

Sport as a Catalyst for Climate Action: Promoting Environmental Awareness and Sustainability in Zimbabwe Through the Greening the Game Framework

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Abstract

One of the most important worldwide issues of the twenty-first century is climate change, which poses a threat to economies, ecosystems, and human welfare. Although governments and environmental organizations continue to implement mitigation and adaptation strategies, public engagement remains uneven, particularly in developing countries where competing socio-economic priorities often limit environmental action. Sport is increasingly recognized as a powerful social institution capable of influencing attitudes, behaviours, and community mobilization. However, despite the growing international emphasis on sport for sustainable development, limited empirical research has examined how sport can be leveraged to promote climate action and environmental sustainability within Sub-Saharan Africa. This study investigates the role of sport in promoting climate action and environmental awareness in Zimbabwe. Specifically, it examines how team identification, athlete credibility, institutional capacity, and collaborative governance influence environmentally responsible behaviour among sports spectators and stakeholders. The study further proposes the Greening the Game Framework, a context-specific model designed to integrate sport into national climate action strategies. The study adopted a pragmatic research philosophy using a convergent parallel mixed-methods design. Quantitative data were collected from 650 sports spectators attending football and cricket events in Harare, Bulawayo, and Zvishavane, while qualitative data were obtained through semi-structured interviews with 24 key informants drawn from sports governing bodies, environmental agencies, local authorities, and corporate organizations. Quantitative data were analyzed using descriptive and inferential statistics, whereas qualitative data were analyzed using thematic analysis. Findings from both strands were integrated through joint display analysis. The findings indicate that strong team identification significantly predicts spectators' willingness to adopt environmentally responsible behaviours ($\beta = 0.43, p < 0.001$). Athletes were perceived as more credible communicators of climate-related information than traditional political institutions ($\beta = 0.38, p < 0.001$), highlighting the potential of athlete-led environmental advocacy. Although participants expressed strong support for sustainability initiatives, institutional barriers including limited financial resources, fragmented governance, and aging infrastructure constrained implementation. Public-Private Partnerships and Environmental, Social, and Governance (ESG) investment emerged as critical mechanisms for supporting sustainable sports infrastructure and community-based environmental programmes. This study demonstrates that sport has substantial potential to contribute to climate action, environmental education, and sustainable development in Zimbabwe. By integrating behavioural, organizational, and governance perspectives, the proposed Greening the Game Framework offers a practical roadmap for embedding sustainability within the sporting sector. The findings provide

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valuable+ insights for policymakers, sports administrators, environmental agencies, and development partners seeking innovative approaches to climate resilience across Zimbabwe and comparable Sub-Saharan African contexts.

Keywords: Climate action, environmental sustainability, sport for sustainable development, social identity theory, environmental communication, Zimbabwe, sports governance, greening the game framework.

INTRODUCTION

Climate change is widely recognized as one of the greatest environmental, social, and economic challenges confronting humanity. Rising global temperatures, biodiversity loss, extreme weather events, prolonged droughts, flooding, and ecosystem degradation are increasingly affecting countries regardless of their level of development. In Sub-Saharan Africa, these impacts are particularly severe because many economies depend heavily on climate-sensitive sectors such as agriculture, tourism, and natural resource-based livelihoods. Zimbabwe has experienced recurrent droughts, declining agricultural productivity, increasing water scarcity, heatwaves, and biodiversity loss, all of which threaten food security, public health, economic stability, and sustainable development [1].

While scientific understanding of climate change has expanded considerably, translating environmental knowledge into widespread behavioural change remains a persistent challenge. Conventional climate communication strategies often rely on governmental campaigns, technical reports, and formal education programmes. Although these approaches are essential, they frequently struggle to engage diverse audiences or inspire sustained behavioural change. Increasingly, researchers argue that trusted social institutions capable of shaping public values, identities, and collective action are needed to complement traditional environmental policy interventions [2].

Sport represents one such institution. Across the world, sport occupies a unique position within society by bringing together individuals from diverse cultural, economic, and political backgrounds through shared experiences, emotional attachment, and collective identity. Sporting events attract millions of spectators annually, while athletes often serve as influential public figures whose messages extend beyond competition into broader social issues. Consequently, sport has evolved from a recreational activity into a recognized platform for health promotion, peacebuilding, social inclusion, education, and community development. More recently, international organizations have begun to acknowledge its potential contribution to environmental sustainability and climate action [3].

