

# ENVIRONMENTAL MANAGEMENT ACTIVITIES OF NHL TEAMS

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**Abstract:** *Over the past two decades, the sports sector has paid increasing and growing attention to un-derstanding sustainability, including the environment, and in particular what can be done in practice. The purpose of this study is to examine the environmental CSR measures adopted by professional hockey teams in North America.*

*To answer my research question, I used a comparative analysis based on secondary data sour-ces. For all 32 teams, I examined the available reports and their information on CSR activities, the information published on the teams' websites, and the research results related to the teams. I have selected 3 teams (Minnesota Wild, Pittsburgh Penguins, Seattle Kraken) that are at the forefront of the issue under study, using an evaluation system based on international literature, and case studies to showcase good practices that can serve as examples for the sports sector.*

**Keywords:** *CSR, Sustainability, Environmental protection, NHL*  
(JEL Classification: Q56)

## INTRODUCTION

The history of social responsibility can be traced back to the mid-20th century, when business and academia began to explore the links between the economy and society. Since the 1990s, there has been a growing identification with responsible corporate ideals and corporate social responsibility. Nowadays, larger companies are creating specific strategies for their CSR activiti-es and allocating resources to them.

Understanding the concept of a “responsible” company is far from easy, as there is no single definition in the literature that clearly defines its meaning. The various definitions are consistent in that business must strike a balance between economic interests, social expectations and environmental constraints. The objectives should include complementary objectives based on a moral foundation, a tendency that leads to the concept of a “value-based” or “responsible” com-pany. (Ráthonyi-Ódor-Bácsné-Ráthonyi, 2019).

As a rule, the European Commission's 2001 and 2011 definitions are recognised. CSR activities are defined in 2011 as “the responsibility of enterprises for their impact on society”. (EC, 2011, p. 6) CSR is about setting long-term goals, creating value and preserving value (Nagy-Tóth-Győri, 2012).

The benefits of environmental corporate governance and environmental management tools:

When analysing environmental corporate governance, it is important to look at the economic reasons, the relationships with public authorities, the new market segments, the market value of the company and the quality of products and services.

- Economic reasons: several NHL teams have built so-called water storage tanks around their arenas, thus reducing the cost of water. For example as the Seattle Kraken did.
- Relations with authorities: joining the NHL Green movement helps teams to work in a more environmentally conscious way. It also helps them to gain the support of several local authorities. such as Pittsburgh Penguins.
- New market slices: NHL teams are trying to use environmentally friendly cleaning pro-ducts. A good example for this is Minnesota Wild.
- The market value of the company: the NHL and the sports companies involved in the league are highly conscious of their environmental CSR activities.
- Quality of products and services: protecting the arena's environment is a natural part of quality assurance. Anaheim Ducks is exceptional in this regard (Ráthonyi-Ódor, 2015).

Examples of environmental management tools include:

- obtain certifications, e.g. the Vegas Golden Knights Arena is LEED certified,
- using cleaner technologies, e.g. Tampa Bay Lightning's internal air filter systems,
- use of renewable resources, e.g. Minnesota Wild solar panels,
- various reports for external communication, such as the Montreal Canadiens' annual sus-tainability report,

- waste minimisation, e.g. Edmonton Oilers have launched a city-wide waste management programme.
- recycling, using recycled material, e.g. Los Angeles Kings jerseys are made from recycled material (Ráthonyi-Ódor, 2015).

### *Sport and CSR*

Responsible behaviour can take the form of different activities in different sectors of economic life. Today, the study of responsible behaviour in the sport sector is an area of research that is receiving increasing attention (Scheinbaum-Lacey, 2015).

Based on the international literature (Filizöz - Fisne, 2011; Ibrahim - Almarshed, 2014; Smith - Westerbeerck, 2007; Trendafilova et al., 2013), we can summarise the links between sport and CSR as follows:

- The global scale of sport means that it can disseminate information to a wide section of society.
- The sport-related CSR programme is popular among young people.
- Sports-focused CSR spreads positive messages about healthy lifestyles.
- Sport-centred CSR strengthens social interactions.
- Participating in sporting events contributes to well-being.
- Sports organisations can support the environment through their sustainability measures.

Szlávik wrote in 2009 about the importance of embedding two broad groups of CSR activities in the strategy of organisations. These two groups are social and environmental CSR activities. It can be clearly seen that sport can support both aspects of the CSR concept (Ráthonyi-Ódor et al., 2020).

