

Critical Analysis of the Correlation Between Sport Events and Environment

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Abstract: The four levels of sport and environment interface: total control of environmental conditions, partial control, framed environmental conditions, and no control of the environment all influence the environment and condition of the sports that are played. As sports activities become more and more popular, more and more countries and organizations join sports activities. Sports activity is also increasingly harmful to the environment. Sports activities, for example, competition and training will all require a lot of traveling, which will heavily influence the environment. Therefore, in the long run, whether the event organizers should change the layout of the sports and how to arrange the sports games efficiently will become a question. The earth is already overwhelmed, the global climate is warming, and the Arctic glaciers are melting at an accelerated rate. Some countries have even been hit by typhoons. With the increasing occurrence of extreme weather, players and organizers have realized the importance of this issue and have started to take action during sports events. This research paper shows that the organizers have slowly changed the format of the competitions with more environmental concerns and protections. In this way, the government, organizers, and even players as well as the audiences start to contribute to the actions and solutions.

Keywords: sport and environment, environmental concerns, extreme weather, human activities and environment, sports games

1. Introduction

With the increasing involvement of different sports games and the participation from armature to professional players, the interactions and engagement between the audiences and the players, the sports events also show a stronger influence on the surrounding environment. According to reports from various non-profit environment protection and monitoring organizations, it says that the Super Bowl game will produce around “40 tons of waste [1]” each year, and attendees at sporting events across the US will produce approximately “39 million pounds of trash per year [2]”. The raising concerns about how the sports events will influence the environment, for example, the air pollution caused by tailgating or the waste left after each event, have drawn people, scholars, and the government’s attention.

Even though the number of waste and environmental impact seems horrible, fewer people will talk about sustainability and professional sports in a casual conversation. According to the report from the government of Canada, the Earth’s temperature has risen by an average of 0.14° Fahrenheit since 1880, but the growth of the warming since 1981 is more than twice as fast as 0.32° Fahrenheit per

decade [3]. Researchers also found that the increasing temperature will shorten the ski resorts' operation time. This paper will further discuss how sports events will influence the environment by carefully analyzing four levels of sports and environment interface in various games, followed by the conclusions of how to balance the sports games and their changes to the environment.

2. The Four Levels of Sport and Environment Interface

In terms of influencing the environment, partial control sports events such as football, soccer, or tennis will have more interaction with the outside environment. The interaction includes both the athletes who play in the outside environment and the audiences who celebrate before and after the games. And the interaction between humans and the environment means everything that human activities will influence the environment and eventually, the environment will influence the players' performance.

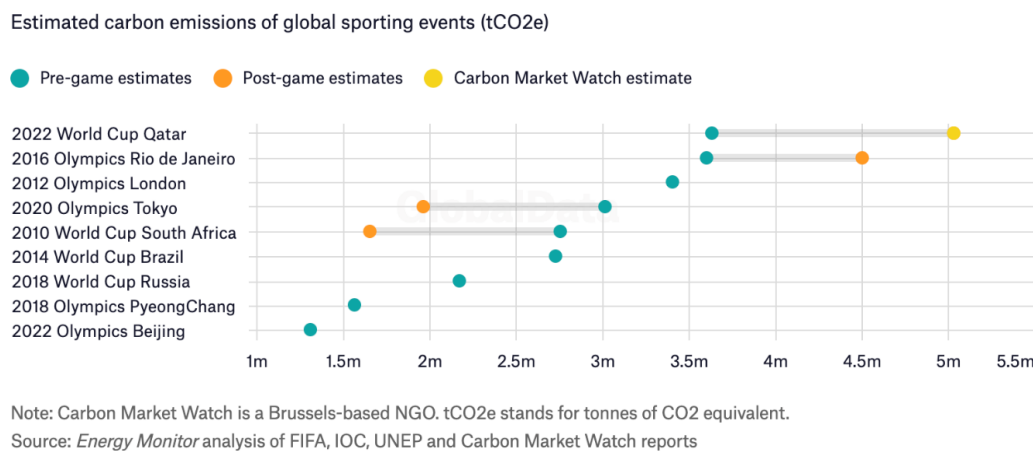


Figure 1: The 2022 World Cup is shaping up to be the most polluting recent sporting event [4].

