

To Explore the Impact of Sports Events on the Host City Environment and Its Protection

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Abstract: Under the policy background of the “14th Five-Year Plan” national health Plan, holding sports events has increasingly become one of the important measures of urban modernization development. Although holding sports events can bring positive effects to the city in terms of politics, economy and culture, it also brings great challenges to its environmental protection and management.

Keywords: Sports Events; Host City; Environmental Impact

1. Introduction

In 2024, the General Office of the General Administration of Sport of China issued the ‘Key Points for Sports Standardisation Work in 2024’ and the ‘Guidelines for the Formulation of Sports Standards in 2024’, which emphasised the need to focus closely on the widespread promotion of physical fitness activities and to foster the comprehensive development of both mass sports and competitive sports [1]. Against this policy backdrop, sporting events have increasingly become an integral part of urban development, and their influence on cities has become ever more pronounced. Whilst sporting events can enhance a city’s international image and promote its political, economic and cultural development, they also present a series of challenges to the urban environment, such as environmental pollution, resource consumption and ecological damage. Therefore, this paper examines the negative impacts of sporting events on the host city’s environment and proposes conservation and management strategies to address these environmental issues, with the aim of providing practical guidance and theoretical recommendations for further harmonising the relationship between sporting events and the urban ecological environment.

2. Overview of ‘Sports Events’ and ‘Urban Environments’, and the Relationship Between

Them

2.1 Overview of ‘Sports Events’

We can gain a deeper understanding of the concept of ‘sports events’ by breaking it down. ‘Sport’ primarily refers to a socio-cultural phenomenon or educational process that uses physical activity as a medium, aims to promote the physical and mental health and all-round development of the individual, and has the ultimate goal of fostering well-rounded members of society [2]. As the name suggests, “competition” refers to a contest, whilst “event” refers to an occasion. Competitive events are a ubiquitous phenomenon in social activities; by prefixing “sports” to “event”, the phenomenon of “competition” within various social activities is confined to the realm of sport [3]. From an etymological perspective, the concept of ‘sports events’ was originally introduced from the West. In the Western context, sports events are classified as a type of special event; so-called special events primarily include sports events, religious ceremonies, festive celebrations, artistic activities, academic conferences and political events. the most fundamental distinction between sports events and other special events lies in the fact that they are centred on competitive sporting activities [4]. Building upon the premise of the ‘special event’ concept, Chinese scholar Xing Zunming posits that sports events primarily refer to specific large-scale social activities that are purposefully and consciously organised to realise diverse values—including entertainment, economic and social benefits—with sporting disciplines as their core content and competition as their fundamental form [5].

As a vital component of sports culture, sporting events encompass a wide range of major international competitions as well as domestic contests at all levels. By providing athletes with a platform to showcase their talents, these events not only promote the popularisation and development of various sports but also drive

prosperity in social, political, economic and cultural spheres. In recent years, to further popularise sporting events, the Chinese government has introduced a series of relevant policies, including the ‘Administrative Measures for Sporting Events and Activities’ and the ‘Opinions on Building a Higher-Level Public Service System for National Fitness’. The aim is to streamline the approval process for events, encourage more cities to host competitions at all levels and of all types, increase public participation in sport, and lay a solid foundation for realising the dream of becoming a sporting powerhouse.

2.2 Overview of the Concept of ‘Urban Environment’

What is the ‘environment’? In response to this question, the Environmental Protection Law of the People’s Republic of China states: ‘The environment primarily refers to the totality of various natural and man-made factors that influence human survival and development, including but not limited to the atmosphere, water, land, natural heritage sites and cultural heritage sites [6]. Regarding the definition of the concept of the urban environment, different fields of research have reached varying conclusions and answers; consequently, there is currently no universally accepted definition. However, in accordance with research requirements, Wang Meihong, Tong Yunlong, Zhang Dongmei and others have proposed a definition of the urban environment, positing that it primarily refers to the man-made environment formed through humanity’s adaptation to, processing of, and transformation of the natural environment over a long period of time, constituting a systemic whole comprised of various environmental factors surrounding the urban population [7].

2.3 Sporting Events Are a Double-Edged Sword for the Host City’s Environment

On the one hand, hosting sporting events can further improve urban infrastructure and drive the development of the city’s political, economic and cultural sectors [8]. To better accommodate athletes and spectators from all corners of the globe, the host city will intensify efforts to improve public infrastructure, optimise transport routes and enhance the ecological environment. These measures not only create favourable conditions for the city to host the event but also

lay a solid foundation for the city’s future sustainable development. On the other hand, influenced by a variety of factors, sporting events give rise to a series of conflicts with the urban environment throughout the preparation, hosting and post-event phases: extensive construction activities during the preparation phase can severely damage the local ecological environment; increased traffic pressure during the hosting phase can cause significant air pollution; and the issue of stadium repurposing arises in the post-event phase [8].

