handling of negative environmental impacts from different perspectives and to the creation of awareness among societies on this issue. With the studies and campaigns carried out, it is aimed to increase the sensitivity and awareness of people about nature and natural resources. The carbon footprint reveals with concrete and quantitative data how the natural environment in which people live is consumed and damaged. Carbon footprint is an important database for believers to improve their environmental awareness (Ünaldı, 2016, 34).

Carbon footprint is grouped under two headings in the literature. These are the primary carbon footprint and the secondary carbon footprint. The primary carbon footprint refers to the emission of carbon dioxide (CO2) due to the combustion of fossil fuels consumed to meet energy and transportation needs on a global scale.

The secondary carbon footprint refers to the CO2 emission caused by all these products from the date of production to the consumption or deterioration of the products related to the consumption by people. Despite this distinction, the secondary carbon footprint covers the primary footprint (Atabey, 2013, 27).

Today, it can be stated that all of the basic vital activities and comprehensive scientific and technological activities cause a significant carbon footprint in the universe; it is known that this situation is increasing day by day. So much so that a carbon emission can emerge that can reach into space by crossing all the layers of the atmosphere surrounding the world we live in.

Today, it can be said that the speed of production and its cycle has increased considerably. Producers who find different ways to reach people in this production and consumption cycle increase production with different sales strategies, which causes the carbon footprint to grow gradually.

TYPES OF CARBON FOOTPRINT

Today, institutions and organizations make carbon footprint measurements. There are different reasons for making these measurements, as presented in the image below:

Fig. 1. Reasons for Carbon Footprint Measurement (*Source: Bekiroğlu, 2011*)

The increasing concern in theory and practice regarding the carbon footprint has paved the way for a lot of research in this area. As a result of this research, carbon footprint has been collected in the literature under two headings: personal and corporate (Bekiroğlu, 2011).

Personal Carbon Footprint. This is a term that expresses the amount of emissions that people emit into the natural environment due to the attitudes and behaviours they exhibit in the process of basic vital activities in a certain period in the environment they live in and for which they are individually responsible. Personal carbon footprint is evaluated under two subheadings.

Primary Carbon Footprint: An amount of CO2 emissions from fossil fuels that people have to consume to meet their needs.

Secondary Carbon Footprint: is the amount of CO2 emissions indirectly caused by the products used by people to meet their basic vital needs in the entire life cycle, that is, from production to consumption or final deterioration (Atabey, 2013, 30).

Corporate Carbon Footprint. This is a concept that expresses the CO2 emission amounts related to the production-related activities of all institutions and organizations in all sectors. This corporate carbon footprint is expressed under two subheadings:

Direct Carbon Footprint: This is expressed as the CO2 emission caused by the fossil fuels that all institutions and organizations have to use for production activities in all sectors and the fuels consumed by the vehicles belonging to these institutions and organizations.

Indirect Carbon Footprint: This is accepted as CO2 emission consumed by all institutions and organizations and caused by electrical energy (Atabey, 2013, 31).

CARBON FOOTPRINT AND SUSTAINABLE CONSUMPTION

Depending on the acceleration of social life in today's societies, trying to meet the unlimited consumption understanding with limited resources can leave destructive and permanent effects on the natural environment in which a society lives. Together with a sustainable environmental understanding, low carbon footprint is the most important criterion of a sustainable environment and human life. The consumption of natural resources and the destruction caused to nature in this process of consumption can undermine sustainability goals. Otherwise, the survival of future generations in a sustainable environment is threatened. In order to overcome this situation, and to make the consumption habits of societies and the natural environment sustainable, the following four basic principles have been put forward:

Adequacy Principle: It is aimed that people adopt the consumption of resources only as much as is strictly necessary in the environment they live in, and to spread this situation. Therefore, the consumption of natural resources only as much as is strictly necessary ensures that the carbon footprint is reduced and brings about a sustainable environmental understanding.