The data shows that the carbon emission from sports games has been rising yearly. And for outdoor activities, the extreme heat will significantly impact the players' performance and health [5]. Despite the impact on players, the extreme weather will also change the stadium and playfield. As Skoog mentions, Minnesota's soccer fields seem a little more yellow because of the increasing drought that happened in the summer. This shows that outdoor sports events requires more maintenance on the stadium or the grass. Most importantly, climate change becomes irreversible. Therefore, the maintenance will not change and will be increased and become regular. The increasing human activity on intervening in the environment will not solve the issue but worsen the case. Another issue that the partial control of sports events will bring to the environment is the increasing waste that is produced during the celebration of the events. In the U.S., tailgating before a football game is very common. Intercollegiate athletics among U.S. colleges and universities are quite unique compared with other countries in the world [6]. Stadiums and arenas are dominant on campus. Each university's team will have its fans, who will celebrate and hang out with their friends when the game is on. Additionally, sporting events are also the central component of student life, including both regular students and student-athletes. The celebration activities also contribute to the local economy significantly [7]. However, the increasing waste is a big challenge for the local community. Currently, the option to deal with the waste is landfill, which will cause soil pollution as well as a lack of land to fill waste [8]. And for soccer countries, usually, there will be a big celebration from the fans for the winning team. The possibility of raising violence between fans from the winning team and losing team as well as the trash produced during the game. In the 2022 World Cup, the Japanese fans helped to clean up

the stadium was on the news [9]. Japanese fans behavior positively influenced the world, however, it also reflects that solving the waste in games with a large number of attendees is a big challenge for the organizers.

In the total control of environmental conditions, for example, the sports competitions such as table tennis and basketball might be considered as having a low environmental impact, but the truth is the total control of environmental conditions sports events will also significantly influence the environment. For example, basketball games have long been criticized for overproducing carbon dioxide. This might be because these indoor events require a large amount of traveling, which will produce a significant amount of carbon dioxide [10]. As the news mentions, for each game, the Lakers players will travel around 1,300 kilometers (807 miles) between Los Angeles and San Francisco. This is the single game and multiply the games that the NBA will hold in the whole basketball season as well as the training session that requires transportation. And in the 2018-2019 season, the NBA was considered the most polluting American sports league in terms of frequent traveling. This statistic has been criticized by many environmentalists and even the fans. As we all know, the role of transportation in society is important, but the overconsumption of gasoline has increased the burden on the environment, especially the heat in the summer that will be followed by drought and wildfire.

Moving to sports events, which are held in framed environmental conditions, such as skiing and golf. The environmental factor plays a significant influence in these sports, as the sports events require intensive environmental conditions to be realized. Take skiing as an example, this is a traditional winter outdoor event that has strict requirements on temperature and the ski trail condition. However, with the increasing temperature as well as the increasing number and intensity of natural hazards, the accessibility and the infrastructure of the ski resorts have become very challenging [11]. Those famous ski resorts that are situated in higher elevation resorts also experience the sensitivity of climate change. According to the research, the lengths of winter recreation seasons have shortened by “50% by 2050 and 80% in 2090 [12]”. As a result, the profit of the winter sports industry might lose “up to \$2 billion by the year 2090”. Most importantly, the ski resorts that are in low elevations might disappear soon. Climate change has hugely influenced the framed environmental conditions of sports because those sports have more requirements and interaction with the outside environment. Golf and swimming are sports that require a lot of water irrigation, which has become a challenge in today’s environment [13]. Compared with extreme weather, the issue of water has been existing for a long time. Water is a complicated issue involving water availability, access to fresh water, the allocation of water, and the preservation of water resources. The demand for clean water continues increasing as there are more animals and humans on earth. And for industrial activities, water is also a key component in production. Thus, the conflict and competition in water distribution have been sharp. For water-consuming sports such as swimming and golf, the challenges are how to maintain the sport and how to reduce the influence the sports bring on the environment.