The United Nations Framework Convention on Climate Change (UNFCCC) Sports for Climate Action Framework has encouraged sports organizations to reduce their environmental impacts while using their influence to promote climate awareness and sustainable behaviour. Similarly, the International Olympic Committee (IOC), international sports federations, and professional sports organizations have adopted sustainability strategies aimed at reducing carbon emissions, improving resource efficiency, and engaging supporters in environmental stewardship. These developments illustrate an important shift in understanding sport not only as a sector affected by climate change but also as a potential contributor to climate solutions [4].

Despite these international developments, research examining the intersection of sport and environmental sustainability remains concentrated in Europe, North America, and Australia. Much of the existing literature focuses on professional sport organizations with substantial financial resources, advanced governance systems, and well-developed sustainability programmes. Comparatively little empirical evidence exists regarding how sport can contribute to climate action in lower-resource settings, particularly within Sub-Saharan Africa. Consequently, there remains limited understanding of how behavioural, institutional, and governance factors influence the implementation of sport-based environmental initiatives within developing countries [5].

Zimbabwe provides a compelling context for addressing this knowledge gap. The country faces significant environmental challenges while maintaining a vibrant sporting culture centred on football, cricket, athletics, and community sport. Sports organizations possess extensive community networks capable of reaching diverse populations, particularly young people, who represent a critical audience for climate education and sustainable behaviour. However, financial constraints, aging infrastructure, fragmented governance arrangements, and competing development priorities may limit the capacity of sports organizations to implement environmental initiatives effectively. Understanding how these opportunities and constraints interact is essential for designing contextually appropriate strategies that integrate sport into national climate action efforts.

This study therefore investigates the role of sport in promoting climate action and environmental awareness in Zimbabwe. Drawing on Social Identity Theory and the UN Sports for Climate Action Framework, the study examines how team identification, athlete credibility, institutional capacity, and collaborative partnerships influence environmentally responsible behaviour among sports spectators and stakeholders. In doing so, the study moves beyond descriptive accounts of sport and sustainability by developing and empirically examining an integrated framework that explains how behavioural processes and institutional capacity can jointly support climate action [6].

A central contribution of this research is the development of the Greening the Game Framework, a context-sensitive model that integrates behavioural theory, environmental communication, sports governance, and sustainable financing into a unified approach for promoting climate resilience through sport. By positioning sport as both a behavioural catalyst and an institutional partner in environmental governance, the framework extends existing scholarship while providing practical guidance for policymakers, sports organizations, environmental agencies, and development partners.

Although Zimbabwe has adopted policies aimed at addressing climate change and promoting sustainable development, environmental awareness and community participation remain uneven across many sectors of society. Existing climate communication initiatives are largely driven by government agencies, educational institutions, and environmental organizations, with relatively limited involvement of the sports sector despite its extensive social influence and public reach. At the same time, sports organizations face challenges including limited financial resources, aging infrastructure, fragmented governance, and the absence of coordinated environmental sustainability strategies. As a result, the potential of sport to support climate action, influence pro-environmental behaviour, and strengthen environmental governance remains largely unexplored within the Zimbabwean context. This gap limits evidence-based policy development and the effective integration of sport into national climate adaptation and sustainability initiatives [7].

The relationship between sport and environmental sustainability has attracted growing scholarly attention over the past two decades. Existing studies have primarily examined environmental management practices within professional sports organizations, carbon reduction strategies for mega sporting events, sustainable stadium design, and corporate environmental responsibility in sport (McCullough et al., [6] 2020; Mallen & Chard, [4] 2012; Trendafilova & McCullough, [10] 2014). More recent research has explored the potential of sport to contribute to environmental education, climate advocacy, and the achievement of the United Nations Sustainable Development Goals (Collison et al., [2] 2019; Orr et al., [8] 2022). Collectively, this body of literature demonstrates that sport possesses considerable capacity to promote environmental awareness while simultaneously reducing its ecological footprint.