Social CSR measures in the sports sector can be divided into 4 categories: (1) educational programmes, (2) sport/health programmes, (3) social/cultural programmes and (4) charity programmes (Nilson, 2018; Ráthonyi-Ódor et al., 2020).

### *Environmental aspect of CSR activities in Sport*

Environmental sustainability has received increasing attention within the concept of CSR and environmentally responsible business practices (e.g. energy rationalisation, water use reduction, waste management, minimisation of toxic substances) have become a core element of CSR (Jenkins, 2011; Moghaddam et al., 2018).

It is undeniable that all sport-related activities use natural resources and therefore have an impact on the natural environment. Expropriation of land, impacts on biodiversity, use of drinking water quality water, waste discharge, catering, construction and operation of sports facilities, commuting between sports venues, and the production and sale of sports equipment multiply the challenges that need to be addressed/greened up and that responsible behaviour can help address (Brar -Pathak, 2016; Ráthonyi-Ódor, 2019; Shiply, 2018).

According to Shipley (2018), if we want to make sport greener, the following measures need to be taken:

- an organisational form to support environmental protection,
- developing sports activities and programmes in harmony with nature and the environment,
- greening the sports infrastructure,
- public involvement in this area,
- integrating environmental considerations into the operation of sports organisations.

When studying the environmental activities of sport activities and sport companies, the following aspects are taken into account (Casper-Pfahl, 2015; Dikácz-Ujj, 2004; IOC, 2005, NRDC, 2012; Ráthonyi-Ódor et al., 2020; Tarradellas, 2003):

1. environmental conditions,
2. land use,
3. use of raw materials and energy,
4. waste management,
5. environmental pollution, damage,
6. protection of cultural heritage,
7. environmental impact of sport-related activities.

#### **Environmental conditions:**

Environmental conditions are very important when we talk about sport. If the environmental conditions are not right, or even harmful, sport cannot be practised. Lack of drinking water, basic hygiene conditions, or even a hazardous facility may pose a risk of health hazards (Dikácz-Ujj, 2004).

#### **Land use:**

When considering the environmental aspect of CSR activities, it is essential to take the landscape into account. Large investments can change the existing environmental system which can lead to the destruction of the environment. The construction of new roads or deforestation have a negative impact on the environment.

#### **Raw material and energy use:**

The 21st century has seen the emergence of environmental problems caused by inappropriate use of resources. Humanity is living a highly energy-wasting life, which can lead to resource depletion. Therefore, the use of renewable energy sources, such as wind or solar energy, is becoming increasingly popular today.

#### **Waste management:**

Any material that is no longer economical to use after the sporting event is called waste (Ráthonyi-Ódor, 2019). Unfortunately, today selective waste collection is not yet widespread everywhere, but it is gaining more and more attention. Resource use and waste management are closely linked, as the quantity and composition of the materials used determines how they are recovered and recycled. Here it is important to mention the "4R Principle", according to which recycling takes place: recovery, reduction, reuse and recycling

**Environmental pollution, damage:**

Waste is produced for sporting events. These can be of different materials, which can sometimes be polluting and toxic. Pollution can occur in water, soil and air. (Dikácz-Ujj, 2004).

**Protecting cultural heritage:**

When organising a sporting event or building a sports facility, we need to pay attention to environmental values and protect cultural heritage. It is important to protect and develop them whenever we have the opportunity.

**Environmental impact of sport-related activities:**

As a result of sporting events or the operation of sports facilities, there are many things that have an impact on our environment. It is therefore particularly important to consider the long-term impacts when organising a sporting event or sports facility. Examples include minimising the use of drinking water quality water, or installing waterless urinals.

*NHL environmental programmes (NHL, 2010)*

The NHL Green movement began in 2010 with the Bridgestone Winter Classic to promote sustainable business practices in the league and engage fans in environmental awareness.

**2010 - Food recovery programme:**

A food recovery movement was launched. Each club takes the initiative to collect prepared but untouched food to help organisations in need. In the movement's first 4 years, the programme diverted more than 100 tonnes of food waste from landfills, equivalent to more than 120,000 meals for regional food banks.

**2011 - Water recovery:**

The "Gallons for Goals" movement is very valuable for the environment. The NHL restores 1,000 gallons of water per goal scored in the regular season by purchasing Water Restoration Certificates. Since 2011, the National Hockey League has restored more than 88 million gallons of water.