The negative environmental impacts arising from the preparation, hosting and post-event phases of sporting events are issues that host cities must give serious consideration to. Consequently, this paper conducts the following analysis and research into the negative environmental impacts that sporting events have on host cities.

3. Negative Impacts of Sporting Events on the Urban Environment at Different Stages

3.1 Negative Impacts on the Urban Environment During the Pre-Event Preparation Stage

The construction of venues prior to the event constitutes some of the fundamental infrastructure for a city hosting a sporting event. As the venues serve as a key representation of the city’s image, the host city places great emphasis on their construction during the preparatory phase [9]. However, in their pursuit of hosting events that reflect the city’s unique character, organisers often opt to abandon existing sports venues in favour of constructing new ones. During the construction process, the city’s original natural ecological environment is inevitably subject to varying degrees of damage and pollution [7]. For instance, to build a brand-new ski venue, organisers will inevitably clear a plot of land within the local hills and forests, resulting in severe damage to the native natural vegetation. Such measures not only lead to a waste of resources but also cause permanent damage to the city’s natural environment [7]. Furthermore, during the construction of sports venues, the building work causes secondary pollution to the urban environment. This is because the constant movement of vehicles and construction machinery generates significant noise, emits large quantities of exhaust fumes, and stirs up substantial amounts of dust, all of

which contribute to the deterioration of the city's air quality. At the same time, wastewater generated by construction will severely pollute urban surface runoff; more seriously, this wastewater may contaminate groundwater through seepage, potentially affecting the safety of local residents' drinking water to some extent.

3.2 Negative Impacts on the Urban Environment During the Event Hosting Phase

The hosting of sporting events continues to pose a series of environmental pollution problems for the city.

3.2.1 Air Pollution

Regarding air pollution during the hosting phase of sporting events, Rickard argues that carbon dioxide emissions are a significant factor affecting the natural environment of the host city, as the influx of large numbers of spectators and the vehicles they use during the event generate substantial carbon dioxide emissions. The highly competitive nature of sporting events and the fame of the athletes attract spectators from all over the country to the host city, and this large-scale population movement places immense pressure on the city's transport system. The influx of large numbers of visitors (primarily comprising athletes, staff and spectators), the increase in vehicles and the rise in transport volumes will generate substantial carbon dioxide emissions, resulting in air pollution within the city.

3.2.2 Noise Pollution

During sporting events, various competitions are covered by dedicated media commentators, who generate high-decibel noise during their commentary, particularly during the most exciting moments of the match. Furthermore, large crowds cheer and shout in response to the excitement of the competition and to support their favourite athletes, which also produces high-decibel noise. Furthermore, certain sporting events, such as motor racing and shooting, also generate a range of noise. According to the environmental education programme of the United Nations and the Beijing Organising Committee for the Olympic Games, the noise generated during sporting events is classified as environmental noise. The impact of noise from sports venues on the lives of urban residents reaches 60–70 dB(A), whilst the impact of noise from outdoor sporting events on urban residents' lives reaches as high as 70–80 dB(A).

3.2.3 Water Resource and Solid Waste Pollution

On the one hand, certain sporting events consume large quantities of water—such as swimming and diving competitions—thereby increasing the discharge of urban domestic sewage. On the other hand, the daily living needs of large numbers of visitors—including food, accommodation and transport—lead to an increase in the volume of domestic wastewater and household waste generated, posing a serious threat to the urban ecological environment. According to an assessment by the French Agency for Environment and Energy Management, during the 2007 Rugby World Cup, the 2.5 million spectators left behind approximately 780 tonnes of waste at the venues. This demonstrates that solid waste poses a significant threat to the urban ecological environment.

3.3 Negative Impacts on the Urban Environment Following the Conclusion of the Event

After the event concludes, due to the fixed structure and single-purpose nature of some sports venues, it is extremely difficult to convert them into other facilities for production or daily life. Consequently, such venues often remain idle and cannot be effectively repurposed. Furthermore, if these venues are not demolished, they will permanently occupy urban land, which to a certain extent will severely constrain the healthy development of the urban ecological environment.

4. Conclusion

Environmental issues represent one of the greatest challenges facing the world, and China's ecological and environmental protection efforts remain at a critical stage where we must overcome significant challenges. Whilst hosting sporting events can drive urban development in political, economic and cultural spheres, it also gives rise to a range of environmental pollution issues. Therefore, from the perspective of the host city's environment, we must correctly recognise and understand that sporting events are a 'double-edged sword'.

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