

Review

Literature review of impacts of mega-sport global events on destination sustainability and sustainability marketing—Reflection on Qatar 2022 FIFA World Cup

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Abstract: Qatar FIFA 2022 was the first FIFA Football World Cup to be hosted by an Arab state and was predicted by some to fail. However, it did not only succeed but also showed a new display of destination sustainability upon hosting mega-sport events and linked tourism. Yet, some impacts tend to be long-term and need further analysis. The study aims to understand both positive and negative impacts on destination sustainability resulting from hosting mega-sport events, using bibliometric analysis of published literature during the last forty-seven years, and reflecting on the recent World Cup 2022 tournament in Qatar. A total of 2519 sources containing 665 open-access articles with 10,523 citations were found using the keywords “sport tourism” and “mega-sport”. The study found various literature researching the economic impacts in-depth, less on environmental impacts, and much less on social and cultural impacts on host communities. Debates exist in the literature concerning presumed economic benefits and motivations for hosting, and less on actual results achieved. Although World Cup 2022 is considered the most expensive among previous versions, destination sustainability seems to have benefited from the event’s hosting. Socio-cultural impacts of hosting mega-sport events seem to be addressed to an extent in the Qatar version of the World Cup, as well as environmental impacts while creating a unique image for FIFA 2022 and the destination itself. FIFA showcased this as using carbon-neutral technologies to create the micro-climate including perforated walls in the eight state-of-the-art stadiums, with the incorporation of a circular modular design for energy and water efficiency and zero-waste deconstruction post-event. The global event also drew attention and respect to the local community and underprivileged groups such as people with disabilities. Further research is needed to understand the demand-side perspective including the local community of Qatar and the event’s participants, and to analyze the long-term impacts and lessons learned from the Qatari experience.

Keywords: Arabian Gulf; circular tourism; sport for development; socio-cultural sustainability; climate-neutral tourism; destination image; legacy; soft power; responsustainable tourism; ReSOLVE; circular economy; MENA region; Islamic culture; Giga-sport; psychic income; digital twin technology

1. Introduction

Tourism sustainability has been a hot topic both for academia and the tourism industry, with the latter being at the forefront of fast-growing industries with potential positive economic and social impacts, but also with adverse externalities that needed sustainability principles to counteract. Several terms are used to express that role including sustainable tourism, responsible tourism, ecotourism, destination sustainability, and circular tourism. Mihalic (2016) introduced the term “responsustainable tourism” to include both values and actions.

Tourism is considered the most growing industry seeking economic development by attracting more tourists every year, but also with externalities of negative environmental and social impacts. Tourism sustainability has been an interesting topic of research and debate for the past five decades. Recent research links lessons and restrictions imposed by the pandemic to the opportunity that the tourism industry now has to shift to a circular sustainable business. More and more attention is paid to the relationship with Mother Nature, and to finding ways to avoid environmental and social impacts in all possible tourist activities and processes starting from the design stage, according to circular economy principles (Juma et al., 2020). New trends in sustainable tourism that started to gain importance, especially with COVID restrictions and concerns are staycation and slow tourism, both implying spending more time to appreciate local or neighboring nature and offerings than simply traveling at speed (Al-Muhannadi et al., 2021).

Mega-sport events refer to large-scale ambulatory competitions of fixed duration and high profile, that come with huge expenses and have remarkable environmental and socio-cultural impacts (Hiller, 2000; Horne, 2007; Mills and Rosentraub, 2013; Müller, 2015). Examples of mega-sport events are the Summer and Winter Olympic Games (SWOG), the Football World Cup, the Asian Games, and the European Football Championship. The 22nd international football competition, FIFA World Cup (FFC), was held in 2022 in Qatar, between 20 November to 18 December, after 12 years of being declared as host. It was only the second World Cup where all matches were held exclusively in Asia following the 2002 World Cup that was hosted in South Korea and Japan in 2002, and it represents the first World Cup to be held in the Arab and Islamic World.

Sports tourism and mega-sport events are gaining growing interest in literature and among cities. One reason for hosting mega-sport events or Mega-events is the expected flow of fans from different places making the host a touristic destination at the time of the event, but also serves as an introduction to the destination for potential plans. Mega-sport tourism received some literature interest in terms of its impact on host cities, as well as the hosting countries, and regions. Impacts are often related to the mass tourism created at the event’s site, mostly on economic impacts and less on cultural impacts. Environmental impact was touched on in some literature. According to Preuss (2015), motivations for hosting a mega-sport event are manifold, most of which concerns opportunities for favorable development rather than the event itself. In a book published in 2022 titled “Entering the Global Arena: emerging states, soft power strategies, and sports mega-events”, Grix et al. (2019) referred to the case study of Qatar and its small size as “an outlier” compared to several much larger countries

hosting the World Cup like Russia, India, Brazil, China, and South Africa. Contrasting it with the other case studies, Grix et al. (2019) consider Qatar as a new player based on Qatari athletes and teams' short history of competing in mega-sport events. Despite this argument, however, there is no conclusive tie between a country's performance in games and its ability to host a mega-sport event. There is no direct relationship for instance between football results and the global market value according to Geyer-Klingenberg et al. (2018), who conducted a comprehensive review to analyze research that addressed the correlation between stock market behavior and football matches, concluding that victory is insignificant. This was concluded using Meta-regression analysis based on, a sample of responses of over 1100 empirical estimates of the stock market to football games gathered from thirty-seven main research combined (Geyer-Klingenberg et al., 2018), as their results showed that no evidence winning a game has a major impact on other teams or national football teams. Furthermore, Qatar is considered among the most active states in terms of sports, globally, derived from its huge investment, acquisition, and hosting of regionally and globally important sports events. This and more made Qatar, in the opinion of Grix et al. (2019), an interesting case study for state-driven sports politics.

While studying mega-sport tourism impacts on destinations hosting global events, it is imperative that a clear understanding is acquired of destination sustainability that is affected by the impacts, negative and positive, of hosting gigantic global events and thereby accommodating hundreds of thousands of tourists from different places and cultures for days, possibly weeks, providing their needs as sports fans, but also as individuals and groups, and attempting to make it a memorable positive experience for each one of them, but with a successful outcome for the host, while minimizing adverse environmental impacts, on destination's economy and local communities. According to Dolles and Söderman (2008), it is important to recognize the contribution that sports and mega-sport events make to sustainable development, as this is an economy with unprecedented international communication and impact. Hosting global mega-sport tournaments was argued to impact host countries in both negative and positive ways by different literature. The International Federation of Football Association (FIFA) World Cup Football games and Olympic games were found to impact host countries in different ways, ranging from short-term during the actual event, to long-term effects on the host country's reputation, its environment, or its people. Similarly, positive impacts were examined and discussed in literature with a focus on the growth of tourism, economy, host cities infrastructure, and destination branding. Qatar's experience was analyzed in light of the literature review as well as current reports, news, and official releases. This was analyzed to form an understanding of World Cup 2022 impacts on Qatar as the host country holding the most recent tournament. The importance of reflecting on Qatar extends to it being the first MENA region country to host the World Cup, as well as other significant factors such as being an Islamic Arabian Gulf country with strong cultural traditions and values, great wealth and advancement, and from being a small state with the limited land surface area of around 11,500 square kilometer (Qatar PSA, 2021), and a small population of less than 3 million (Qatar PSA, 2023), while expected to accommodate hundreds of thousands of international sports fans—all making the experience and possible impacts unique.

This paper is a literature review of mega-sport events' impact on tourism sustainability. It covers the three pillars of sustainability and focuses on destination image-building, a goal that is often used as justification for betting on hosting these events for the expected exposure and destination marketing that is considered by some as an automatic result of the hosting of such popular sports events that are often attended by hundreds of thousands and followed all over the world by millions or even billions. The paper also uses cases of the most current mega-sport event that occurred towards the end of 2022 in the state of Qatar, the first Arabian state to be awarded the hosting of a World Cup tournament.

Bibliometric analysis followed by a literature review and content analysis of published official statements, statistics, and reports also took place, and the results were analyzed against the first literature review's findings to form an understanding of potential impacts on Qatar in relevance to hosting the 2022 FFC. The first part of the analysis seeks to understand the most important issues in the field of tourism sustainability and the new trends as well as challenges and success stories in applying sustainable tourism on the ground. It covers a large span of years of defining sustainable tourism, exploring it in theory, and putting it to the test in practice. It also includes parallel and complementary terms used by scholars to answer a need for tourists to practice responsible behavior or fill a gap in the conceptualization of sustainability in relevance to tourism and destinations.

The second part of the analysis aims to explore existing scientific work in the field of linking mega events and mega sports events to tourism and, in particular, tourism sustainability and to find research gaps in this field. It focuses more on FFC tournaments as well as the SWOG being the most gigantic global sports event with the tendency to attract visitors in droves to the hosting countries or cities where the events are held.

This paper provides a first effort to shed light on the impacts of hosting a mega-sport event on tourism and other aspects of the hosting country of the 2022 FFC. It is recommended to follow it with a more in-depth measure of perception from the demand and supply side; that is, the local community, the tourists, and the tourism authority. The use of questionnaires and more FGD and interviews of relevant groups and individuals could help form a clearer view and confirm the results of this paper.

Destination sustainability marketing and the role of the local community and soft marketing powers could be a topic for a follow-up study on Qatar's unique experience with hosting such a mega-sport event on a global scale. It is the opinion of the authors that what we have seen in the Qatar Football World Cup and other gigantic tournaments may have much greater potential to benefit humanity and the environment if best practices are fully understood and applied in future events, especially when we are heading to giga-events.

2. Method

Several systematic steps were followed to ensure a comprehensive review and rigorous analysis of the relevant studies.

Figure 1 shows a flowchart of this process.

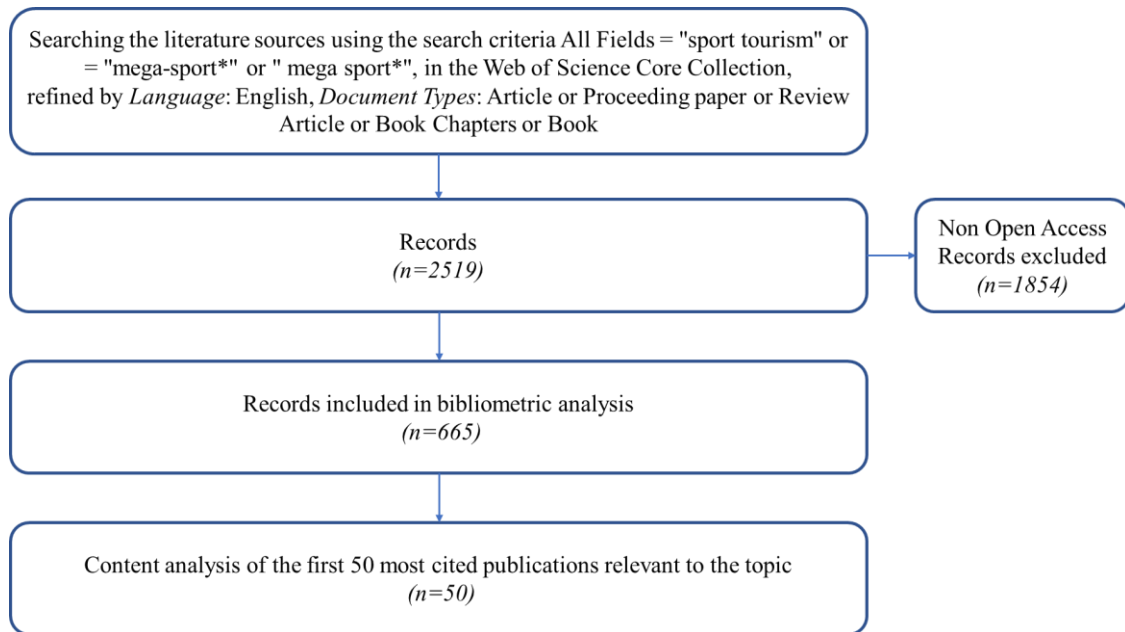


Figure 1. Data extraction for bibliometric analysis and literature review.