**2012 - Tree planting:**

As part of the "Legacy Tree" project, a tree is planted at the NHL Draft by team representatives in the host city. In the first 5 years of the programme, 1500 trees have been planted.

**2013 - Energy savings:**

Centre Bell, home of the Montréal Canadiens is the first NHL arena where LED lighting was used. Since 2014, LED lighting has been used for all NHL All-Star games. More than 2/3 of NHL team arenas have switched to LED lighting, resulting in significant energy savings.

**2014 - Sustainability Report:**

The NHL has released the first sustainability report by a North American professional sports league. The report includes a description of the league's carbon emissions, also a first in US professional sports.

**2015 - Carbon footprint:**

The NHL commits to offset its entire carbon footprint for three consecutive seasons. The first, in professional sports, cooperatively with Constellation Energy, has offset more than 963,200 MWh of energy since 2014. The Xcel Energy Center, home of the Minnesota Wild, is the first sports facility in the United States to receive three environmental certifications. The Xcel Energy Center has received LEED, Golden Globe and ASTM/APEX certifications.

**2016- Greener ice rinks initiative**

NHL launched the Greener Rinks program in 2016. This initiative gives more information about the new technologies and practices used in the local ice rinks, which helps them reduce their operational costs and environmental impact.

**2017 - Declaration of Principles**

Declaration of Principles was published in 2017. The aim of the NHL Green is to improve access to ice hockey, to make it available for everybody to join and enjoy the beauty of this sport.

**2018 –Second sustainability report:**

The NHL published its second sustainability report. It contains new goals for the next 5 years. NHL commits itself to educate the ice rink industry and make a collaboration with Chemours.

**2019 – Offsetting carbon emissions**

NHL proposes the teams to offset their carbon emissions associated with air travel during the season. To enable this, the league purchased 1729 carbon offsets.

**2020 – Involving fans**

For the 10th Anniversary of NHL Green, the main goal is to engage fans to ice hockey, to build a vivid and healthy community through ice hockey, at the same time ensuring that the sport infrastructure –from natural ice to community rinks– continues to thrive.

The purpose of this study is to examine the environmental CSR measures adopted by professional hockey teams in North America.

**MATERIAL AND METHODS**

To answer my research question, I used a comparative analysis based on secondary data sources. For all 32 teams, I examined the available reports and their information on environmental CSR activities, information published on the teams' websites, and team-related research results.

Afterwards, I used an evaluation system based on international literature to select the 3 teams (Minnesota Wild, Pittsburgh Penguins, Seattle Kraken) that are at the forefront of the issue and present case studies of good practice that can serve as examples for the sport sector.

## RESULTS AND DISCUSSION

In the table below, I have analysed the environmental activities of the 32 NHL teams and identified the groups that the sports organisation is advocating for in their environmental CSR activities

**Table 1: NHL teams' environmental activities**

	Environmental Conditions	Land use	Raw material and energy use	Waste management	Environmental pollution, damage	Protection of cultural heritage	Environmental impact of sport-related activities
Anaheim Ducks	X	X		X	X	X	X
Arizona Coyotes	X	X	X	X	X		X
Boston Bruins	X	X		X	X	X	X
Buffalo Sabres	X	X	X	X	X	X	X
Calgary Flames	X	X	X	X	X	X	X
Carolina Hurricanes	X	X	X		X		X
Chicago Blackhawks	X	X	X	X	X	X	X
Colombus Blue Jackets	X	X	X		X	X	X
Colorado Avalanche		X	X	X	X	X	X
Dallas Stars	X	X	X	X	X	X	X
Detroit Red Wings	X	X	X	X	X		X
Edmonton Oilers	X	X	X	X	X	X	X
Florida Panthers		X	X	X	X	X	X
Los Angeles Kings	X		X	X		X	X
Minnesota Wild	X	X	X	X	X	X	X
Montreal Canadiens	X	X	X	X	X	X	X
Nashville Predators	X	X	X	X	X	X	X
New Jersey Devils	X	X	X	X	X	X	X
New York Islanders	X	X	X	X	X	X	X
New York Rangers	X	X	X	X	X	X	X
Ottawa Senators	X	X	X	X	X	X	X
Philadelphia Flyers	X		X	X	X	X	X