Despite these advances, several important gaps remain: Existing scholarship is heavily concentrated in global contexts where sports organizations operate within relatively well-resourced institutional environments. Consequently, there is limited empirical understanding of how environmental sustainability initiatives are implemented in developing countries characterized by financial

constraints, institutional fragmentation, and limited environmental infrastructure. Most previous studies have focused on organizational environmental performance rather than the behavioural mechanisms through which sport influences public engagement with climate action. Comparatively few studies have investigated how team identification, athlete credibility, supporter loyalty, and social identity influence pro-environmental behaviour among sports spectators.

Previous research has often examined behavioural, organizational, and governance dimensions of environmental sustainability independently. Few studies have adopted an integrated perspective that simultaneously considers individual behaviour, institutional capacity, policy frameworks, and collaborative partnerships as interconnected determinants of sustainable sport.

Limited research has investigated the role of athlete advocacy as an environmental communication strategy within developing countries. Although athletes increasingly participate in global climate campaigns, empirical evidence examining their credibility, influence, and effectiveness as environmental ambassadors remains relatively scarce, particularly within Sub-Saharan Africa.

No known study has developed a context-specific framework for integrating sport into Zimbabwe's national climate action agenda. Existing international models provide valuable guidance but may not adequately reflect Zimbabwe's unique institutional structures, socio-economic realities, environmental priorities, and sporting culture [9].

The primary aim of this study was to investigate the role of sport in promoting climate action and environmental awareness in Zimbabwe by examining how behavioural, institutional, and governance factors influence environmental sustainability within the sporting sector and by developing an integrated framework for mainstreaming sport into national climate action strategies.

Research Objectives

1. To examine the extent to which team identification influences pro-environmental behaviour among sports spectators in Zimbabwe.
2. To evaluate the effectiveness of athletes and sports organizations as credible communicators of climate change and environmental sustainability messages.
3. To identify the institutional, organizational, and governance factors influencing the implementation of environmental sustainability initiatives within Zimbabwe's sporting sector.
4. To examine the role of collaborative partnerships, including Public-Private Partnerships (PPPs) and Environmental, Social and Governance (ESG) investment, in supporting sustainable sport initiatives.
5. To analyze the relationship between behavioural willingness and institutional capacity in promoting climate action through sport.
6. To develop and validate the Greening the Game Framework as a context-specific model for integrating sport into Zimbabwe's climate action and environmental sustainability agenda.

Research Questions

1. How does team identification influence pro-environmental behaviour among sports spectators in Zimbabwe?
2. To what extent are athletes and sports organizations perceived as credible communicators of climate change and environmental sustainability messages?
3. What institutional and governance challenges constrain the implementation of environmental sustainability initiatives within Zimbabwe's sporting sector?
4. How can Public-Private Partnerships and ESG investment strengthen environmental sustainability within sport?
5. How do behavioural and institutional factors interact to influence climate action through sport?
6. How can the proposed Greening the Game Framework support the integration of sport into Zimbabwe's national climate adaptation and sustainability strategies?

Research Hypotheses

- H₁: Team identification has a significant positive effect on spectators' pro-environmental behaviour.
- H₂: Athlete credibility has a significant positive influence on environmental awareness among sports spectators.
- H₃: Organizational commitment to sustainability positively influences public support for environmental initiatives.
- H₄: Institutional capacity significantly predicts the successful implementation of environmental sustainability programmes within sports organizations.
- H₅: Collaborative governance positively moderates the relationship between organizational capacity and environmental sustainability outcomes.
- H₆: Public-Private Partnerships and ESG investment significantly enhance the implementation of green sport initiatives.

The study extends Social Identity Theory by demonstrating that the psychological attachment individuals develop toward sports teams can influence environmental attitudes and behaviours. It further contributes to Environmental Communication Theory by identifying athletes and sports organizations as trusted communicators capable of enhancing climate awareness. Additionally, the research advances Sport for Sustainable Development scholarship by providing empirical evidence from Zimbabwe, thereby addressing a significant geographical gap within existing literature.

Methodologically, the study demonstrates the value of a convergent parallel mixed-methods design for investigating complex sustainability challenges. The integration of quantitative and qualitative evidence provides a more comprehensive understanding of behavioural, institutional, and governance factors than would be possible through a single methodological approach.