Source: own edition.

The research centered on mega-sport events’ impacts on destination sustainability, especially in terms of economic, sociocultural, and environmental aspects. The data used for bibliometric analyses (Donthu et al., 2021) were extracted from the Web of Science Core Collection. The first step involved conducting a logical search for publications on sport tourism and mega-sport: All Fields = ALL = (“mega-sport”), All Fields = “sport tourism” or = “mega-sport*” or “mega sport*”.

A total of 2519 documents were filtered according to language (English) and document type (journal article, conference paper, book chapter, and review article). For the bibliometric analysis, 665 Open Access items were selected. Using VOS viewer software (Effendi et al., 2021), bibliometric analysis of these publications was performed using keywords defined by the authors.

An in-depth review of the 50 most cited publications was conducted to extract detailed information on the economic, social, and environmental impacts. This stage involved critical analysis and synthesis of findings from each study.

The literature review findings were cross-referenced with recent reports, news articles, and official announcements related to the Qatar 2022 FFC to ensure accuracy and validity.

Bibliometric analysis of mega sport events related publications

The data used for bibliometric analyses were extracted from the Web of Science Core Collection. The first step involved conducting a logical search for publications on sport tourism and mega-sport: All Fields = ALL= (“mega-sport”), All Fields = “sport tourism” or = “mega-sport*” or “mega sport*”.

A total of 2519 documents were filtered according to language (English) and document type (journal article, conference paper, book chapter, and review article). For the bibliometric analysis, 665 Open Access items were selected. Using VOS

viewer software, bibliometric analysis of these publications was performed using keywords defined by the authors.

Four clusters were determined based on the co-occurrence of keywords (**Figure 2**). Co-occurrence is denoted by the thickness of the connecting lines between keywords. Different circle sizes indicate the relative importance of different keywords and key phrases: circles with larger diameters indicate concepts that appear more frequently. The association relationship between the two keywords was determined by comparing the number of co-occurrences with the series of individual occurrences when forming clusters.

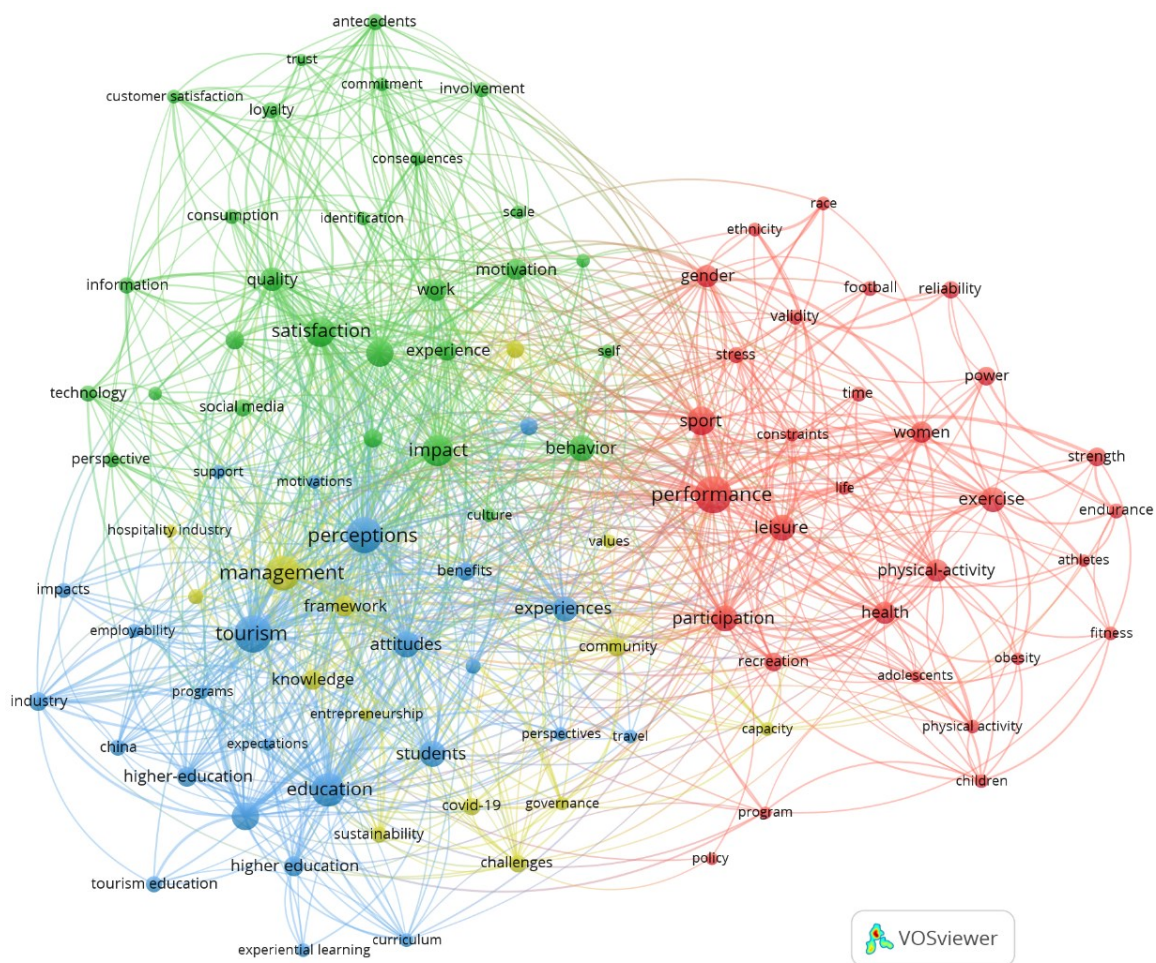


Figure 2. Keyword network of publications in the field of sports tourism and mega sports.

Source: authors' edition based on the Web of Science Core Collection database, $n = 665$.

There are a variety of keywords in the green cluster, including satisfaction, experience, impact, social media, work, motivation, behavior, culture, involvement, loyalty, and perspective, which are interrelated to illustrate the global impact of Mega-Sport Global Events (MSGEs). These events influence satisfaction, experience, social media engagement, work motivation, behavior, culture, involvement, loyalty, and perspectives of various stakeholders.

The blue cluster refers to the role of education and higher education on the perception of the impacts of tourism and MSGEs. As well as providing opportunities

for learning, community engagement, and economic growth, these events present challenges that require careful management and collaboration among stakeholders.

The yellow keywords cluster demonstrates the interconnectedness of management practices, knowledge management, and strategic planning in addressing MSGEs' challenges. The hospitality industry can ensure positive outcomes for both businesses and the host communities by emphasizing sustainability, community engagement, and effective governance.

A red keyword cluster refers to MSGEs having a multidimensional impact on performance, leisure, physical activity, participation, recreation, and health. In addition to elevating athletic performance and inspiring wider participation in physical activities, these events are also beneficial for community health and recreation. These events promote active and healthy lifestyles through their integration into local culture. This comprehensive impact underscores the importance of strategic planning and engaging the community to ensure hosting such events for benefit-maximization.

3. Mega-sport tourism sustainability

Sports tourism sustainability has been gaining interest as indicated in the theme of using sports as a vehicle for tourism endeavors. The sustainability of tourism generated from mega-sport events can be analyzed against suitability's three dimensions the economic, the social, and the environmental. The goal of sustainable tourism is always minimizing negative impacts, especially on the environment and society, and maximizing socio-economic gains for the hosting country and local community (Juma and Khademi-Vidra, 2019). Ecotourism principles also dictate that tourism brings benefits and incentives to the local community that promote conservation and environmental protection (Honey, 1999). Considering the size of mega-sports tourists and activities, circular economy principles can be considered from the early stages of the concept and design of the events to achieve that. However, mega-sport events are argued to have been used by hosting countries to achieve political and socio-political (Grix et al., 2019) and economic benefits (Liu and Wilson, 2014; Maennig, 2017; Matheson, 2006; Nyikana et al., 2014; Nyikana and Maloney, 2018; Solberg and Preuss, 2007). Grix et al. (2019) assumed and analyzed their assumption that Qatar is using sports and mega-sports events for its presumed sociopolitical intentions. The article was published in an analytical book some three years before the World Cup 2022 tournament was hosted by Qatar. Their conclusion implied negative impacts on Qatar and even acquiring counter-intended outcomes for the nation's soft power portfolio and foreign standing, possibly leading to some form of "soft disempowerment" (Grix et al., 2019). Accordingly, if Qatar succeeds in hosting the mega-sport event in 2022 and in tackling criticisms from international spectators and entities, then the soft power of Qatar will show (Grix et al., 2019). Now that Qatar succeeded in hosting the 2022 Global Football Tournament, it is worth exploring that soft power. Furthermore, destination sustainability while hosting the mega-sport event and the impacts of this hosting on the three pillars of sustainability are yet to be discussed. Impacts on tourism and on the economy have been the focus of mega-sport events, however, is not much focus on non-monetary impacts including social life and environmental stewardship with 'lack of consensus on their

measurement and focus upon both benefits and costs’ (Mair et al., 2023; Taks et al., 2015). However, the area of the competence of mega-sports to impact social unity and accentuate the sense of euphoria, boosting national unity and pride was addressed by some scholars (Heere et al., 2013; Mair et al., 2023). Looking at literature covering one or more of the three pillars of sustainability in hosting Mega-sport events, economic impacts seem to be double-sided, while environmental impacts seem to be mostly negative, and social impacts seem to be under-researched. **Table 1** provides a summary of the results from the literature review, organized by main topics.

Table 1. Overview of mega-sport events: Literature review on economic, environmental, and socio-cultural impacts of mega-sport events.