And for sports in no control of the environment, such as surfing, sailing, ocean swimming, and mountain climbing, these sports are both competitive and recreational, which means more people will participate in those events. According to the Environmental Protection Agency, millions of people regularly enjoy recreational boating in North America [14]. Even individual ocean swimmers or boaters will not cause too much pollution, however, with millions of people participating in the events, there will be a large number of pollution in the lakes, rivers, and coastal water. The environmental impact that sports will bring in the no control of the environment will be the toxicity in the water and pollutants in aquatic organisms and sediments. These impacts might hurt the biodiversity in the ocean and the operation of marinas. And soon, Japan will release the Fukushima radioactive water into the ocean [15]. Even though the Japanese government has received approval from the U.N., the result of the radioactive waste effect on the entire marine system is uncertain. Thus, the challenge and influence of the environment will bring to the people who enjoy outdoor water sports are uncertain;

for example, if the level of radioactive pollution has risen, then how can people still enjoy surfing or open water swimming? And for sports such as mountain climbing, it will be influenced by the weather, especially for the areas that have fewer people to explore. As extreme weather will also cause severe rain and floods or earthquakes, the trails in the mountains might become dangerous.

Based on the analysis, the increasing human activities and the environment are highly correlated. However, the correlation between the increasing human activities and the environmental impact is negative. This means that increasing human activities will negatively influence the environment, and eventually the environment will revenge on humans by changing the activities. As a result, many scholars are debating on the implementation of technology in environmental protection, for example, using green energy to replace the use of gasoline as well as to reduce the waste produced by human activities to the environment. Besides, the governments try to limit the carbon emissions produced by human activity on the environment in order to reduce extreme weather. However, the usage of technology does not really reduce the challenges that the environment will bring to sports events. And the continuous human activity will continue to influence the environment. Many governments have promoted or joined the zero waste action [16].

The action will reduce waste and landfill in order to protect the environment. As mentioned, football and soccer games will produce a lot of waste when the audiences watch the game in the stadium. Therefore, the sports organizers can promote that people can take goods to the stadium in order to limit the use of waste; for example, the Emirates Stadium in England has recycled 75% of the waste from each game day, and Germany's Allianz Arena has saved 362 tonnes of carbon dioxide yearly [17]. What's more, the organizers can encourage the audience to behave like the Japanese audiences who carry the waste with them when they leave the stadium. Those actions may help to reduce the impact that human activity will bring on the environment, especially extreme weather and climate change. Additionally, the organizers can use technology to monitor the athletes' performance in the event to pay special attention to their health as some of the game days can be very hot, and people will feel uncomfortable doing outdoor sports activities. Therefore, monitoring the athletes' health becomes very important as the extreme weather will continue and if in the future the weather will influence the athletes' physical health. In this way, the organizers might think of changing the format and layout of the sports events, for example, changing the outdoor sports to indoor competitions or using more ice and cooler in the stadium. The implementation of the technology will definitely help to monitor both the environment and human activities and help organizers change the methods of doing sports more scientifically.

3. Conclusions

In conclusion, sports games have changed the environment, and the environment also shapes the sports games in today's contest. With the increasing environmental concerns when people do sports, including both the athletes and the audience, the organizers and the government should think about how to protect the environment to reduce or limit the negative influence that human activities will bring to the environment [18]. Besides, with the technology implementation, the sports game will be held smarter and digitized. The games will bring more engagement with the audience but less environmental damage. The organizers also think about reducing the construction of the stadium and maintenance of the facilities, which will put too much pressure on the environment. Being greener and safer will be the primary goal of holding sports events instead of overspending on holding a sports game. Go green will become a new trend in the future sports industry.

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