The findings provide sports administrators with evidence-based strategies for integrating environmental sustainability into organizational governance, event management, and supporter engagement. They also identify practical opportunities for athlete advocacy, community participation, and corporate collaboration to strengthen environmental stewardship.

The study provides policymakers with evidence supporting the integration of sport into Zimbabwe's climate adaptation and environmental governance strategies. The proposed Greening the Game Framework offers a practical roadmap for developing a National Green Sport Policy aligned with national climate priorities and international sustainability commitments.

This study focused on the role of organized sport in promoting climate action and environmental awareness within Zimbabwe. The investigation primarily examined football and cricket because of their widespread participation, organizational maturity, and national visibility. Data were collected from sports spectators attending selected sporting events and from key stakeholders representing sports organizations, environmental agencies, government institutions, local authorities, and the private sector. The study was confined to behavioural, organizational, and governance dimensions of environmental sustainability and does not directly assess the ecological impacts of specific sporting facilities or measure environmental indicators such as carbon emissions or biodiversity outcomes [10].

Literature Review

Climate change has become one of the defining challenges of the twenty-first century, affecting ecological systems, economic development, public health, food security, and social stability across the globe. The frequency and intensity of climate-related disasters including prolonged droughts, floods, heatwaves, cyclones, biodiversity loss, and water scarcity have increased significantly, with disproportionate consequences for developing countries that possess limited adaptive capacity.

According to the Intergovernmental Panel on Climate Change, climate change is no longer a future environmental concern but a contemporary crisis requiring urgent and coordinated action across all sectors of society.

Historically, climate action has been approached through environmental regulation, technological innovation, scientific research, and international policy agreements. While these approaches remain indispensable, growing evidence suggests that technological and policy interventions alone are insufficient to achieve the large-scale behavioural and institutional transformation required for climate resilience. Increasing attention has therefore shifted toward understanding how influential social institutions including education, religion, media, culture, and sport can facilitate environmental awareness, shape social norms, and encourage sustainable behaviour.

Sport has emerged as one of these influential institutions. Beyond its traditional roles in recreation and competition, sport is increasingly recognized as a powerful platform for promoting health, social inclusion, peacebuilding, education, gender equality, and sustainable development. The enormous global reach of sport, combined with the emotional attachment supporters develop toward athletes and teams, provides unique opportunities to influence public attitudes and behaviours on issues extending beyond sport itself. International organizations such as the United Nations Framework Convention on Climate Change, the International Olympic Committee, and numerous international sports federations have consequently positioned sport as an important contributor to global sustainability and climate action initiatives.

The scientific consensus regarding anthropogenic climate change has strengthened considerably over the past three decades. Successive assessment reports produced by the Intergovernmental Panel on Climate Change conclude that human activities particularly the combustion of fossil fuels, deforestation, industrial production, and unsustainable land-use practices have increased atmospheric greenhouse gas concentrations to unprecedented levels. These emissions have contributed to rising global temperatures, accelerating sea-level rise, increasing the frequency of extreme weather events, and disrupting ecological systems upon which human societies depend [11].

Environmental sustainability has become an increasingly prominent research theme within sport management, reflecting growing recognition that sport is both affected by climate change and capable of contributing to climate mitigation and adaptation. Recent systematic reviews demonstrate that scholarship has expanded beyond environmental management of sporting events to include governance, environmental education, behavioural change, and sustainability through sport. Recent research suggests that environmental sustainability has evolved from a peripheral concern in sport management to a central strategic priority, with increasing emphasis on governance, stakeholder engagement, environmental education, and sustainable infrastructure (Cury et al., [12]2023; Gregori-Faus et al., [13]2025).

However, the literature remains dominated by studies conducted in North America and Europe, with comparatively limited evidence from developing countries, particularly Sub-Saharan Africa. This geographical imbalance restricts understanding of how environmental sustainability initiatives operate within resource-constrained settings characterized by different governance structures, financial capacities, and socio-cultural contexts. Consequently, scholars have called for greater empirical investigation in lower- and middle-income countries to develop more contextually relevant theories and implementation frameworks.