Topic	Subtopic	Reference	Interest
Tourism and mega-sport events sustainability development	Tourism sustainability	Mihalic (2016)	Despite several decades of academic and practical debate on tourism sustainability, its application in practice remains difficult. The term “Responsustainable” tourism is suggested to join two existing terms and demonstrate that the current understanding of responsible tourism behavior is based on the concept of sustainable tourism.
		Juma and Khademi-Vidra (2019)	Goal of sustainable tourism is minimizing negative impacts and maximizing socio-economic gains.
		Sharma et al. (2021)	Global shift to sustainable tourism—The tourism industry may transform into a new global economic order: sustainable tourism, society’s well-being, climate action, and the involvement of local communities.
		Getz (2008)	A review of event tourism in academic study. Discussion of implications for the practice of event management and tourism and implications are drawn for advancing theory in event tourism.
		Getz and Page (2016); Most cited (1223)	Extended review to study event tourism updating the previous review article published in 2008 with a deeper analysis of evolution and development, charting the growth of the literature, focusing both chronologically and thematically.
Mega-sport events tourism importance	Motivation for hosting	Müller et al. (2023)	Growth of three of the largest sports tourist events: the Two Olympic Games and the Football World Cup, about 60-fold over the past 50 years, thirteen times faster than the world GDP.
		Grix et al. (2019)	Mega-sport events are argued to have been used by hosting countries to achieve political and socio-political objectives.
		Preuss (2015)	Opportunities for destination development rather than focusing on the event itself—the hosting can bring changes with important consequences for the host city.
		Nyikana et al. (2014); Matheson (2006)	Economic benefits and development with hosting mega-sport events.
		Liu and Wilson (2014, p. 12)	Cities use hosting mega-sport events as tools for building the city image for their tendency to draw large audiences from both home and abroad and generate global media coverage.
Tourism Destination Sustainability with Mega-sport events	Mega-Sport sustainability	Trendafilova et al. (2014)	Shift in sports organizations’ mindset over time towards current environmental initiatives implementation and continuous development.
		Collins et al. (2009)	Suggested using Ecological Footprint analysis and Environmental Input–Output modelling to explore the environmental impacts of mega-sport events in general.
		Graham et al. (2018); Daddi et al. (2022); Trendafilova et al. (2014)	Barriers to adopting sustainability in sport.
		Sharma et al. (2021)	A global shift in all sort of organization’s mindset to the direction of sustainability.

Table 1. (Continued).

Topic	Subtopic	Reference	Interest
Tourism Destination Sustainability with Mega- sport events	Sport organizers and sustainability	Bujdosó and Dávid (2013)	Findings items managers perceive to be a top priority (versus lower priority) and strategic responses to contribute to sustainable development and the importance of special-interest tourism.
	Indicating potential directions for further research	Dolles and Söderman (2008)	Introduction to conceptual and methodological issues related to defining and measuring the impact of mega-sport events, with growing interest in hosting sport events in Asia, indicating potential directions for further research.
	Impact on host	Nyikana et al. (2014)	Long-term positive (Legacy) impacts on the destination as many visitors planned to visit again with good ratings for tourism facilities (using the 2010 FIFA World Cup in Port Elizabeth, South Africa as a case study).
Impact of hosting mega- sporting event	Economic impacts	Maennig (2017)	No majority support for hosting. unequal distribution of net benefits. minority perceive large average net benefits per capita, while the majority suffer net costs.
		Solberg and Preuss (2007)	Long-term economic impacts: government funding is an incentive to exaggerate the benefits. Events can be both costly and risky investments. The challenge for policy makers: to evaluate the true costs, benefits, risks, and leveraging strategies that each event offers.
		Geyer-Klingenberg et al. (2018)	Evidence against the hypothesis: stock markets are driven by sports sentiment in the case of national teams. Due to the existence of strong asymmetry in the returns after wins and losses of individual clubs, behavioral explanations cannot be fully ruled out.
		Geyer-Klingenberg et al. (2018)	Winning a match is not associated with significant return effects for both national teams and individual clubs. In the case of lost matches: publication bias, i.e., negative returns are systematically overrepresented causing a biased picture of the true soccer match effect. regional differences, time period under examination and the design of empirical analysis to be responsible for the wide variation in previous study outcomes.
		Andreff (2008)	Winning the bid to host mega-sport event can be viewed as a winner's curse, in view of all what seems to be linked costs such as delayed completion, financial deficit, cost overruns, project revisions, and debt.
		Whitson and Horne (2006)	Advocates for mega-projects tend to make optimistic economic estimates, whilst opponents worry about public debt and about the 'opportunity costs', when public money is spent on architecturally dazzling stadia and other spectacular infrastructure. Questions asked about discrepancies between predicted and actual outcomes of sports megaevents, and about why hosting is so often the project of political and business elites, and economic impacts of tourism, in the years after the event.
		Liu and Wilson (2014)	The objective of this article is to explore the effect of the national football team's victory in the FIFA World Cup on the winning country's tourism. No conclusive positive relationship was found.
Impact of mega-events on tourist arrivals		Matheson (2006)	This paper provides an overview of the economics of sports mega-events as well as a review of the existing literature in the field. The paper describes why boosters' ex ante estimates of the economic impact of large sporting events tend to exaggerate the net economic benefits of these events and surveys the results of a large number of ex post studies of exploring the true impact of mega-events.
		Fourie and Santana Gallego (2011)	Increase in tourism numbers significantly during the event, but also possible regular tourist displacement: changing time or location of trips.
		The negative impacts of hosting mega- sporting events	Al-Emadi at al. (2022)
		Liu and Wilson (2014)	Travel inconvenience was the most negative impact recorded, followed by price inflation, security, and crime concerns, risk of disease and pollution, and environmental concerns.

Table 1. (Continued).

Topic	Subtopic	Reference	Interest
Socio-cultural impacts	Legacy of mega-sport events and social impact	Preuss (2015)	Legacies affect stakeholders differently - positively for some and negatively for others. It considers how to maximize positive legacies and suggests that these can best be controlled by governmental organizations. Legacies gain and lose power over time and that often a legacy will be activated only if environmental changes offer opportunities.
		Gratton and Preuss (2008)	The positive, or negative, legacy of mega sport events will be considered. A definition of legacy will be given, how legacy might be measured is discussed and the key elements that make up a legacy are identified.
		Liu (2013)	Long-term impacts of hosting mega-sport events can have benefits: the feel-good effect on the host countries' citizens and the international perception effect brings profits to the host countries. World Cup has positive impacts on both developed and developing countries hosting the event with more bias towards developing ones as a result of the new stadium's novelty effect. The novelty effect of new stadiums benefits host countries that are already developed while developing host countries actually suffer a loss from stadiums. Future research in this area should therefore focus on the quantitative measurement of these impacts in order to figure out the full extent of the positive impacts in the host countries.
		Gratton et al. (2000)	Defining legacy and how legacy might be measured and to identify key elements that make up a legacy.
	Impact on quality of life	Heere et al. (2013); Mair et al. (2023); Al-Emadi et al. (2023)	Hosting mega-sport events directly impacts the quality of life of people living in the host communities by triggering various negative and positive short-term and even long-term impacts that are known as 'legacies'.
	Awareness and perception of destination image	Kaplanidou et al. (2016)	higher awareness of the 2022 World Cup being hosted in Qatar improved host destination image perceptions, selective regional country perceptions, country character and relevant behaviors to either travel to Qatar for vacation, for interest to travel to attend the event, or to watch the event on TV.
	Impact assessment	Khalifa (2020)	The different phases of the 2022 FIFA World Cup in Qatar significantly present opportunities for advancing human rights.
	Negative social impacts need clarity	Liu and Wilson (2014); Millington and Wilson (2019)	Positive (but not negative) impacts of mega-sport tourism are clear. e.g., intention to travel to the hosting destination (positive indication of more tourism), has negative impact on the locals: travel inconvenience and price inflation, security and crime concern, risk of disease.
	Soft power	Al Thani (2021)	Global Mega-sport can be used for Development and Peace: investigating whether leveraging the rights and social legacy of migrant workers, as part of broader discourses concerning transparency, integrity and equality, accountability and commitment towards international human rights standards and international development, can restore the host's soft power abilities in the process.
	Environmental sustainability	Early work on sport and environment	Stoddart (1990)
Lenskyj (1998); Lenskyj (2002)			Early Link sport with environment and society, examining the notion of sustainable sport in the context of preparations for the 2000 Summer Olympic Games in Sydney examining the strategy of 'corporate environmentalism', which the organizers have deployed in their attempt to remediate the site of the Games. The study multifaceted link between sport and the environment, focus on environmental and also social impacts of sport, and the greening of sport.

Table 1. (Continued).

Topic	Subtopic	Reference	Interest
Environmental sustainability	Greening sport: golf and environment	Millington and Wilson (2019)	The present-day status quo is such that golf is commonly depicted as a positive force in the quest for sustainable development. For example, and despite sustained criticism of golf’s potential impacts on plants, animals, and ecosystems in general, golf industry representatives commonly tout their leadership on environmental issues. Our analysis in this chapter critiques this present status quo—for instance, by highlighting cases whereby the economic dimension of sustainable development has seemingly overridden its environmental and social analogues.
	Sustainability in sport facility management	Mallen et al. (2010)	The results reveal the state of sport facility ES, including the reported value, financial support, best practices, challenges and delineated competencies for students seeking to enter the field. In addition, emerging trends are discussed based on a vision of ES in the sport facility industry by the year 2015.
	Environmental knowledge gap	Wilby et al. (2022)	knowledge gaps in understanding impacts of sport emissions on climate: mega sport events, elite sport, soccer, skiing, and golf have received most attention, whereas grassroots and women’s sport, activity in Africa and South America, cricket, tennis, and volleyball are understudied.
	Environmental impacts	Collins et al. (2009)	Environmental impacts of mega-sport events in general not just as socio-economic legacy components. More recognition of importance of environmental impacts of mega sporting events and sustainable development, while the environmental impacts of events are difficult to assess quantitatively, being complex and often occurring over extended periods.
	Sport management education and sustainability	Graham et al. (2018)	Barriers to adopting environmental sustainability in sport as a stand-alone course and as a module, makes developing stand-alone coursework a long-term process.
	Environmental degradation and tourism	Shahbaz et al. (2021)	A comprehensive knowledge map of tourism and environmental degradation literature review based on scientific articles published between 1999 and 2020. The study provides an overview of research, influential authors, and journals.
	Resident’s environmental concerns	Liu and Wilson (2014)	Pollution and environmental concerns were among the concerns shared by participants in the study.
Qatar World Cup 2022	Sport stadium management and sustainability	Daddi et al. (2021)	Two dimensions of sustainability in sport management: operational (direct environmental impacts such as waste) and governance (allocation of environmental roles) practices. One challenge is fragmentation of operational practices on the infrastructures or the planning and staging of football events and a lack of maturity of governance structures.
		Russ et al. (2022)	Hosting FIFA World Cup in Qatar 2022 lead to promoting important infrastructural changes social challenges in the country, as well as for transforming the image of Qatar.
		Henderson (2016)	Opportunities and challenges for Qatar in hosting the event including unguaranteed Success in the hosting of FIFA 2022.
		Grix et al. (2019)	Qatar case study is an outlier to the other case studies of countries hosting mega-sport events.
		Matheson (2006)	The challenge for Qatar is to implement required global changes without sacrificing what Matthew Gray describes as its ‘sense of “Qatari-ness”. If it does so, the World Cup will not just be another significant moment in the history of football in the years to come. It will also have long-lasting social and cultural implications for the people of Qatar and their wish to declare a national identity to the world that is unique amidst a wider mosaic of Muslim and Arab identities.
		Russo et al. (2022)	The positive legacy of the country’s image from hosting the event is threatened by several social challenges.
		Al-Dosari (2021)	By analyzing formal state discourses surrounding Qatar’s decision to host FIFA World Cup 2022, use of sports diplomacy is helping achieve several Qatari foreign policy goals.
	Al Thani (2021)	Qatar invested in developing legislation to promote the human rights of migrant low-skill workers and deal with human rights scrutiny to protect its international image.	