Pittsburgh Penguins	X	X	X	X	X	X	X
San Jose Sharks	X	X	X	X		X	X
Seattle Kraken	X	X	X	X	X	X	X
St. Louis Blues	X	X	X		X	X	X
Tampa Bay Lightning	X	X	X	X	X	X	X
Toronto Maple Leafs	X	X	X	X	X	X	X
Vancouver Canucks	X	X	X	X	X	X	X
Vegas Golden Knights			X	X	X	X	X
Washington Capitals	X	X	X	X	X	X	X
Winnipeg Jets	X	X	X	X	X	X	X

Source: own editing (NHL, 2021 a; Anaheim Ducks, Arizona Coyotes, Boston Bruins, Buffalo Sabres, Calgary Flames, Carolina Hurricanes, Chicago Blackhawks, Columbus Blue Jackets, Colorado Avalanche, Dallas Stars, Detroit Red Wings, Edmonton Oilers, Florida Panthers, Los Angeles Kings, Minnesota Wild, Montreal Canadiens, Nashville Predators, New Jersey Devils, New York Islanders, New York Rangers, Ottawa Senators, Philadelphia Flyers, Pittsburgh Penguins, San Jose Sharks, Seattle Kraken, St. Louis Blues, Tampa Bay Lightning, Toronto Maple Leafs, Vancouver Canucks, Vegas Golden Knights, Washington Capitals, Winnipeg Jets, 2022)

Based on the table, there are two main areas that are included in the environmental strategy of all NHL teams, namely the use of raw materials and energy (water collection systems, use of solar panels) and waste management (selective waste collection, recycling). Less popular ones include environmental conditions and land use (protecting the environment, reducing non-essential construction).

Among the environmental conditions, the most common is the use of an internal air filter (e.g., Tampa Bay Lightning).

In terms of landscape use, it is important to emphasise the importance of increased protection of the city and the sites around the ice rink. For example, teams encourage fans to ride bicycles (e.g. Anaheim Ducks).

Regarding the use of raw materials and energy, it is important to mention the Opteon cooling systems used at each rink to produce ice. The machinery is not harmful to the ozone layer (e.g. San Jose Sharks).

On the subject of waste management, all teams participate in the greening programme, which includes proper waste collection and recycling.

To combat pollution and damage to the environment, teams are taking a stand by buying less biologically harmful cleaning products (e.g. Nashville Predators).

Cultural heritage protection takes into account the natural assets of the locality when designing a new facility. Buildings are only built on developable land and try to design for the most efficient use of energy (e.g. Vegas Golden Knights - LEED certified T-Mobile Arena in Las Vegas).



In response to the environmental impact of sports-related activities, the best example is the Seattle Kraken's climate-centric arena, which has zero carbon emissions.

Hereinafter I will analyse the environmental activities of 3 NHL teams. The teams are outstanding performers, using all resources to protect their environment.

*Seattle Kraken*

The NHL team called Seattle Kraken joined the major hockey league in the autumn of 2021. They have burst into the public consciousness with their environmentally friendly CSR activities. They have named their sports facility 'Climate Pledge Arena'. The name encompasses the most important issue of the 21st century, namely climate change and the measures necessary for environmental protection

In many ways, the Arena is unique in the world. Important environmental features and structures of the Arena:

**„Zero Carbon”**

They built the world's first zero-carbon arena certified by the International Living Future Institute. No fossil fuels are used in the arena on a day-to-day basis: the mechanical systems, gas engines, heating, dehumidification - all built to run on electricity. The solar panels on Alaska Airlines' atrium and garage, combined with additional off-site renewable energy sources, provide 100% renewable energy.

**„Zero Single Use Plastic”**

Seattle Kraken is the first arena and NHL team to announce their intention to phase out single-use plastics and have committed to 100% phase out by 2024.

**„Zero Waste”**

By simplifying their supply chain, they are able to recycle over 97% of their waste, which is considered "zero waste" in the industry. Through educating their consumers with nice and simple infographics, and on-the-spot selection they are able to achieve this unique level of performance. Their waste is composted and widely recycled throughout the arena.

**„Rain to Rink”**

The sports company is committed to water saving. Given their localization (Puget Sound), they are leaders in water quality and water use.

Their "Rain to Rink" system collects water from the roof and collects it in 15,000 gallon tanks, creating the greenest ice in the NHL with this method.