Theoretical and Conceptual Framework

This study is grounded primarily in Social Identity Theory (SIT), which explains how group membership influences attitudes, behaviours, and collective action, and is complemented by Environmental Communication Theory, which explains how environmental messages are created,

communicated, and interpreted to encourage behavioural change. These theoretical perspectives are further reinforced by the United Nations Sports for Climate Action Framework, which provides an internationally recognized governance model for integrating environmental sustainability into sport.

Social Identity Theory (SIT) was originally developed by Henri Tajfel and John Turner during the 1970s and 1980s to explain how individuals construct their identities through membership of social groups (Tajfel & Turner, [9]2001). Within sport, the theory has become one of the most influential frameworks for understanding supporter behaviour, team loyalty, organizational commitment, and fan engagement. Highly identified supporters are more likely to adopt behaviours promoted by their clubs because these behaviours reinforce group membership and social belonging. When sustainability becomes integrated into club culture, environmentally responsible actions reinforce supporter identity while simultaneously contributing to broader environmental goals.

Environmental Communication Theory examines how environmental issues are communicated to influence public understanding, attitudes, and behaviour. Trust, messenger credibility, cultural relevance, and emotional engagement significantly influence public responses to environmental information. Athletes possess high public visibility, strong emotional connections with supporters, perceived authenticity, and role-model status, making them effective environmental ambassadors capable of promoting recycling, biodiversity conservation, climate awareness, and sustainable lifestyles.

The United Nations Sports for Climate Action Framework provides the international governance context for this study. It encourages sports organizations to reduce environmental impacts while using their influence to promote climate awareness. The framework is based upon five broad principles: climate responsibility, carbon reduction, sustainable consumption, climate education, and collaboration/advocacy. These principles provide the governance foundation upon which the proposed Greening the Game Framework is developed.

Methodology

This study adopted a pragmatic research philosophy and employed a convergent parallel mixed-methods design. Pragmatism prioritizes the research problem over adherence to a single methodological tradition, allowing the integration of objective quantitative measurements with subjective qualitative experiences. Quantitative and qualitative data were collected during the same phase of the study, analyzed separately, and subsequently integrated to provide a comprehensive understanding of the research problem.

The study was conducted in Zimbabwe, with data collection undertaken across three distinct urban centres hosting major sporting events: Harare, Bulawayo, and Zvishavane. The quantitative population consisted of spectators attending organized football and cricket matches. The qualitative component comprised 24 key informants selected from organizations directly involved in sport governance, environmental management, climate policy, community development, and corporate sustainability.

A stratified random sampling approach was used to ensure representation across football and cricket spectators from different venues and demographic groups, yielding $N = 612$ usable responses from an initial target of 650. Purposive sampling was employed to identify information-rich participants possessing extensive knowledge of sport governance or climate policy ($N = 24$), continuing until thematic saturation was achieved. Quantitative data were captured via a structured 5-point Likert scale questionnaire adapted from validated instruments. Qualitative insights were gathered via a semi-structured interview guide covering institutional barriers, athlete advocacy, and Public-Private Partnerships.

Quantitative data were analyzed using descriptive and inferential statistics (Pearson correlation and multiple regression analysis via SPSS). Qualitative data were processed using thematic analysis to identify core conceptual narratives. Data integration was achieved using a joint display analysis matrix to cross-examine statistical coefficients against stakeholder insights.

Results

The data collection phase yielded a 94.2% response rate for the quantitative survey and a 100% completion rate for the qualitative interviews (Table-1).

Hypothesis Testing and Regression Models

Multiple regression analysis was conducted to test the conceptualized structural paths. All six hypotheses were statistically supported (Table-2).

Qualitative Thematic Syntheses

Thematic analysis of the semi-structured interviews extracted five main overarching themes:

- *Sport as a Trusted Platform for Climate Awareness:* Participants consistently viewed sport as an effective platform for communicating environmental messages. As noted by one key informant. *“Football reaches communities that environmental campaigns often struggle to engage. If clubs and players champion climate awareness, people are more likely to listen.”*
- *The Potency of Athlete Influence:* Interviewees described athletes as highly influential environmental ambassadors, particularly for reaching younger populations. *“Young people admire sports personalities. Their messages about protecting the environment carry far more weight than many official campaigns.”*
- *Institutional and Structural Constraints:* Despite strong willingness, severe financial limitations, inadequate infrastructure, and fragmented governance systems act as major systemic bottlenecks. *‘The desire to implement sustainability initiatives exists, but clubs lack funding and technical expertise.’*
- *Strategic Partnership Opportunities:* Multi-stakeholder alignment between sports bodies, municipal authorities, environmental regulators, and private enterprises was identified as highly necessary. Most of the stakeholders emphasized the urgent need for a unified National Green Sport Policy to effectively align localized initiatives with national climate goals.