Table 1. (Continued).

Topic	Subtopic	Reference	Interest
Qatar World Cup 2022	Sport diplomacy and soft power	Brannagan & Grix (2023)	Assumed and analyzed their assumption that Qatar is using sports and mega-sports events for its presumed sociopolitical intentions. Sport can be used by Qatar for Development and Peace by developing and promoting human rights, migrant workers' rights, transparency, integrity, and equality and restoring its soft power abilities in the process.
	Resident's perception	Al-Emadi et al. (2022)	Residents: Nationals and expatriates of Qatar are supportive of hosting the event but were concerned about traffic, pollution, price increases, and the potential rise in the overall cost of living.

Source: Author's edition.

4. Growth and impacts of mega-sport tourism

Mega-sport events tourism takes place in different capitals of the world hosting global and regional major events such as the SWOG, and the World Cup. Many literatures tackled, from different angles, the wealth of existing data from previous events, attempting to understand their impacts on tourism and the hosting destination in general.

Getz (2008) looked at the growth of event research and studies, and highlighted various principal themes around the topic, which was further expanded to disciplines creating an event knowledge base (Getz and Page, 2016) created for a purpose with planned events in tourism in mind, handled now primarily by professionals and entrepreneurs after a long history of being the domain of private citizens and community projects (Getz and Page, 2016), with sports events being one of the four main categories highlighted, besides business, cultural, and environmental. While venues with specialized uses, such as stadiums, arenas, and athletic greenspaces are required for sports events (Getz and Page, 2016). Zhou et al. (2023) found that tourism performance has 22 particular performance measures, such as those related to tourists' experience and satisfaction with services, facilities, and transport provided. It is our opinion that Qatar has set a high standard for mega-sport tourism, in terms of provision and quality of services and other tourism performance indicators, which is likely to create a challenge for future hosts of the event, as will be shown in our paper. Qatari citizens for instance offered food for free to fans at cultural centers, fan centers, shopping centers, and stadiums. Many also opened their homes to receive fans for meals on their way from the stadiums to their allocated accommodation centers. Qatar offered high-quality transportation and internet for free.

A (global) mega-event usually is planned for at least once a year, someplace around the globe, but for any city or country, hosting the event is a rare occurrence (Fourie and Santana-Gallego, 2011), which encourages competition to win the bid of hosting, suggesting that the costs of hosting are outweighed by the benefits gained whether shown or hidden. Hosting mega-sport events is considered a privilege by some cities for building a global image using the large sports spectators and globally with a large media coverage (Liu and Wilson, 2014). According to Dolles and Söderman (2008), mega-sport events are becoming central stages representing not only competition for excellence between athletes but also providing hosting destinations with a generally accepted method of showcasing and advancing their national identities and cultures worldwide.

However, Preuss (2015) points out that mega-sport events require substantial investments in city infrastructure, which could serve as an asset or a burden to the city and its stakeholders afterward. Despite the fact that a country or a city could be driven by certain reasons to compete in staging a mega-sport event (Dolles and Söderman, 2008), they often argue that the expected economic benefit is their main drive (Maennig, 2017).

Regarding the importance of holding mega-sport events as tools for destination sustainability, UN Secretary-General (Ki-Moon, 2016) considers mega-sport events a vehicle to gather millions of fans to enjoy the talents of thousands of sports competitors, with huge press coverage and inspiring individuals from everywhere, adding the competitive value of winning the bid to host the event. Ki-Moon considered the influence of the mega-sport events to be far beyond the world of sports, as these events have the potential to promote the three dimensions of sustainability including the prospect for better education and providing a platform to support peace and human rights.

Destinations have various motives to bid for the rights to host appealing mega-sport events, dictating appropriate widespread methods to understand them, where a significant amount of scholarly work has gone into creating models and procedures for evaluating the economic effects of mega-sport events (Dolles and Söderman, 2008). While some researchers (Liu and Wilson, 2014) highlight the importance of exploring the long-term benefits of hosting global mega-sport tournaments; or else, no nation will be eager to stage any future mega-sport tournament. Müller et al. (2023), drawing three different scenarios, argued that mega-sport global events like the Summer and Winter Olympic events and the World Cup are at a critical divergence status demanding different bidding and hosting policies. In researching the growth of the SWOG and the Football World Cup being the largest tourist events, utilizing a dataset comprising all occurrences from 1964 to 2018, Müller et al. (2023) stated that in the previous half-century, the three mega-sport events have increased roughly sixty times in size, or thirteen times faster than the global GDP.

5. Mega-sport events and economic growth

Without going through the details of methods and frameworks to quantify the economic impacts of mega-sport events that can give more coherence described by Agha and Taks (2015) and clarity, many pieces of literature were found to show interest in the economic impacts of mega-sport events from various perspectives. Interestingly, some went into details such as investigating the impact of winning the tournament. According to Geyer-Klingeberg et al. (2018), for instance, there is no conclusive tie between football results and the global market value.

Focusing on the impacts of hosting the megaevents, according to Gratton et al. (2000) staging mega-sports events generally implicates the host country contributing part of the expenses, in expectation of benefits to its economy. However, a vast inconsistency in such benefits, together with some difficulty in predicting the benefits before staging the mega-sport event was discussed.

While the justification used often for bidding on mega-sport events is their expected positive economic impact, public relations campaigns often highlight these

benefits to persuade important stakeholders and the public that the proposed mega-sport event will benefit the local and regional economy, while negative financial effects can be absorbed through an increase in taxes (Maennig, 2017). Football is one of the spectacular sports that has had a very strong impact locally and globally, and World Cup tournaments are followed by millions, if not billions, from all over the world. While Andreff (2008) views sports tourism as both a sporting and economic success story with the growing economic importance of sport on the global economy and national economies in terms of GDP, the sports sector accounts for around 3% of global GDP (PWC, 2011; Manoli, 2018), on average, and mega-sport events resulted in an 8% increment in anticipated tourism in the same year (Fourie and Santana-Gallego, 2011). A calculated net economic gain of more than US \$1.1 billion was estimated for the South African economy from hosting FIFA 2010, per the arrival of 230 K fans and tourists for the tournament, and the construction capital of around US \$671 million (Grant Thornton, 2004). It is argued by Maennig (2017) and Matheson (2006) that sports promoters often claim that mega-sport events bring financial benefit to destinations winning the bid to host them, as rich sports fan tourists will arrive in mass numbers to the destination hosting the events, giving business to hotels, restaurants, and local businesses, and lavishing them with money. Nevertheless, according to some literature, this picture could be the furthest from the truth, as some substantial costs are sometimes not calculated purposely to produce a much higher representation of revenue than the actual one. The Salt Lake City Winter Olympics in 2002 was considered profitable for instance, but this result was based on calculations that excluded the expenses in millions by U.S. military-funded security (Matheson, 2006). The Athens government had to pay an additional 1.5 billion for security for the 2004 Summer Olympics (McBride and Manno, 2021). These numbers demonstrate why event promoters frequently use tailored reports that promise host cities enormous financial returns. One must therefore be critical about the veracity of such reports especially since these economic impact studies are funded by event organizers themselves or entities that would reap the benefits from the public subsidies and therefore intended to support their position. The most crucial lesson learned for countries considering hosting mega-sport events, therefore, is to be critical of provided economic impact estimates by organizations that could benefit from presenting exaggerated figures, as it is therefore essential for hosting governments to thoroughly investigate the source of such reports in light of the publisher's potential economic gain (Matheson, 2006; Wilby et al., 2023). Following the same logic, it comes as no surprise that the same event's promoters present these figures as a rationale for obtaining substantial public subsidies for hosting the mega-sport event. In other words, actual economic benefits derived from mega-sport events are leveraged for large public subsidies for hosting such events. However, the majority of unbiased scholarly investigations into mega-events economics reveal that positive economic impacts are far less than those presented studies (Andreff, 2012; Matheson, 2006; Whitson and Horne, 2006; Wilby et al., 2023). However, Liu (2013) argues that positive long-term economic impacts of the World Cup can be seen in developed as well as developing countries, although to different extents between them. QFFC was anticipated to cost US \$220 billion and generate more than US \$17 billion for the host economy (Wilby et al., 2023). No previous World Cup cost came close to both figures. Qatar, however,

illustrated that it spent most of the cost on building its infrastructure, including roads and highways, connecting all its provinces, and a metro system for the first time in Qatar, that connects most of the capital's important tourist and business sites. To succeed in hosting FFC 2022, according to Henderson (Henderson, 2014) although Qatar invested heavily in its sports infrastructure, events programme, and tourism to achieve desired returns such as social benefits for its local community, success is not guaranteed and also there is a risk of negative impacts. Additionally, Barclay (2009) concluded with a strong statement about considering impact studies and analyses of mega-sport events as "less-than-accurate" with overstating benefits underestimating costs and misusing multipliers. Economic impact studies conducted mainly by events' boosters or organizers aiming to justify funding figures, are themselves predictive or ex ante estimates (Barclay, 2009). Their estimate is made mainly via details of the construction of infrastructure such as sporting facilities, and commercial activities during the hosting of mega-sports, with consideration to expected numbers of sports fans, and expected duration of their stay, and their average expected spending (Matheson, 2006). What adds to the flaw of this estimation is adding up these expected costs for estimating a 'direct economic impact', which awards it rejection by many scholars (Barclay, 2009).

Furthermore, most pre-predicted or estimated costs are short of accounting for hidden costs such as needed continuous maintenance and upkeeping costs of large stadiums (Whitson and Horne, 2006) and long-term costs in hotels, constructed to accommodate mega-sport fans, as demands for rooms fall drastically after the end of the event (Humphreys and Prokopowicz, 2007), leading to business collapse within a few years, as of the bankruptcy of 40% of full-service hotels in Lillehammer after the 1994 Winter Olympics (Teigland, 1999).

One can go too pragmatic and consider the possibility of the negative effects of building new roads and making more areas easily accessible through negatively impacting people living on rental at those areas that got suddenly popular due to new roads, as expressed by Barget and Gouguet (2007), where rents can become unaffordable for less fortunate groups of people.

However, according to local economists: the FFC is considered the most prominent opportunity for tourism investment in Qatar, including events, services, culture, heritage, desert safari, food, health, leisure, free activities, entertainment, sport, recreation, tour organization, accommodation, and transport (Dizon, 2021; Gallardo-Vázquez, 2023). According to Nyikana et al. (2014) succeeding in hosting mega-sport events results in economic benefits for the host including amplified tourism revenue and added city visibility as a potential tourism destination.