Waterless urinals and ultra-efficient showers are used in the arena. Large tanks reduce rainwater run-off. Water bottle filling stations have been installed throughout the arena (Climate Pledge Arena 2021).

Other environmental programmes of the sports organisation:

**Advisory Committee:**

By establishing an Advisory Committee, Amazon and its partners can deepen their commitment to making the Climate Pledge Arena the most progressive and sustainable arena in the world (NHL, 2020).

*Minnesota Wild*

Founded in 2000, the sports organisation is based at the Xcel Energy Center in Minnesota. The sports company has made the NHL playoffs four times in its history and has been division champion once.

The Xcel Energy Center is known for try to provide the best possible experience for their guests, including an environment that is a model of sustainable practices. Their environmental activities are an integral part of their organisational strategy and are part of their everyday life. This ensures that their efforts and achievements bring lasting benefits to the community. The Xcel Energy Center is honored to have various organizations in the community take a leadership role in sustainability.

There are also several environmental points in the construction of the arena:

**Table 2: Xcel Energy Center data details**

<b>Air quality</b>	Constant air movement, non-smoking, greening cleaning to keep the air in the building clean and fresh.
<b>Community</b>	Every year, more than 3,000 pieces of replacement equipment are recycled or given to the younger generation.
<b>Certificates</b>	LEED, Green Globes, EIC/SES
<b>Energy</b>	4th largest purchaser of wind energy in Minnesota
<b>Acquisitions</b>	63% of the cleaning products purchased comply with environmental standards.
<b>Transport</b>	65% of staff and visitors travel by bus, bike, car or other environmentally friendly means.
<b>Water</b>	1,500 gallons of water per day saved with rainwater harvesting technology.
<b>Waste management</b>	In the season of 2019-2020, 61.7% of waste was recycled.

Sources: own editing (Xcel Energy Center, 2022)

The team's environmental CSR activities are:

**They are involved in the NHL Green movement:**

Since the NHL Green's launched in 2010, the League has been committed to promoting more sustainable business practices among the sport franchises. The Xcel Energy Center, home of the NHL Minnesota Wild, has been certified to three international sustainability standards - LEED, Green Globes and the Event Industry Council - making it the first in the world to achieve these three certifications.

**“Adopt a River” is Minnesota Wild's own environmental program:**

The Minnesota Wild celebrated their 10th anniversary in October 2019. In honor of this celebration, the Wild launched its Day of Service, including the annual „Adopt a River” program, at 10:10 a.m. on 10/10/2019. Dozens of staff removed 367 pounds of debris from the banks of the Mississippi River. Of that, 147 pounds were recycled.

### “Adopt a storm drain” is also Minnesota’s own invention:

To help protect lakes and rivers around Minnesota, the Minnesota Wild adopted eight canals in downtown St. Paul near the Xcel Energy Center and the team’s executive offices. As part of the “Adopt a Storm Drain” program, the Wild is committed to protecting the environment by cleaning storm drains of leaves and other debris, thereby reducing water pollution (Minnesota Wild, 2020).

### Pittsburgh Penguins

The Pittsburgh Penguins sports company was founded in 1967. In their long history, they have won the Stanley Cup five times. They are based at PPG Paints Arena in Pittsburgh (PPG Paints Arena, 2022). PPG Paints Arena is a multipurpose indoor arena in Pittsburgh, Pennsylvania, home to the National Hockey League (NHL) Pittsburgh Penguins. The facility is LEED certified.

The Pittsburgh Penguins and PPG Paints Arena are the newest members that joined the Green Sports Alliance, a coalition of sports stakeholders dedicated to environmental and social responsibility.

The Pittsburgh Penguins are working with other members of the Green Sports Alliance, including professional sports leagues, teams, venues, universities and corporate partners to support, expand and promote their sustainability practices. They can develop sustainability programmes led by PPG Paints Arena and the Pittsburgh Penguins.

The Green Sports Alliance uses the cultural and market influence of sport to promote healthy, sustainable communities where people live and play. The association encourages professional sports leagues, governing bodies, colleges, teams, venues, partners, and millions of fans to adopt renewable energy, healthy food, recycling, water efficiency, safer chemicals, and other environmentally friendly practices (NHL, 2021b)

The Pittsburgh Penguins recycling program is a huge step forward for green initiatives in the North American sports industry. The campaign serves as a catalyst for increased environmental stewardship and an inspiration for sports franchises across the league. The Pittsburgh Penguins recycling campaign encourages fans to recycle waste at every official game.

