



## Sports and Natural Environment: The Need to Inquire Their Reciprocal Impacts

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The relationship between sports and the natural environment underscores the increasing importance of sports in environmental protection and governance. In 2015, the United Nations (UN) General Assembly adopted the 2030 Agenda for Sustainable Development, linking sports to the sustainable development goals and emphasizing sports as a tool for promoting sustainable development and combating climate change. Understanding how sports impact the natural environment and vice versa is crucial for sport managers, policymakers, and scholars [2]. As a management issue, the relationship between sports and the natural environment has a prominent place in the field of sport management. McCullough et al. defined “sport ecology is the study of sport, the natural environment, and the bidirectional relationship between the two” (p. 509), serving as a sub-discipline of sport management [3].

Sports are highly dependent on the natural environment and the resources it provides [4]; coupled with the significant role of sports in society, the environmental issues caused by sports should be paid more attention to [5]. The participation of many sport activities and operation of sport events are closely linked to the natural environment and have varying degrees of impact on the environment, including land use, energy consumption, construction of sport facilities and venues, as well as water and other natural resources consumption [6]. Sport events, as the core of the sport industry, especially those mega and large scale sport events, have become crucial approaches for the development of sport tourism destinations around the world [7-9]. As public and private institutions recognize the importance of sustainable development, the impact of events on the environment has attracted increasing attention from the academic community [10].

Environmental and climate change can impose significant impact on human health and threaten physical activity behavior. Research findings indicate that climate change has brought great challenges to the sport industry,

particularly outdoor and winter sport activities [4]. Environmental factors such as air pollution, extreme temperature, and natural disasters have consistently negative impacts on people's engagement in sport activities [11]. Meanwhile, urban green spaces directly affect the supply of outdoor sport venues and the effectiveness of outdoor sport facilities for residents [12,13]. Without a doubt, environmental governance and promoting green sport activities can bring various benefits to individuals, including physical, psychological, and emotional benefits to sport participants [14].

At present, research investigations on the relationship between sports and the environment have primarily adopted the environmental conservation theory, the sustainable development theory, the institutional theory, and the concept of green development. Scholars have general consensus that the environment should be viewed as a critical stakeholder in the sport industry from now on and it is imperative to protect and preserve the nature and natural resources [3,15]. Robinot & Trespeuch [16] proposed that environmental management and investment not only help achieve sustainable development of sport events, but also transmit green values to stakeholders including the vast volume of consumers in various sport sectors. Institutional theory provides a theoretical framework to understand the promotion of environmental sustainability in the sports industry, which is primarily used to analyze and interpret the motivations and similarities of different sport organizations in adopting sustainable development strategies [17,18]. With the continuously enriching connotations and strengthening practices of sustainable development, the theoretical framework for sustainable development in sport is constantly evolving, involving from multiple perspectives such as economy, socio-culture, environment, policy, and technology [19].

The sport industry has recognized the impact of sports on the environment and made certain contributions to solving environmental issues [20]. The experiences from developed countries indicates that joint actions by sport organizations

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have an effective influence on sustainable environmental management [21]. However, scholars pointed out that compared to other industries, there is still a lack of connection between the academic and practical realms in the field of sport ecology [22]. Carmichael [23] alerted that the crisis caused by sports to the natural environment is becoming increasingly severe; there is relatively inadequate research on the relationship between sports and the environment. Noticeably, in the existent research investigation, limited theoretical perspectives are adopted and in particular, social practice theories from different disciplines are often overlooked.

In brief, more and more sport organizations are actively taking environmental protection and governance actions into consideration and have achieved some successful experiences. Even so, the progress is far from representing a universal or general norm. Without a doubt, there are still many potential areas waiting to be explored in research and enhanced in practice. Promisingly, the sport field is increasingly attracting more scholars and practitioners to contributing to a deeper understanding of the complex relationship between sport and the natural environment and promote the well-being of both sports and natural environment.

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