Principle of Conformity to Nature: The ongoing relations of the ecosystems in which they live are not interrupted, and the fact that ecosystems are formed from this communication process expresses the importance of the attitudes and behaviours of people towards the environment they live in and to be very compatible with the relationship and process mentioned above. Therefore, the harmony of the relationship between human attitudes and behaviours and ecosystems contributes to the construction of a sustainable natural environment.

Efficiency Principle: This refers to the preference of people for renewable energy sources in order to meet their needs in their basic life cycles. For this purpose, it is envisaged to create and increase awareness for the efficient and effective use of existing resources in the living environment.

The Principle of Participation: People should be aware of their sense of responsibility towards the environment they live in, and the understanding of fulfilling these responsibilities completely should be spread. As a matter of fact, the principle of participation has a very important role in the application of the other three principles (competence, efficiency and conformity to nature). In addition, the importance of the active participation of each member of society in the construction of a sustainable environment is also decisive in the creation of a sustainable environment understanding (Özdemir, 2007).

It is very important that the sustainable environmental principles mentioned above coincide with human behaviours and ensure the continuity of these behaviours. In particular, consumption habits need to be shaped with a sustainable environmental understanding. In this context, it is inevitable to raise awareness about the integration of social life with a sustainable nature. If the four principles mentioned above are disseminated with the understanding of social consciousness, both sustainable environmental goals can be achieved and the carbon footprint on the living environment can be reduced.

CARBON FOOTPRINT AND THE MAIN REASONS FOR CARBON FOOTPRINT IN TURKEY

The environmental problems that arise in the world enable countries to follow different methods on a global scale. One of them is the carbon measurements within the borders of the country and the measures to be taken. One of these countries is Turkey. Natural resources in Turkey are being consumed twice as fast, and the carbon footprint due to environmental negative impacts is growing. However,

carbon dioxide emissions in Turkey are almost double the biodiversity that exists (Global Footprint Network, 2007). This situation reveals that the current production and consumption process in Turkey is not in a sustainable line. It is known that the largest share in the formation and growth of carbon footprint in Turkey belongs to the electricity sector with 26%. The carbon footprint from electricity consumption is followed by manufacturing industry and construction (22%), imports (16%), transportation (15%), non-electrical housing and services (12%) and other factors respectively (Özsoy, 2015). The goal of combating carbon footprint, which is a great threat for both today and the future, is very important (Ünal and Bağcı, 2017). In general, the main headings that cause carbon footprint on a global scale and in Turkey in particular are classified as follows:

Energy Consumption: It is known that factors such as industrial process and related production activities, transportation, meeting energy needs from fossil fuels, and intensive use of electricity for heating and cooling, increase CO2 emissions day by day. Basically, activities carried out to meet human needs are accepted as the source of carbon dioxide emissions. Therefore, as the amount of energy consumed from natural sources increases, the carbon footprint also grows.

Industrialization: Especially in the 18th century. The industrial revolution that took place at the end of the century due to the invention of the steam engine changed the concept of production in the world and increased the number of production facilities due to industrialization. This situation paved the way for the use of high amounts of energy and had negative effects on the natural environment. High energy consumption has gradually increased CO2 emissions and accelerated the consumption of natural resources.

Agriculture and Livestock: Rapidly increasing mass production in agriculture and animal husbandry, which is one of the main livelihoods of the population, has increased the amount of chemicals used in agricultural lands thus increasing greenhouse gas emissions. This situation causes destructive effects on the planet we live on, especially on the atmosphere.

Waste Materials: Depending on the increasing amount of production in the world, this production process causes the production of high amounts of waste. These wastes caused soil and water pollution, especially vegetation. In particular, seas and water resources are rapidly polluted.

Modern Lifestyle: The lifestyles and habits of individuals in societies are changing rapidly. Due to the intensification of human activities, their wants and needs are gradually diversifying. In particular, the increase in human needs in parallel with technological development has paved the way for technology investments to gain momentum. Rapidly developing technology brings with it high energy consumption. As stated above, high amounts of energy cause rapid consumption of resources. This whole process is reflected in the natural environment as the release of high amounts of CO2 and the natural environment is damaged.