The Penguins place great emphasis on recycling their jerseys. This is partly reflected in the fact that they donate the jerseys for fundraising purposes or give them to the junior age team who can wear them at training sessions, so there is no need to order new jerseys.

Their authentic ADIZERO Primegreen jerseys are an important environmental activity. They are made partly from recycled materials, designed for players and fans and designed with the future of our planet in mind (NHL 2021c).

## CONCLUSIONS

Overall, it can be concluded that both the NHL and the sports companies involved in the league are highly conscious of their environmental CSR activities. The inspected sports franchises are at the forefront of environmental protection and consciously follow the NHL’s environmental guidelines. Sports organisa-

tions in North America pay particular attention to the energy-efficient design of their facilities and proper waste management. Regarding the use of raw materials and energy, it is important to mention the Opteon cooling systems used at each ice rink to produce ice. The machine does not harm the ozone layer (San Jose Sharks). In response to the environmental impact of sports-related activities, the best example is the Seattle Kraken’s climate-centric arena, which has zero carbon emissions.

It is vital for them to raise awareness of the importance of environmental protection not only among the sports company, but also among their fans, so they organise activities and programmes where they can join in the protection of the environment.

In my opinion, the activities of NHL teams can serve as a good example for Hungarian sports organisations. Even small steps can make a big difference, both in their sports facilities and in their daily lives, thereby involving their fans in environmental protection. It would be important for clubs to pay attention to selective waste collection, electricity consumption, the preservation of local assets and the creation of new ones.

## REFERENCES:

- Babiak, K. - Wolfe, R. (2006): *More than just a game? Corporate social responsibility and Super Bowl XL. Sport Marketing Quarterly*, 15 (4), pp. 214-222.
- Brar, R. S. – Pathak, A. (2016): *Sport and environment, SOPAAN II. Volume 1. Issue 1. 7-11.*
- Carroll, W. K. (2010): *The Making of a Transnational Capitalist Class: Corporate Power in the 21st Century*, London, Zed Books.
- Casper, J.M.- Pfahl, M.E. (2015): *Sport and the natural environment In: Casper, J. M. – Pfahl, M.E. (ed.) (2015): Sport management and the natural environment – theory and practice. Gre-enGate Publishing Services, Great Brittan. pp. 3-14.*
- Climate Pledge Arena (2021): <https://climatepledgearena.com/community/>
- Dikács E. – Ujj Z. (2004): *Sport és környezetvédelem. Magyar Olimpiai Bizottság Környezetvédelmi Bizottsága, Budapest. pp. 5-14.*
- Dowling, M. – Robinson, L. – Washington, M. (2013): *Taking advantage of the London 2012*
- Filizöz, B. – Fisne, M. (2011): *Corporate Social Responsibility: A Study of Striking*
- Corporate Social Responsibility Practices in Sport Management. Procedia Social and Behavioural Sciences*, 24, pp. 1405–1417.
- Olympic Games: Corporate social responsibility through sport partnerships. European Sport Management Quarterly*, Volume 13, Issue 3, pp. 269–292.
- Ibrahim, H. – Almarshed, S. O. (2014): *Sporting Event as a Corporate Social Responsibility Strategy. Procedia Economics and Finance*, Volume 11, pp. 3 – 14.