Host destinations of mega-sport events could benefit positively from a long-term enhancement in tourism demand, but the tourism revenues might not compensate for the huge spending needed for hosting the event (Solberg and Preuss, 2007). Overrated economic gains are often estimated by boosters of mega-sport events, but there is a concern raised by others including researchers, regarding public debt and what is called the 'opportunity cost' that is associated with using public funds on magnificent infrastructure projects like architecturally stunning stadiums (Whitson and Horne, 2006), as hosting mega-sport events will dictate huge investments in sports facilities, not to mention non-sport destination infrastructure (Solberg and Preuss, 2007).

Further, if a profitable economic change is achieved, it is not easily attributed to the increased number of visitors, as it can be a result of positive shifts in supply (Solberg and Preuss, 2007). Also, the calculations of economic gains and losses of mega-sport events often lack transparency and tend to be complex with the inclusion of what is referred to as other costs including opportunity costs which adds to the complexity (Whitson and Horne, 2006). Provision of goods and services though can often be counted as a positive attribute of hosting mega-sport events, to answer the demand from tourists, together with local demand once these goods and services are provided locally, making the hosting fall into public goods, which can together justify the pursuit of mass tourism (Solberg and Preuss, 2007). However, free-rider incentives to gain governmental funding are often presented using this justification (Solberg and Preuss, 2007). Therefore, winning the bid to host mega-sport events can be seen as a winner's curse, given all that seems to be linked to costs such as delayed completion, financial deficit, cost overruns, project revisions, and debt (Andreff, 2012).

In the case of the Qatar World Cup 2022, new tourism and fundamental infrastructure were a huge investment in the preparations for hosting the event, as expected by hosting a mega-sport event. According to Statista (2022), FIFA declared that expenditures towards the FFC are around 1.7 billion U.S. dollars, with a budget of US \$322 million for the tournament's operational expenses. As it was found afterward, preparations and staging of the Qatar 2022 FFC as mentioned earlier cost \$220 billion (Allagabo and Mustafa, 2023; Omer, 2023), and the return was expected as US \$17 billion to the host economy (Allagabo and Mustafa, 2023; Wilby et al., 2023). It is hard to match any expected revenue from an event with those figures. According to Singh (2022), FIFA made US \$7.5 billion from the sale of tickets throughout World Cup 2022, compared to US \$6.5 billion earned from the 2018 World Cup in Russia. Other estimates, however, varied from US \$1 billion to US \$6.5 billion (Wilby et al., 2023).

In the case of Qatar, it is natural to assume that no revenue is expected to cover the gigantic cost, however, the benefits expected are not related to the direct revenue. Qatar declared that most of the huge cost went to building infrastructure for the country that all falls within its long-term plan for tourism, and local development in transport, culture, and other services. Impacts on SMEs, the country's image, and future tourism seem to be the targets, some of which have begun to pay off. Sport is an essential part of Qatar's international presence and participation (Al Thani, 2021), as Qatar hosted other major sports events in the past such as the 2006 Asian Games (XV Asiad), AFC Cup 2011, and the 2014 World Swimming Championship, in addition to financing league sports teams like FC Barcelona. This was attributed to considering Qatar among the most active countries in sports as mentioned earlier by Grix et al. (2019), for its limitless urge to host and own sports events and investments globally. Although this argument is used to doubt Qatar's credentials to host FIFA 2022, it can easily demonstrate the commitment and dedication Qatar has been illustrating to hosting and sponsoring global sports events and advancement. However, some economists e.g., Allagabo and Mustafa (2023) believe that the most generous expenditure in the history of football has mirrored positively on Qatari economic sectors, and predicted that the economic positive impacts to multiply in the first half of 2023.

On a smaller scale and closer to local community economic impacts, economic values felt on the ground increased by the total value of the properties in Qatar sold in December 2022 increased by 124% (Qatar PSA, 2022) and reported an increase in sales, hotel occupancies, and other tourism profits. Qatari owners of small businesses appeared in different mediums declaring noticeable increases in their sales, and some mentioned an equivalent of ten years' revenue achieved in less than one month, such as traditional falconry equipment shops and also traditional dress shops. Success in building a good destination image and legacy was evident in many social media publishing. This could have the potential to attract future tourism. FIFA (2022n) reported that one million travelers visited Doha during the hosting of FIFA 2022. According to local tourism firms, the World Cup is considered a lifetime opportunity for Qatar to host tourists from all over the world in big numbers, which dictates that the tourism authority should seize the opportunity and build on it to make Qatar a distinguished tourism destination in the West Asia Region and worldwide. This is considered an important result of a study conducted by Nyikana et al. (2014), illustrating that successfully conducted mega-events have long-term positive impacts on hosting destinations. This was explained by many fans participating in the study rating key tourism facilities at the host destination as being of a good standard and planning to visit the host destination again, after attending a good mega-sport event there. This study (Nyikana et al., 2014) also stressed the importance of using the full marketing momentum resulting from hosting the event before the focus moves to other destinations. According to Bujdosó and Dávid (2013), tourists seeking recreation often welcome change, even if for a short time, from their metropolitan lifestyle and experience a sort of activity, with the remarkable global growth of adventure tourism. Building on the 2022 World Cup legacy momentum, different types of tourists could be attracted with different appeals. Qatar authority announced on January 2023 (a month after the conclusion of the 2022 World Cup) the extension of the validity of Hayya card (which provides visiting visa and other free services like public transport) till spring 2024, which may imply the seizing of the momentum mentioned above. The opportunity and challenge would present themselves in implementations that incorporate goals and plans for seasonal tourism and the deployment of fitting symbol systems (Bujdosó and Dávid, 2013). Although Qatar's focus was argued to aim to build its global image and maximize its global participation through hosting the most expensive tournament in FIFA's history, it seems that economic benefits are also attained. Recently released official tourism statistics indicate positive economic impacts to Qatar, after the hosting of the mega-sport event in 2022. According to Qatar Tourism (2024) published statistics, the number of arrivals to Qatar in the first quarter of 2024, has reached 1.627 million by air, land, and sea. This is 40% above that of 2023 which received 1163 million visitors. This means around 400% growth from 2022 first quarter before the beginning of FIFA 2022, as it was reported then at 316,000. Demand for accommodation has grown by 37% from 2023, reaching 2.6 million room nights, which is 62% higher than the pre-pandemic score in 2019. According to The World Travel and Tourism Council's 2024 Economic Impact Research, a new record was set with some 81 billion Qatari Riyal contribution by the travel and tourism sector to the Qatari economy in 2023, upped to 90.8 billion Qatari Riyal in 2024 representing 11.3% of the total Qatari economy and supporting around 16% of the total workforce

(WTTC, 2024). According to Bibolov et al. (2024), the success in building a tourist destination image and increasing visibility during the hosting of FIFA 2022, is the drive for the remarkable increase in tourist arrivals to Qatar in 2023, backed by applying Qatar’s tourism strategy. Further, tourism is expected to increase in the medium-term and even long-term (Bibolov et al., 2024), for the hosting is considered to have brought growing positive impacts to Qatar’s national economy as well as the regional economies. Potential impacts on destination sustainability in Qatar, from hosting 2022 FFC are summarized in **Figure 3**.

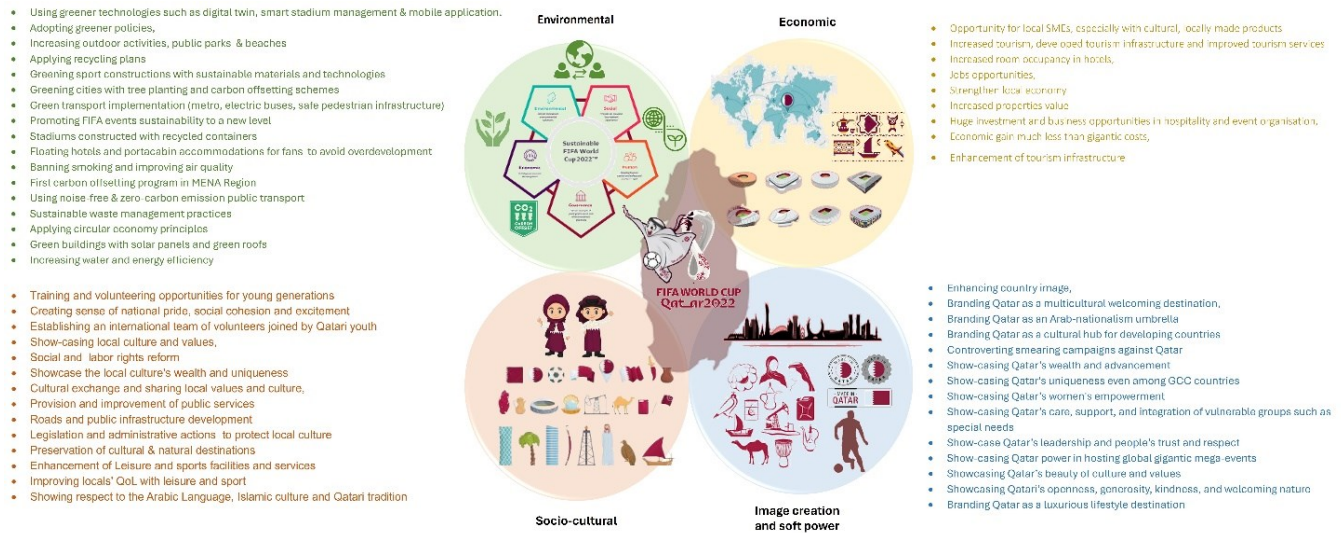


Figure 3. Potential impacts of hosting the 2022 FFC on destination sustainability in Qatar.

Source: author’s edition.

6. Environmental and socio-cultural dimensions

For evolving from sustainability marketing to sustainability practicing, an inclusive resilience-based framework could be attained with strong political will and stakeholders’ full awareness and participation in decision-making from the early stages. It was predicted that tourism sustainability and the involvement of destinations’ residents would form the new world tourism economy order (Sharma et al., 2021). Attention to the environmental impacts of sport goes very far back with studies like Stoddart (1990) highlighting environmental issues concerning the construction and maintenance of golf courses, and (Lenskyj, 1998, 2002) attempting to study the multifaceted link between sport and the environment, followed by rapid growth in the last two decades with different focus on environmental and also social impacts of sport, and the greening of sport. The former was followed for instance by many studies such as Millington and Wilson (2019) to examine the concept of sustainable development and its relevance to golf. The latter also was followed by many such as looking at social negative impacts, yet the subject is still in need of more research. The positive impacts of hosting mega-sport events and their accompanying tourism are more obvious than the negative ones (Liu and Wilson, 2014). One interesting finding is that the intention to travel to a destination hosting a mega-sport event, which is a positive indication of an increase in tourism, negatively impacts the local community with travel inconvenience and price inflation (Liu and Wilson, 2014). The quality of

life of local communities at the host destination is thought to be directly impacted by hosting a mega-sport event (Taks et al., 2015), by triggering various negative and positive impacts on the short-term and even long-term impacts that are known as 'legacies'. The feel-good effect was mentioned by scholars as a positive impact. Meaning and Porsche (2008) considered it one of the most observable positive impacts during the 2006 FIFA tournament and the hosting was considered among the most important events in German history. Liu (2013) mentioned the effect on the local community together with the international perception to profit any host nation of the mega-sport event. Al-Emadi et al. (2022) surveyed Qatar's local community's perception of holding the event, some eight years before it was held. His sample covered expats as well as Qatari citizens and concluded that there was excitement about hosting the event in addition to other influences. Sense of social unity and boosting national unity and pride was mentioned by some scholars amongst social impacts on the local community of hosting mega-sport events (Heere et al., 2013; Mair et al., 2023).