Air Travel: The primary mode of transportation preferred by today's modern societies is air travel. The fact that it is both safe and fast is decisive for this situation. However, airplanes travel thousands of kilometres every day, which causes large amounts of CO2 emissions. **Not Taking Action for Change:** In case of any problem, being reluctant or desensitized to the solution of this problem is one of the damages that can be caused to the environment and nature. The fact that people do not take any steps against global climate and environmental problems within societies, and avoid innovations related to the

solution of problems, can cause great damage to the environment we live in (https://www.semtrio.com/blog/karbon-ayak-izinin-sebepleri).

THE RELATIONSHIP BETWEEN SPORTS FACILITIES AND CARBON FOOTPRINT

To make a general definition, sports facilities are structures built for the purpose of realizing sports events and organizations. Both in team sports (football, basketball, handball, volleyball, etc.), as well as in individual sports (tennis, athletics, gymnastics, etc.), the sports areas that should be intended to be held and the sports areas that should be designed to be able to monitor and follow the activities organized within these areas are considered within the scope of sports facilities (Altın and Orhon, 2014). Sports and physical activity activities offered in sports facilities can play a leading role in the development of individuals and societies. Especially in social terms, the development of social unity and integrity, the increase of communication channels and sports facilities as part of economic progress are important.

Global climate change and rising seawater temperatures threaten the goals of a sustainable world. Especially with the acceleration of urban culture, construction has increased and negative effects on the environment have emerged due to this increase. One of these construction areas is the facilities that host sports organizations and events. Sports facilities sometimes have positive effects on the region or city where they are built, and sometimes they can produce negative outputs. While the region where the sports facility is established contributes to the aesthetic structure of the region by using inefficient areas from time to time, it may have negative consequences on the environment in this process (Ünal and Bağcı, 2017).

The International Olympic Committee links the carbon footprint from sport to two key factors: sports organizations and sports facilities. Production, consumption, transportation and accommodation depending on the organizations, the emergence of air, water and soil pollution due to the facilities and the energy use of sports facilities (International Olympic Committee, 2009). Based on this assessment by the International Olympic Committee, a comprehensive report entitled “sustainability in sport” on the negative environmental impacts of the sports sector was prepared by the Italian Association for Sport for All in 2012. In this report, the carbon footprint in sports was systematically examined and it was stated that sports organizations responsible for facilities and large human mobility were causing growth of the carbon footprint in the sports sector.

According to the Italian report, the negative environmental effects caused by sports are grouped under two main headings. These are a) sports organizations and events, and b) the construction of new facilities and the maintenance and repair of existing facilities. The environmental impacts caused by sports organizations are listed as follows: accommodation, transportation, supply, hygiene and waste production. All these elements leave destructive effects on the natural environment, especially on the ecosystem. The negative environmental impacts caused by sports facilities are listed as: production, construction, maintenance, repair and chemicals used in the facilities. These factors cause soil, air and water pollution and threaten biodiversity in the natural environment (Sorrentini, 2021).

The fact that any sports facility meets the qualifications set for an international organization directly contributes to the brand and recognition of the host city or country (Hu et al. 2016). Today, one of

these competencies is the suitability of sports facilities for environmental sustainability (Ünal and Bağcı, 2017).

It is known that sustainable approaches have developed in architecture regarding the solution to increasing environmental problems in today's societies and that this approach has started to be adopted in all areas (Ünal and Bağcı, 2017). In line with the sustainability goals, the United Nations Climate Change Programme has included the sports sector in its climate change action plans and has determined the responsibility of the sports sector around the following objectives:

Achieve a clear trajectory to tackle climate change in the global sports community through commitments and partnerships according to verified standards, including measuring, reducing and reporting on greenhouse gas emissions;

Using sport as a unifying tool to build unity and solidarity among global citizens for climate action (https://unfccc.int/climate-action/sectoral-engagement/sports-for-climate-action).