- Inoue, Y. – Kent, A. – Lee, S. (2011): *CSR and the Bottom Line: analyzing the link between csr and financial performance for professional teams*. *Journal of Sport Management*, Volume 25, Issue 6, pp. 531-549.
- International Olympic Committee (IOC) (2005): *Manual on sport and the environment*. International Olympic Committee, Lausanne, Switzerland. pp. 7-18.
- Jenkins, H. (2011): *CSR in Sport: Investigating environmental sustainability in UK Premier League Football Clubs*. [http://www.crr-conference.org/Previous\\_conferences/downloads/crrc2011jenkins.pdf](http://www.crr-conference.org/Previous_conferences/downloads/crrc2011jenkins.pdf) Letöltés dátuma: 2021. december
- Moghaddam, K.S. – Abadi, B.H.-Eydi, H. (2018): *Investigating Environmental Responsibilities Involved in Sport Organizations*. *International Journal of Sports Science*, Vol.8., Issue 4, pp. 109-117.
- Nagy Z.-Tóth G.-Győri Zs. (2012): *A Sport Értéktérmető Szerepe A „Felelős Vállalati” Koncepcióban*, Forrás: [http://kgk.sze.hu/images/dokumentumok/kautzkiadvany2014/Nagy%20Barbara\\_estarsak.pdf](http://kgk.sze.hu/images/dokumentumok/kautzkiadvany2014/Nagy%20Barbara_estarsak.pdf)
- NHL (2010): <https://www.nhl.com/info/nhl-green>
- NHL (2020): <https://www.nhl.com/kraken/community/hockey-central>
- NHL (2021 a): <https://www.nhl.com/info/teams>
- NHL (2021 b): <https://www.nhl.com/penguins/news/penguins-join-green-sports-alliance-to-advance-sustainability-action/c-323844610>
- NHL (2021 c): <https://www.nhl.com/kings/news/adidas-hockey-announces-new-sustainable-nhl-team-jerseys/c-326372216>
- Nilsson, L. (2018): *CSR in Swedish football – A multiple case study of four clubs*
- Allsvenskan. Master degree. Södertörn University. pp. 10-20.
- NRDC (2012): *Game Changer, How the sport industry is saving the environment?* National Resources Defense Council Report, pp. 26-29. 46-49. 55-61.
- Minnesota Wild (2020): <https://cms.nhl.bamgrid.com/images/assets/binary/319692312/binary-file/file.pdf>
- Ráthonyi-Ódor, K. (2019): *Társadalmi felelősségvállalás a sportban, különös tekintettel a környezetvédelemre*. Debreceni Egyetem, Társadalomtudományi Habilitációs Bizottság, Gazdaság-tudományi Kar. Debrecen.
- Ráthonyi-Ódor, K. (2015): *Sportökológia. Sporttudományi Tananyagok*. Debreceni Egyetem. Campus Kiadó, Debrecen. pp.31-32.
- Ráthonyi-Ódor K.-Bácsné Bába É.- Ráthonyi G. (2019): *Nike vs. Adidas – Környezetvédelmi Erőfeszítések Eredményei*, *Acta Carolus Robertus*, pp.133-148.
- Ráthonyi-Ódor K. - Bácsné Bába É. – Müller A. – Bács Z.-Ráthonyi G. (2020): *How Successful Are the Teams of the European Football Elite off the Field? – CSR Activities of the Premier League and the Primera División*. *Int J Environ Res Public Health*. 2020. doi: 10.3390/ijerph17207534.
- PPG Paints Arena (2022): <https://www.ppgpaintsarena.com/ppg-paints-arena/green>
- Pittsburgh Penguins (2020): [https://issuu.com/penguinsfoundation/docs/ppf\\_community\\_report\\_2019-20/s/11417422](https://issuu.com/penguinsfoundation/docs/ppf_community_report_2019-20/s/11417422)
- Pittsburgh Penguins (2020): [https://issuu.com/penguinsfoundation/docs/ppf\\_community\\_report\\_2019-20/s/11417422](https://issuu.com/penguinsfoundation/docs/ppf_community_report_2019-20/s/11417422)
- Shiply, M. (2018): *Sport and Environment*. <https://www.progressiveteacher.in/sport-and-environment/> Letöltés dátuma: 2022. január
- Scheinbaum A.C. - Lacey R. (2015): *Event Social Responsibility: A Note to Improve Outcomes for Sponsors and Events*, *Journal of Business Research*, Vol.68., pp. 1982-1986.
- Sheth, H. - Babiak, K. M. (2010): *Beyond the game: Perceptions and practises of corporate social responsibility in the professional sport industry*. *Journal of Business Ethics*, 91(3), pp. 433-450.
- Smith, A.C.T. – Westerbeek, H.M. (2007): *Sport as a Vehicle for Deploying Corporate Social Responsibility*. *Journal of Corporate Citizenship*, Volume 25, Issue 12, pp. 43-54.
- Szlávik J. (2009): *A vállalatok társadalmi felelősségvállalása*. *Complex Kiadó Jogi és Üzleti Tartalomszolgáltató Kft.*, Budapest, pp. 54.
- Szwajkowski, E. - Figlewicz, R. E. (1999) *Evaluating corporate performance: A comparison of the Fortune reputation survey and the Socrates social rating database*. *Journal of Managerial Issues*, 11(2), 37-54.
- Taradellas, J. (2003): *The Olympic Movement and the environment – University lecture on the Olympics*. Centre d'Estudis Olímpics (UAB). International Chair in Olympism (IOC-UAB). Barcelona. pp. 7-9.
- Trendafilova, S. – Babiak, K. – Heinze, K. (2013): *Corporate social responsibility and environmental sustainability: Why professional sport is greening the playing field*. *Sport Management Review*, Volume 16, pp. 298-313.
- Walker, M. - Kent, A. (2009) *Do Fans Care? Assessing the Influence of Corporate Social Responsibility on Consumer Attitudes in the Sport Industry*. *Journal of Sport Management*, 23(6), 743-769.
- Walker, M. - Kent, A. - Vincent, J. (2010): *Communicating socially responsible initiatives: An analysis of US professional teams*. *Sport Marketing Quarterly*, 19 (4), pp. 125-131.
- Walker, M. – Parent, M.M. (2010): *Toward an integrated framework of corporate social responsibility, responsiveness, and citizenship in sport*. *Sport Management Review*, Volume 13, pp. 198-213.
- Walters, G. - Tacon, R. (2010) *Corporate social responsibility in sport: stakeholder management in the UK football industry*. *Journal of Management & Organization*, 16(4), 566-586.
- Xcel Energy Center (2022): <https://www.xcelenergycenter.com/guest-services/sustainability-page>