Environmental impacts of mega-sport events have been receiving growing attention recently and it was noted that despite recent calls to reduce events' environmental impacts, there is a scarcity of thorough assessments, analyses, and reporting mechanisms on environmental sustainability in the sports industry (Mallen et al., 2010). Trendafilova et al. (2013) however interviewed sports executives and examined 122 websites and organizational documents, and 56 media reports. They illustrated how environmental management practices are incorporated within professional sports organizations, proved by associative behavior at these organizations regarding environmental management, where a clear impact of media in motivating and determining how and how much environmental sustainability work was adopted by serious sports teams. Trendafilova et al. (2014), however, concluded that there is a shift in sports organizations' mindset over time toward current environmental initiatives implementation and continuous development. This was attributed to a shift in social values, growing expectations from various stakeholders, and the possibility to increase both the efficiency and sustainability of its operations. By providing cases from the UK, Collins et al. (2009) suggested using Ecological Footprint analysis and Environmental Input-Output modeling to explore the environmental impacts of mega-sport events in general (Cheng et al., 2023).

Nevertheless, Mallen et al. (2010) argue that the environmental performance impact is weak to moderate even when organizers demonstrate a high level of effort towards initiating environmental sustainability in such events and is not accompanied by environmental sustainability policies and programs due to their prevention organization barriers, by the structural, systemic, or cultural. In their work to assess the environmental impacts of mega sports events, with their environmental and socio-economic legacy components, Collins et al. (2009) state that while the role of sustainable development is felt by public and private organizations, there is a noticeable increase in realization of the environmental impacts of mega-sport events, but with difficulties in quantitatively assessing them, due to the complexity of mega-sport events and their occurrence over extended periods.

Graham et al. (2018) argue that there are significant obstacles to implementing environmental sustainability in sports as an independent study and as a module. This

article also offers solutions for these obstacles and explains how to build a specialized education for managing both sports and the environment. This was acknowledged by others like Daddi et al. (2002) stating that despite academic and practical interest in sports and sustainability topics, very few research examined which solutions to minimize the environmental impact of popular sports events like football have been applied. Trendafilova et al. (2014), in looking at current and future trends in environmental sustainability and sport, and challenges facing adopting environmental programs, suggested that by dealing with environmental externalities in their work processes in a proactive manner, mega-sport event organizers can increase their organizational legitimacy, avoid legal consequences, save money, and also build more stable relationships with key stakeholders, including matters related to their resources and outreach functions. Trendafilova et al. (2014) predicted that due to stakeholder pressure and societal norms, government intervention, and certification requirements, the current emphasis on the greening of sports will persist. Accordingly, cooperation and partnership between industry and sports entities will be essential with sustainable sport being the way forward (Kowalski and Sowier-Kasprzyk, 2009). Forming partnerships to incorporate events into the marketing campaigns between sports organizations, planners, and non-sports stakeholders can potentially increase sports participation (Chalip et al., 2017).

Qatar envisioned leaving a legacy of establishing the World Cup as a promotor for the benefit of migrant workers human rights in the state. Discussions of definitions of sports legacies from the view of different players concluded with a definition addressing the sports event's actual impacts on the host destination, including permanent infrastructure and public enhancement, value-added destination image, and benefits to tourism (Gratton and Preuss, 2008). This definition draws attention to the positive legacy without excluding the possibility of a negative one that can manifest with time, although measuring the true legacy of an event could require up to twenty years, (Gratton and Preuss, 2008). However, Collins et al. (2009) noted the challenge in the quantitative assessment of socio-economic legacy components for the elongated period required, and also for its complexity. According to Fourie and Santana-Gallego (Fourie and Santana-Gallego, 2011), new world tourism patterns appear to have been molded by mega-sport events, with Promoting fresh travel destinations and establishing them with 'lasting legacies'. Looking at the example of Qatar World Cup 2022, after the end of the tournament, Qatar is left with a fully equipped metro system up and running to provide a sustainable, reliable, fast, and affordable transport means for the local community, with less environmental impacts. Also, Qatar established impressive public parks to promote a healthy lifestyle for its people and visitors, such as Oxygen Park, with its water features, which acts as the green lung of the education city, divided into two "zones": an amphitheater, individual gardens, and a multipurpose field for sports are located on the western side, while a semi-covered running track and children's playground are located on the eastern side (Qatar Foundation, 2024). Also, Qatar open beaches were established, in addition to hotels, malls, and leisure and cultural sites for people to enjoy. This is in addition to enhanced road systems, and a new airport recognized as "World Best Airport" (World Airport Award, 2024). FIFA 2022 yields well-trained youth in events and tourism, and reformed consumer and labor law (Al Thani, 2021). The FIFA stadiums are state-of-

the-art stadiums that could be used both for sports and cultural events. However, some of the stadia and other facilities and equipment are donated to other nations at times of earthquakes and financial crises. It will be interesting to study the legacy from a Qatari citizen's perspective in future research, and how they view donating some of their precious national facilities. Although the event is brief, the changes it brings about may have a significant impact on the host destination (Preuss, 2015).

The 2022 World Cup was expected to act as a motivation for constructive initiatives, and the Qatari side utilized the World Cup as an incentive for social enhancements such as labor reforms (Al Thani, 2021), which has been a hot topic in the media, together with addressing accusations that were circulated in Western media about the ability of Qatar to host the gigantic event. This paper tackles potential socioeconomic benefits, especially for small businesses at the host destination and other socio-cultural and environmental impacts. Examples are the foreign labor community, and some 15,000 young people and students having the opportunity to volunteer and be trained for this important once in a lifetime global event in their country, together with 5000 international volunteers (Inside FIFA, 2022v). Also, it recognizes the opportunity to start a more sustainable and responsible way of tourism (staycation and slow tourism) both for the Qatari community, and neighboring countries, as the concept and infrastructure, were enhanced and practiced by residents and visitors during the 2022 FFC, with a potential to continue and prosper post-tournament. All these presumptions are inviting areas for follow-up research. Some positive social impacts seen during the tournament have the potential to impact all mega-sport events to follow such as the full accommodation and integration of special needs, and the provision of a safe and pleasant atmosphere for families to participate, especially children and women. The positive impact benefited both locals and visitors. From an environmental sustainability perspective, Qatar seems to have added a new dimension to the environmental sustainability of FFC hosting, including the stadium made of recycled containers (Kucukvar et al., 2021), and the circularity that was implemented at the design stage of construction so that no waste is created, and that all stadiums' facilities and equipment are disseminated after the end of the event, and given a new life by being sent to other countries to serve new purposes. The anticipated impacts of hosting the event on Qatar's destination sustainability based on the literature review are illustrated in **Figure 3**.

From a cultural impact's perspective, in mega-sport events, embracing local culture's core values is a prerequisite for generating positive impacts (Misener and Mason, 2006). Qatar is a small state with deeply rooted traditions and cultural values, that seemed before the hosting contradicted some FIFA's norms, and therefore was expected to scarify its own values for the sake of hosting as some predicted. However, Qatar's soft organizational power was felt in introducing Qatari culture and identity in many details of the tournament including the La'eeb mascot that wears traditional dress, celebrating Arabic language and Islamic traditions at the opening and closing ceremonies of the 2022 World Cup, prohibiting drinking alcohol outside designated controlled area and respecting prayer time in the scheduling of games and ceremonies. This seems to answer the pre-event concern raised by some literature (Matheson, 2006) regarding the big challenge facing Qatar while pursuing to satisfy FIFA requirements for a mega-sport global event, which could mean having to sacrifice its

unique identity and cultural essence. The cultural impacts of staging the mega-sport event in Qatar need further research. However, reducing negative socio-cultural impacts on the local community was clear. Furthermore, the history of Qatar and the story of its people is shared in the museums, cultural centers, and developed archeological sites to receive visitations such as the Qatari World Heritage Site in Zubarah with its dedicated interpretation center to showcase the story of pearl diving. Msheireb is one of the tourist's attraction sites with its historical museums serving as cultural interaction points in the city's contemporary architectural atmosphere and specialized cafes.

From the social responsibility and social sustainability side, care and integration of special needs were remarkable in FIFA 2022. In practice, it was decided that the opening ceremony would be the Qatari national figure chosen to be co-moderated by Morgan Freeman and the Qatari YouTuber Ghanim Al Muftah, a Loughborough University student majoring in politics, with an absent lower body from birth. Furthermore, all 2022 World Cup stadiums had an allocated equipped space for wheelchairs, with supporting infrastructure at the airport, the transport vehicle, the parking areas of the stadiums, and access to the stadiums and their designated compartments. Volunteers training included supporting and empowering people with disabilities. In addition, three of the eight stadiums had sensory rooms for people with intellectual disabilities, a perfect environment where kids with autism and neurobehavioral disorders can watch the games in a secure area furnished with all the latest equipment and gadgets (Ataullah, 2022a).

From an accommodations side, a carbon-neutral policy was applied with the use of adaptable accommodation to handle the temporary sharp increase in demand for accommodation during the event, such as floating hotels in the form of two repurposed chartered cruise ships of 4000 cabins, functioning as floating hotels, which is an example of the various solutions that avoided unnecessary overdevelopment (SeaTradeCruiseNews, 2019). Meanwhile, the Doha Metro network that was built to connect stadiums to popular tourist and business districts for the tournament is expected to reduce traffic congestion, and environmental pollution in the long run including air and noise pollution. The excitement and expected heavy traffic during the tournament gave the Qatari community extra incentive to try the metro and use greener public transport for the first time. In addition to the alcohol-free policy, the Tobacco Free Policy was also applied at the tournament to protect the health of hundreds of thousands of athletes, fans, organizers, workers, and volunteers from exposure to passive smoking. This contributed to creating a safe family-friendly tournament, especially for women and children. Qatari families and groups of local women attended the games and stadiums and participated in cultural events, and some were featured in different mediums taking female fans to their homes and treating them to traditional Qatari food. This was a show of Qatari generosity and hospitality, but also of how culturally integrated the event was organized.