In the globalizing world, all social areas have been affected, and sports and sports facilities have also been affected by this process. This development and communication process has attracted the attention of researchers; one of the areas that is constantly researched and discussed has been the sports sector. The number of events and organizations organized depending on the sports development process has increased continuously with the participants. Due to the increasing number of events and participants, the sports facilities in the country have also accelerated in order to meet the needs. The sustainability goals and environmental friendliness of these facilities can be decisive for the development of the country, region or city (Balcı and Koçak, 2014). Facilities in sports make great contributions to the architectural and aesthetic development of a region. However, on the other hand, the construction of new facilities, the maintenance of existing ones and the fact that the tools used in the facilities cause the carbon footprint to grow are an important risk factor for environmental sustainability goals (Barghchi et al., 2010). In order for a city or country to host an event, it is expected to meet the following criteria related to environmental sustainability and contribute to the reduction of the carbon footprint in sports:

- Conservation of biological diversity;
- Ecosystem protection;
- Correct land use and landscaping studies;
- Prevention of pollution (soil, air, water);
- Resource and waste management;
- Health and safety measures;
- Reduction of environmental disturbances;
- Protection of cultural heritage (International Olympic Committee, 2009).

Physical activity, physical education and sports activities have a significant impact on physical and mental health, social development, quality of life, and work/school productivity. The construction of sports facilities that are sensitive to nature and the environment, low energy consumption within these facilities, facilitation of access to existing sports facilities, and the dissemination of environmentally friendly practices such as the use of bicycles can contribute to individual and social health and the living environment in addition to a sustainable environment (Öztekin, 2020).

The failure to take the measures mentioned above shows that many different sports branches are moving away from sustainable environmental goals. For example, it is known that the ecosystem suffers great damage due to the wastewater used for the production of artificial snow on a ski slope (Schmidt, 2006). Ignoring environmental policies, especially on ski slopes, accelerates global warming, while increasing temperatures cause snow and glaciers to melt, which raises significant problems in snow and winter sports (Dawson & Scott, 2013; Moen & Fredham, 2007). In particular, the research and data on winter sports reach alarming dimensions. As a matter of fact, it is known that many international Alpine Skiing World Cups – Anton (Switzerland), Levi (Finland), Zagreb (Croatia) and Ofterschwang (Germany) – were cancelled due to the lack of sufficient snow and precipitation in the 2015/16 season. The cancellation of these tournaments is also of great concern to professional skiers (Dawson et al., 2013; Rutty et al., 2015). A University of Waterloo study on the negative environmental impact of winter sports facilities found that to date, only ten of the countries hosting winter sports will be naturally viable winter sports centres by 2050, and only six will be naturally viable by 2080 if current trends continue. These negative environmental impacts in ski resorts also have negative impacts on the ski industry (Pickering et al., 2010).

Small, medium or large-scale sports facilities pose a risk to the natural environment because these facilities often concentrate large numbers of people in a limited space over a relatively small period of time, resulting in the associated energy consumption, resource use and waste generation (Chernushenko, 1994, 74; Collins et al., 2009; McCullough et al., 2016). This high use of energy and resources can have significant and measurable adverse effects on the environment, and facilities hosting sporting events have been associated with ecological damage, such as a decline in air and water quality, a decrease in habitats, and a decline in species (Mansfield, 2009). Grant (2014) reveals that sports facilities cause waste, unlimited consumption of raw materials, discharge of local water resources, and an increase in traffic and traffic-related air pollution. For example, the destruction of natural vegetation and habitat during the construction phase of a golf course built for the purpose of conducting golf competitions and events brings great negativities for ecological balance (Thibault, 2009).

The most socially popular sporting events (Olympic Games, FIFA World Championships, Super Bowls, etc.) are constantly developing the interest of the masses and need larger spaces to host an increasing number of participants (spectators). In order to meet this interest, a significant increase in energy consumption is observed. In sports organizations that appeal to large and wide masses, the energy needs of sports stadiums and facilities are compared with the energy consumption amounts of some small countries in Africa. In the United States, for example, a stadium hosting a Super Bowl event (80,000 seats) consumes up to 10 MWh per hour (about 50 MWh over the entire game) during its energy peak (Breech, 2013), while Liberia uses less than a third of this amount within its own country's borders (Foster, 2014).