Table 1. Instrument descriptive and reliability matrix.

Variable	Mean	SD	Interpretation	Cronbach's α
Team identification	4.28	0.61	High	0.89
Athlete credibility	4.11	0.66	High	0.87
Environmental awareness	4.06	0.63	High	0.91
Institutional capacity	3.29	0.84	Moderate	0.85
Collaborative governance	3.54	0.78	Moderate	0.88
Pro-environmental behaviour	3.98	0.69	High	0.90

Table 2. Summary of structural hypotheses results.

Hypothesis	Structural path	Standardized β	p-value	Decision
H ₁	Team identification → Pro-environmental behavior	0.43	< 0.001	Supported
H ₂	Athlete credibility → Environmental awareness	0.38	< 0.001	Supported
H ₃	Org. sustainability commitment → Public Support	0.31	< 0.002	Supported
H ₄	Institutional capacity → Sustainability implementation	0.46	< 0.001	Supported
H ₅	Collaborative governance × capacity → Outcomes	0.28	< 0.006	Supported
H ₆	ESG investment → Green sport implementation	0.35	< 0.001	Supported

DISCUSSION

The empirical findings support the core premise of this study: sport is a viable, high-impact catalyst for environmental sustainability and climate action within Zimbabwe. The structural path confirmation of H_1 ($\beta = 0.43$) and H_2 ($\beta = 0.38$) highlights that sports organizations can leverage the emotional equity of team identification and athlete credibility to bypass traditional communication barriers. This confirms that social identity plays a key role in building pro-environmental behaviors in settings where formal government messaging may be met with public detachment.

However, as highlighted by the lower mean score of Institutional Capacity (Mean = 3.29) and the verification of H_4 and H_5 , behavioral willingness alone is insufficient. The qualitative insights clarify those structural deficiencies ranging from water-stressed sporting arenas to lack of waste management infrastructure at stadiums limit the realization of pro-environmental intentions. Therefore, the implementation of sustainable sports requires a mix of private corporate sponsorships, explicit ESG targets (H_6 , $\beta = 0.35$), and collaborative governance frameworks to bridge resource gaps.

The Greening the Game Framework

To operationalize these findings into an actionable strategic tool, this study proposes the Greening the Game Framework. The model maps out a multi-tiered approach designed specifically for resource-constrained sports ecosystems

This study demonstrated that sport has substantial potential to contribute to climate action, environmental education, and sustainable development in Zimbabwe. By integrating behavioural, organizational, and governance perspectives, the proposed Greening the Game Framework offers a practical roadmap for embedding sustainability within the sporting sector.

Based on the empirical insights, the following policy interventions are recommended: The Ministry of Sports, Recreation, Arts and Culture, in coordination with the Ministry of Environment, Climate and Wildlife, should establish a policy framework mandating environmental criteria for sports organizations. Sports governing bodies (such as ZIFA and Zimbabwe Cricket) should actively train athletes as climate ambassadors, utilizing their social capital to lead community-based environmental initiatives. The government should offer tax incentives and structural relief for private corporations that invest in green sports infrastructure upgrades via Public-Private Partnerships. Municipal authorities should integrate mandatory eco-efficiency targets (waste reduction, solar energy transitions, rainwater harvesting) into stadium lease and management agreements.

CONCLUSION

Sport has significant potential to serve as a catalyst for climate action by raising environmental awareness, promoting sustainable behaviours, and mobilizing communities toward environmental stewardship. The Greening the Game Framework provides a practical and inclusive approach for integrating sustainability into sporting activities through environmentally responsible infrastructure, waste management, climate education, and community participation. In Zimbabwe, where climate change continues to threaten livelihoods, biodiversity, and socio-economic development, leveraging the widespread appeal and influence of sport offers an effective platform for encouraging environmental responsibility across all age groups.

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