FIFA 2022 was the first voluntary carbon offsetting scheme in the MENA Region to offset the inevitable greenhouse emissions of the event (FIFA, 2022c). In practice, circular economy approaches were used in the construction of infrastructure, stadiums, and other FIFA-related facilities including the use of sustainable building designs to limit environmental impacts and minimize energy and water waste, while establishing

local standards and know-how expertise, for production lines, green construction; greenhouse gas emissions and waste management while inviting green solutions, and promoting recycling (Al Sholi et al., 2023; Al-Hamrani et al., 2021; Kucukvar et al., 2021; Lundberg, 2023). The distance between the capital's center and any stadium is less than 50 kilometers, making Qatar's FIFA the most geographically compact FIFA event since the first event took place almost a century ago (FIFA, 2022n). Qatar also provided eco-friendly transportation via its transport partner Mawasalat Karwa which had over 850 electric buses operating with zero-carbon emissions and were noise-free as public transport for the use of fans visiting Qatar during the tournament (Evangelista, 2023). This is part of a bigger eco-friendly plan by the Qatar General Electricity and Water Corporation (Kahramaa) and Ministry of Transport in cooperation with the U.S.-Qatar Business Council to set up 200 to 500 charging points for electric cars across Qatar in 2022, as Qatar is set to have 100% electric public transportation by 2030 (Menatalla, 2021). Kahramaa was set to supply, install, and operate some 37 (aiming to 100) electric vehicle charging units at 22 Woqod stations in and around Doha the capital, as well as other locations in Al-Wakrah, Al-Khor, and border outlets (Menatalla, 2021). A sophisticated IT infrastructure and technologies were used in the Qatar chapter of FFC, with a digital twin (DT) technology that receives live data from dozens of thousands of "Internet of Things" (IoT) devices (Glebova et al., 2023). With a centralized control and command center that manages all sensors and automated operations such as security, cooling, flow, and ventilation at the eight Qatar FIFA stadiums, renewable solar energy is used partially in all stadiums for the airconditioned seats to sustain a temperature of 21°C. The virtualization and use of the most advanced relevant technologies, efficiency, speed, and accuracy were gained, but also more sustainability through energy and materials optimization. One of the eight state-of-art stadiums, Al Thumamah Stadium is considered by FIFA as a showcase stadium of a pilot-scale platform for the enhancement of innovative research for sustainable technological solutions. Furthermore, all eight stadiums were awarded GSAS Sustainable Building certification before the tournament, and six of them were awarded GSAS Sustainable Operations certification (FIFA, 2022s). Published FIFA Environmental Sustainability reports (FIFA, 2022c) of its 22nd edition include details of processes and results Qatar achieved in each of the eight stadiums. Most of the details deal with energy and water conservation, waste reduction, pollution control, and the regeneration of nature. These were reported to fulfill the requirements of different GSCM certifications, but also Qatar's national vision in relevance to sustainability. One example is that renewable solar energy is used to power more than 70% of Al Bayt Stadium's exterior lighting. Up to 70% more energy-efficient LED lights are installed in all Qatar 2022 stadiums, and many other businesses are following suit. Also, water from the air conditioners at Al Janoub Stadium is collected and recycled for effective water conservation in the restrooms, and 90% of its waste production and that of Al Rayyan Stadium is recycled or reused. Materials are not wasted with the latter, as it utilizes the materials of more than 90% of its old building. At Al Thumama Stadium, over 80% of the terrain is covered in natural vegetation. Education City Stadium has more than half of the building supplies purchased locally. Lusail Stadium was designed to efficiently manage waste while in use, with on-site recycling and waste segregation utilizing

recycled wastewater from the on-site workers’ housing for toilet flushing and dust control. Finally, in the same report, it was declared that because of the stadium’s modular design, 170,000 seats can be demounted and donated. The stadiums are connected by public transport to reduce emissions and costs, including buses and trams. Further, Doha Metro has high time and cost efficiency in addition to its environmental aspects. In addition, a well-designed system of trails for bicycles and pedestrians was established connecting building entrances, car parks, and stadiums. This was enhanced using shaded walkways to promote walking even more. According to Ogutu et al. (2023a, 2023b), research in organizational sustainability management is considered an emerging topic with a need to investigate the role of technology and innovation in promoting sustainable practices. This could be a promising research topic for future research, nevertheless, we attempted to shed some light on the use of circular economy principles using the six segments of the ReSOLVE Framework, as illustrated in **Table 2**. The circular economy being the sustainable alternative for the business-as-usual linear economy is regenerative by nature based on eliminating waste and pollution, extending the life cycle of materials and energy, and protecting natural resources. Because the circular economy considers the holistic long-term planning processes (Fogarassy et al., 2017), ReSOLVE Framework takes the core principles of circularity and applies them to six segments of actions (Ellen MacArthur Foundation, 2012; MacArthur-McKinsey, 2015): Regenerate, share, optimize, loop, virtualize and exchange. “Regenerate” includes actions promoting nature’s biocapacity. “Share” involves actions promoting leasing and renting instead of buying to eliminate waste and duplication. “Optimize” takes actions to maximize the use of energy and materials using sustainable technologies such as precision farming. “Loop” means keeping everything in the cycle and preventing it from turning to waste such as extracting organic components for compost and reusing inorganic ones.” Virtualize” refers to the utilization of virtual space to save materials and energy such as e-brochures in tourism. And finally, “exchange” means changing processes and tools to more sustainable ones.

Table 2. Application of circular economy principles to Qatar FIFA Football World Cup 2022 using the ReSOLVE framework method adapted to destination sustainability focusing on circular development blocks.

Segment of ReSOLVE framework	Additional value to circularity	Additional value to tourist’s experience	Additional value to tourist firm	Additional value to destination sustainability
Regenerate	Using old oil containers and waste to build stadiums.	<ul style="list-style-type: none"> • Feel own contribution to sustainability by participation 	<ul style="list-style-type: none"> • A story of sustainability and national legacy to be told. 	<ul style="list-style-type: none"> • Waste reduction and reduce pressure on natural resources.
	Archeological sites educational tourism (Zubarah).	<ul style="list-style-type: none"> • Learning about local history and culture 	<ul style="list-style-type: none"> • Marketing • Channel of communication 	<ul style="list-style-type: none"> • Cultural and natural sites protection and rehabilitation.
	Opening and developing beaches for recreation with minimal to no construction.	<ul style="list-style-type: none"> • Ecotourism with minimal impact 	<ul style="list-style-type: none"> • More nature-based destinations to add to their tourist package. 	<ul style="list-style-type: none"> • Promoting responsible nature leisure and in-country tourism.
	Opening and developing the Oxygen Park and tree-based parks.	<ul style="list-style-type: none"> • Leisure time experience in a healthy environment 	<ul style="list-style-type: none"> • Nature-based destinations added to the tourist program. 	<ul style="list-style-type: none"> • Establishing more natural destinations and promoting the conservation and regeneration of green areas.

Table 2. (Continued).

Segment of ReSOLVE framework	Additional value to circularity	Additional value to tourist's experience	Additional value to tourist firm	Additional value to destination sustainability
Share	Renting and leasing vehicles (max utilization of transport) instead of buying.	<ul style="list-style-type: none"> • Feel good when they know 	<ul style="list-style-type: none"> • Good story for the tourist information communication about Qatar's awareness and care for the environment 	<ul style="list-style-type: none"> • Cost efficiency and reducing overhead • Adopting more circularity schemes
	Leasing chartered cruise ships for additional accommodation.	<ul style="list-style-type: none"> • More choices • Different experience 	<ul style="list-style-type: none"> • Reduce cost • Increase cooperation • Creating a new attractive destination for tourists and locals. 	<ul style="list-style-type: none"> • Reducing locals' daily life disturbance • Avoiding unnecessary overdevelopment • Reducing the impacts of hosting
	Tourists and locals are encouraged to use public transport by providing them for free, and with high efficiency and quality.	<ul style="list-style-type: none"> • Ease • Avoid congestion • Save time • Opportunity to meet locals 	<ul style="list-style-type: none"> • Easier management of groups • Reduce cost • Better time management 	<ul style="list-style-type: none"> • Reduce congestion and air emission • Reduce impacts of hosting
Optimize	79% of waste generated during construction was reused and recycled.	<ul style="list-style-type: none"> • Feel-good when they know 	<ul style="list-style-type: none"> • Good story for the tourist information communication about the stadiums. 	<ul style="list-style-type: none"> • Reduce negative impacts on destination sustainability by waste reduction and adopting material optimization technologies
	30% more energy efficiency stadiums than international benchmarks including cooling and ventilation systems.	<ul style="list-style-type: none"> • Feel-good when they know 	<ul style="list-style-type: none"> • Good story for the tourist information communication about the stadiums and Qatar 	<ul style="list-style-type: none"> • Energy optimization and reduction of hosting carbon footprint
	40% less water was used than the international benchmark.	<ul style="list-style-type: none"> • Feel-good when they know 	<ul style="list-style-type: none"> • Good story for the tourist information communication about the stadiums and Qatar 	<ul style="list-style-type: none"> • Maximize water optimization and conservation of natural resources.
	15% construction supplies from sustainably resourced materials.	<ul style="list-style-type: none"> • Feel-good when they know 	<ul style="list-style-type: none"> • Good story for the tourist information communication about the stadiums and Qatar 	<ul style="list-style-type: none"> • Save money • Look greener
	The short distance between stadiums.	<ul style="list-style-type: none"> • Can easily attend several games in one day 	<ul style="list-style-type: none"> • Ease in management and overhead 	<ul style="list-style-type: none"> • Reduction of hosting environmental impacts by reduction of energy consumption and pollution.
Loop	Seats designed for circularity to be disassembled and relocated: 170 K stadium seats from 6 stadiums to be donated for other purposes.	<ul style="list-style-type: none"> • Learning about stadium sustainability • Feel-good about participating in Qatar's chapter of FFC 	<ul style="list-style-type: none"> • Channels of communication • Extend resources 	<ul style="list-style-type: none"> • Waste reduction by keeping materials and blocks useful and flowing continuously in closed loops. • Promote destination sustainability image.
	Planting trees around stadiums to mitigate rise in temperature and irrigate them with collected rainwater.	<ul style="list-style-type: none"> • Aesthetic beauty • Feel-good 	<ul style="list-style-type: none"> • Aesthetic value to the program 	<ul style="list-style-type: none"> • Climate change mitigation • Improving local community's QoL
	Solar power systems providing partial energy needs for stadiums and main buildings, to be increased with time.	<ul style="list-style-type: none"> • Feel-good and surer about participation in the event 	<ul style="list-style-type: none"> • Good story for the tourist information communication about the stadiums and Qatar 	<ul style="list-style-type: none"> • Reduce non-renewable energy use and reduce emission

Table 2. (Continued).