### 1. table's sources:

Anaheim Ducks (2022): <https://www.nhl.com/ducks/community/ducks-in-the-community>

Arizona Coyotes (2022): <https://www.nhl.com/coyotes/community/coyotescare>

Boston Bruins (2022): <https://www.nhl.com/bruins/community>

Buffalo Sabres (2022): <https://www.nhl.com/sabres/community/>

Calgary Flames (2020): <https://calgaryflamesfoundation.com/>

Carolina Hurricanes (2022): <https://www.nhl.com/hurricanes/community>

Chicago Blackhawks (2022): <https://www.nhl.com/blackhawks/community>

Colombus Blue Jackets (2022): <https://www.nhl.com/bluejackets/community/community-initiatives?partnerId=cbj-web-int-com-ddm-community>

Colorado Avalanche (2022): <https://www.nhl.com/avalanche/community/events>

Dallas Stars (2022): <https://www.nhl.com/stars/community/>

Detroit Red Wings (2022): <https://www.nhl.com/redwings/community>

Edmonton Oilers (2022): <https://www.nhl.com/oilers/news/release-oilers-canadiens-alumni-to-play-heritage-classic-rematch/c-330293972?tid=282301132>

Florida Panthers (2022): <https://www.nhl.com/panthers/community/foundation>

Los Angeles Kings (2022): <https://www.nhl.com/kings/community/kings-care>

Minnesota Wild (2022): <https://www.nhl.com/wild/community>

Montreal Canadiens (2022): <https://www.nhl.com/canadiens/community/community-relations>

Nashville Predators (2022): <https://www.nhl.com/predators/community>

New Jersey Devils (2022): <https://www.nhl.com/devils/community>

New York Islanders (2022): <https://www.nhl.com/islanders/community/community-relations>

New York Rangers (2022): [https://www.nhl.com/rangers/community?icmp=int\\_web\\_nyr\\_comm\\_topnav](https://www.nhl.com/rangers/community?icmp=int_web_nyr_comm_topnav)

Ottawa Senators (2022): <https://www.nhl.com/senators/community/foundation>

Philadelphia Flyers (2022): <https://www.nhl.com/flyers/community/community-relations>

Pittsburgh Penguins (2022): <https://www.nhl.com/penguins/community/community-landing>

San Jose Sharks (2022): <https://www.nhl.com/sharks/community>

Seattle Kraken (2022): <https://www.nhl.com/kraken/community/hockey-central>

St. Louis Blues (2022): <https://www.nhl.com/blues/community>

Tampa Bay Lightning (2022): <https://www.nhl.com/lightning/community/lightning-foundation>

Toronto Maple Leafs (2022): <https://www.nhl.com/mapleleafs/community/>

Vancouver Canucks (2022): <https://www.nhl.com/canucks/community/>

Vegas Golden Knights (2022): <https://www.nhl.com/goldenknights/community/vgkfoundation>

Washington Capitals (2022): <https://www.nhl.com/capitals/community/>

Winnipeg Jets (2022): <https://www.nhl.com/jets/community>