A study conducted by Smulders (2012, 27) reveals that the total energy demands of around 4,000 stadiums on the European continent, which usually rely on fossil fuel sources, are as high as 40 TWh per year. Khalid and Rogstam (2013) state that the average energy consumption of an average-sized stadium (55,000 seats) is equal to 10,000 MWh per year (3,600 tCO2-eq/year). The energy consumption amounts mentioned above cause millions of tons of carbon dioxide emissions every year, and this amount of emission causes great damage to nature.

Another negative environmental impact caused by sports facilities is the waste generated in sports facilities. In the United States, for example, sports facilities can release enormous levels of greenhouse gases depending on which waste management practices are used (Weitz et al., 2002), and the differentiation of these waste management practices can vary in each region (Kaplan et al., 2009). More sustainable storage or waste accumulation methods for waste management in sports facilities can greatly reduce waste-related greenhouse gas emissions in sports facilities (Cabaraban et al., 2008). In addition to direct greenhouse gas emissions in sports facilities, these facilities are often empty for a large part of the year, and therefore, the "adaptive reuse" initiative, taking into account the wider community, contributes to the static pollution of unused, inefficient and inaccessible space (Flaccavento, 2016, 176).

Sports are growing day by day as an industrial field. The number of organizations and events organized is increasing. Accordingly, it is one of the areas where construction is increasing rapidly. Due to the increase in mass interest, it can be said to be one of the areas where investment is concentrated. However, sporting and economic development brings with it a number of negative aspects. At the beginning of these negativities is environmental sustainability concern. Especially in sports, facilities result in unlimited consumption of limited natural resources. The consumption of the natural environment threatens both sporting and environmental sustainability, as every new facility built, or the maintenance and repair of existing facilities, leaves destructive effects on the ecosystem. When evaluated in general terms, the negative environmental impacts (carbon footprint) caused by an average sports facility, regardless of whether amateur or professional, are visualized and presented in Fig. 2 below:

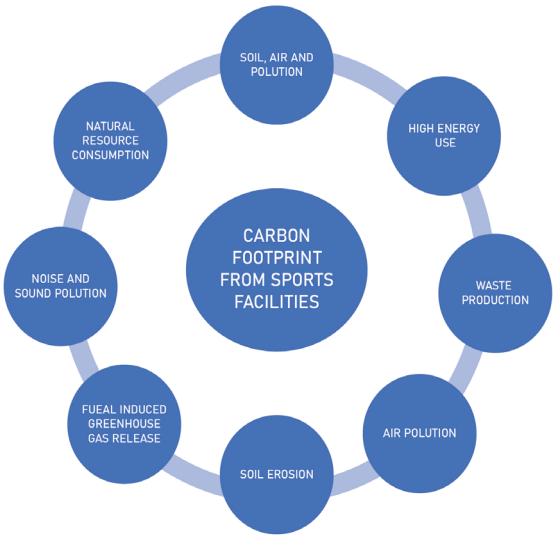

Fig. 2. Carbon Footprint from Sports Facilities (*Mallen and Chard, 2011; Balcı and Koçak, 2014*)

It can be said that human activities are intensifying in the developing world. At the forefront of these intensifying activity areas is sport. The increasing number of sports organizations, the increase in the number of people participating in these organizations and the acceleration of facilities to respond to this need are shown as the main reasons for the carbon footprint. However, it seems possible to reduce the carbon footprint in sports by controlling this process and consuming natural resources in a planned way. In particular, the applicability of environment-friendly construction in sports is discussed. In addition, turning to renewable energy sources is essential for a sustainable environment and sport.

CONCLUSIONS AND RECOMMENDATIONS

Sports facilities are very important in terms of meeting people's sports development and physical activity needs. However, when the current field is examined in the summer, it can be said that these facilities have negative environmental impacts and cause a large carbon footprint. In particular, carbon dioxide emissions caused by high energy consumption pose a risk for a sustainable environmental goal. Therefore, the energy use of sports stadiums is an important issue that needs to be addressed and explored to achieve greener sustainable stadiums. Hence, reducing the impact on the global environment and its carbon footprint is one of the primary goals of the sports sector (Smulders, 2012, 6).

The main purpose of its practices and policies on the environment is to provide a sustainable environment that can sustain people in health and happiness, to protect the ecosystem and biodiversity, and to eliminate the negative environmental effects caused by people's attitudes and behaviours (Budak, 2000, 36). In this context, sports event management at all levels is expected to effectively address environmental sustainability by taking into account environmental performance and consequently identifying effective actions and initiatives (Dolf and Teehan, 2015). The content of the event focuses on the presence of green accommodation, waste and water treatment plants and all green infrastructure outside the stadium (Daddi et al., 2022). For this purpose, all countries are trying to act in line with the goals of increasing energy efficiency and sustainability while shaping their sports investments.

It is very important that individuals who exhibit active or passive participation behaviour in sports exhibit attitudes and behaviours by knowing and understanding the importance and value of the natural environment in which they live. Therefore, the aim is that individuals and sports facilities involved in sports behave in a way that is sensitive to the environment and causes the least harm and aims to reduce the carbon footprint caused by sports (Beyhan and Ünügör, 2005).

It can be said that all stakeholders of sports have a responsibility to reduce the carbon footprint in sports. In particular, it can be said that the negative environmental impacts should be minimized in the construction of new sports facilities and the maintenance and repair processes of existing facilities and the carbon footprint should be reduced. In this context, it is inevitable to take the following measures and comply with these measures in order to reduce the carbon footprint in the process of construction of sports facilities and operation of existing facilities:

Suitability for the Built Area:

a) The fact that it is suitable for the physical and geographical conditions of the region determined in the construction process of any sports facility can contribute to the strengthening of the infrastructure of that region while contributing aesthetically. In this way, the fact that the facility is suitable for the climatic and geographical characteristics of the region where the construction is planned can also reduce the negative environmental impacts.

Being Green and Pro-Natural Resource Supporters:

a) Preferring and increasing renewable energy sources in the operation and use of new sports facilities;

b) Controlled use and supervision of chemicals, especially in facilities where the use of chemical drugs such as swimming pools is required;

c) Preference of self-sufficient energy sources in the facilities;

d) Preferring the materials used in the facilities in a way that will provide energy efficiency;

e) In particular, by preferring solar and wind energy, the carbon footprint in sports facilities can be reduced.

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Darnios aplinkos problemos sporto sektoriuje

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ANOTACIJA

Straipsnyje siekiama aptarti darnios aplinkos klausimus, daugiausia dėmesio skiriant sporto sektoriui. Išteklių vartojimo augimas padidino ir paties vartojimo poreikį. Ypač sparčiai augant gyventojų skaičiui miestuose, urbanizacija, didėjantis ir įvairėjantis vartojimas didina gamtos išteklių vartojimą. Galima sakyti, kad sportas yra šios problemos pradžioje. Atsižvelgiant į tai, atsirado didesnis visuomenės susidomėjimas sportu ir reikalavimai sporto sektoriui. Ši situacija neigiamai veikia sporto ir aplinkos santykius. Tiesą sakant, masiniai judėjimai, tokie kaip, didelis energijos suvartojimas sporte ir intensyvi žmogaus veikla, gali turėti neigiamą poveikį aplinkai. Visų šių neigiamų pokyčių šaltinis yra sporto sektoriaus infrastruktūros ir organizuojamų renginių bei organizacijų gausėjimas. Vertinant situaciją

galima teigti, kad patalpos, šių organizacijų veiklai vykdyti, prisideda prie darnios aplinkos problemų. Straipsnyje teigiama, kad būtina atkreipti dėmesį į sporto objektų statybą, urbanistinį planavimą. Taip pat – būti ekologiškam, tausojant gamtos išteklius.

Raktažodžiai: darni aplinka, sportas, gamta, problemos.

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