Segment of ReSOLVE framework	Additional value to circularity	Additional value to tourist's experience	Additional value to tourist firm	Additional value to destination sustainability
Virtualize	E-brochures, city guides, FIFA information, and information banks, through smart points all over Doha and through mobile apps	<ul style="list-style-type: none"> Ease of learning about destination and event 	<ul style="list-style-type: none"> Wider audience Save money Less overhead 	<ul style="list-style-type: none"> Destination knowledge communication in different levels with ease and high accessibility
	Provision of free internet	<ul style="list-style-type: none"> Accessibility and money-saving 	<ul style="list-style-type: none"> Ease Convenience Money saving 	<ul style="list-style-type: none"> Adds to destination's offering and tourists' satisfaction
	Using Digital Twin (DT) and smart control technologies to increase speed, efficiency of energy and materials.	<ul style="list-style-type: none"> Feel safe Enjoy the hi-tech experience 	<ul style="list-style-type: none"> Better communication Reducing the overhead 	<ul style="list-style-type: none"> Safety and security promotion Advancement in technology utilization for sustainability Preventing negative impacts such as theft and vandalism
	E-marketing via the virtual event moto La'eeb who appears everywhere to provide virtual information.	<ul style="list-style-type: none"> Ease Accessibility Excitement 	<ul style="list-style-type: none"> Wider audience 	<ul style="list-style-type: none"> Destination branding Cultural celebration
	E-communications with teams and fans regarding programs and events.	<ul style="list-style-type: none"> Ease and convenience and Staying updated 	<ul style="list-style-type: none"> Communication enhancement, Save money and time 	<ul style="list-style-type: none"> Better organization and control of mass tourism
Exchange	Metro for fans instead of taxis and private car rental.	<ul style="list-style-type: none"> Fans staying together in large groups Opportunity for meeting locals Reducing their holiday's carbon emission 	<ul style="list-style-type: none"> Save money Less overhead Opportunities for mingling with local communities Opportunity for better interpretation and introduction of local culture Ease of keeping groups together 	<ul style="list-style-type: none"> Reduction of air, soil, and sound pollution Reduction of carbon footprint
	Portacabins and ship accommodations instead of overdevelopment and construction.	<ul style="list-style-type: none"> More affordable prices Feeling good about lowering their environmental impact 	<ul style="list-style-type: none"> Catering for different tourists' requirements 	<ul style="list-style-type: none"> Avoiding unnecessary externalities of overdevelopment and construction
	Building walkways between Souq Waqif, Mshairib, and other leisure destinations.	<ul style="list-style-type: none"> Walking in fresh air Saving transport money Easy access and more comprehensive experience Healthier Acting responsibly 	<ul style="list-style-type: none"> Save money Less overhead Opportunities for mingling with local communities Opportunity for better interpretation and introduction of local culture Ease of keeping groups together 	<ul style="list-style-type: none"> Improving city's connectedness Reducing emissions Reducing roads congestion Increasing small cultural destination visits Spreading services along connected destinations and improving quality in each
	LED and energy-efficient equipment.	<ul style="list-style-type: none"> Feel-good once knew about it 	<ul style="list-style-type: none"> Segment of Uniqueness of Qatar FIFA 	<ul style="list-style-type: none"> Environmental sustainability
	Prohibiting smoking in stadiums' perimeter.	<ul style="list-style-type: none"> Avoid passive smoking and so promote health. 	<ul style="list-style-type: none"> A good story about the destination Introduction to local traditions and culture 	<ul style="list-style-type: none"> Reduction of health impacts and add to the uniqueness of Qatar.

Table 2. (Continued).

Segment of ReSOLVE framework	Additional value to circularity	Additional value to tourist's experience	Additional value to tourist firm	Additional value to destination sustainability
Exchange	Restriction of alcohol consumption inside the stadium perimeters.	<ul style="list-style-type: none"> The reduction of violent incidents allows families to safely enjoy their experience. 	<ul style="list-style-type: none"> A good story about the destination Introduction to local traditions and culture Avoidance of violence issues with tour members 	<ul style="list-style-type: none"> Marketing Qatar as a family-friendly destination Reduce socio-cultural impacts Show respect to the local community Building more institutional trust in future hosting
	Japanese fans cleaning the stadium after their team lost the game.	<ul style="list-style-type: none"> Raising awareness regarding tourists' responsibility towards host destination sustainability 	<ul style="list-style-type: none"> Learning lesson Story to be told to future tourists 	<ul style="list-style-type: none"> Showcasing and encouraging tourists' initiatives and Taking an active role in supporting environmental and social destination sustainability
	Qatari Citizens opening their Majlis to receive any group of tourists for meals after games.	<ul style="list-style-type: none"> Save money Have an exchange with locals Live a local Qatari dine-in experience Creating relationships 	<ul style="list-style-type: none"> Open a channel for long-term communication and revisit New marketing tool with no expense 	<ul style="list-style-type: none"> Destination branding for generosity, welcome, and openness

Source: Authors' edition based on MacArthur-McKinsey (2015); Czikkely et al. (2018, p. 202); Al-Muhannadi (2020); Kucukvar et al. (2021); FIFA (2022c); FIFA (2022s).

On the other hand, the fleet of buses that were purchased for transporting fans did not end up as waste or collecting dust, and the same can be said about the mobile cabins and caravans, as they were all set to be donated to other nations in need. The cars, the electronic items, and other smaller facilities were all put for sale and many families in Qatar benefited from being able to purchase them for a fraction of their original price, benefiting the local community.

Besides what was set for disassembling and donation, most of the constructions and infrastructure built for the tournament are expected to remain providing services and a sense of pride for the people such as the metro, providing easy and fast access to most main locations in Qatar, and public beaches and recreational areas. The new resorts and hotels also could provide the Qatari community with more luxurious places for their cultural and private celebrations and short holidays. The illustrated “feel-good” effect mentioned in some literature (Maennig and Porsche, 2008) might be applicable here, with a sense of pride in how Qatar looks and what it can provide for its people and visitors. All can be a good prospective research direction.

Matheson (2006) in his early study on the impacts of mega-sport events on local and regional economies doubted the belief that general infrastructure upgrades made just to accommodate the global tournament will inevitably spur economic expansion. He also clarified that among the event infrastructure that may not be utilized post-event is sport-related infrastructure. However, the news from Qatar within less than two months after the end of the FFC seems to contrast the assumption, at least in the short term. By donating accommodations and transport vehicles, the social impacts of hosting the tournament are extended to other nations to achieve social responsibility goals and help in human development in other places. Also, the local community in

Qatar feels good about supporting these nations, and even demands it. Examples are the mobile homes and the buses used during the tournament. Qatar used temporary mobile accommodations to host international fans during the FIFA World Cup 2022 to donate them after the event ends to development projects abroad. In response to urgent situations in February 2023, 10,000 mobile cabins and caravans were shipped to areas hit by earthquakes in Turkey and Syria (Howell, 2023), also fleets of buses are set to be donated to Lebanon to help with their transport crisis to answer a request from Lebanese top officials (Sakina, 2022). Concluding from their systematic literature review and bibliometric analysis studying tourism-environmental degradation nexus, Shahbaz et al. (2021) recommended a research collaboration amongst developed and developing nations for initiating sustainable tourism reform. The reform can bring better utilization of tourism and hosting mega-sport events for host destinations in many places globally. A small Asian Islamic Arab state with the current experience and success of hosting the latest FIFA mega-sport event could use the momentum of world attention to lead the way for international cooperation in this direction.

7. Conclusion and recommendations

Mega-sport tourism can play a very important role for host countries in destination branding, image promotion, increasing competitive advancement, and motivation to build its tourism infrastructure for sustainability and benefits to the local community and the environment. It is also a major opportunity for a substantial shift from linear to circular economy. If not designed carefully, however, it can have negative impacts on destination sustainability including lost opportunity. Despite its small size, Qatar succeeded in hosting the most prominent international football tournament accommodating mass tourism of international groups with comfort, and a memorable cultural experience. Moreover, it seems to have achieved many benefits towards social and environmental sustainability, social responsibility, and intercultural dialogue. All can be good topics for prospective research direction. The infrastructure built for the tournament was modern and had the opportunity to benefit from the best sustainable solutions and technologies. This is another topic for prospective research. The design made the best use of circular economy principles to minimize waste and maximize the utilization of material and energy, but it also kept local traditions and identity. Qatar being a rich small oil and natural gas-producing state helped in achieving that. Also, it helped in human development and elevation of suffering in other places of the world by donating most of the temporary facilities and items to nations in need such as mobile homes, buses, and stadium seats. Whether it is a multicultural destination or a sustainable technology hub, a destination image is painted with a taste of unique identity and rich heritage. The destination image that Qatar succeeded in acquiring, however, must be further built upon to maximize the destination marketing momentum gained while hosting the event, to market the potential of the region, before the focus shifts to other destinations. This in turn can support the positive legacy and the long-term destination sustainability and the maximization of the advantages to be gained thence. To this end, we suggest using the “tourists trap” suggested by Priatmoko et al. (2021) for the revival and development

of new tourist destinations by linking popular to unpopular destinations and establishing the latter as tourist centers with advanced facilities and infrastructure through structured tourism trips to the former, which could be the stadiums, the famous Bisht shop, or the room that famous players like Messi stayed at during the 2022 World Cup. Regional collaboration amongst GCC states for hosting future mega-sport events building on Qatar's experience is an obvious recommendation. Further, a global collaboration including developed and developing nations for initiating mega-events sustainable tourism reforms is another recommendation Qatar can take the lead in. We recommend that some initiatives applied in Qatar 2022 FFC be studied for prospective global reform of sustainable tourism and destination sustainability such as the inclusion of circularity or circular economy principles in the FIFA constructions and projects from the early planning and design stages and mitigating social impacts of overcrowding by soft control over tourists' activities. Utilizing citizens and even tourists megaphoning is recommended for domino effect impacts, similar to what happened after the Japanese fans took the initiative to clean the stadium. Rewarding sustainable individual, group, and nation's initiatives that support destination sustainability should be added to the official prizes in any mega-sport tournament. For mega-event tourism to be more sustainable, sustainable management that proves successful in hospitality services management such as green supply chain management (GSCM) and active participation of different national stakeholders can be researched for application in mega-sport events. Investigating the role of technological innovations in their full potential should be encouraged and supported to promote destination sustainability environmental, economic, socio-cultural, and beyond. Ensuring minimal externalities and maximum benefit to local communities at the host destination should always be a priority in any initiative related to hosting mega-events or tourism in general. Social and especially cultural sustainability in addition to destination sustainability environmental could be further explored in this regard.

It is the opinion of the authors that what we have seen in the Qatar Football World Cup and other gigantic tournaments may have much greater potential to benefit humanity and the environment than what has already been harvested if past experiences especially Qatar FIFA 2022 were analyzed by multidisciplinary approaches focusing on people at the host destination and visitors to that destination. This paper provides a first effort to shed light on the impacts of hosting a mega-sport event on tourism and destination sustainability, together with other aspects of the hosting country of the 2022 FFC. It is recommended to follow it with a more in-depth measure of perception both from the demand and supply side; that is, the local community, the tourists, and the tourism authority. For a better understanding of visitors' experience and perception of Qatar as a destination image, it is worth studying that from football fans who participated in the event in Qatar, and also those who did not make it to Qatar and followed the games over satellite TV or the internet. It is also recommended to study the local community's perception of hosting the event.

Together, this can form a clearer understanding of the impact of hosting the event in terms of destination image and intention to visit/revisit, and possible impact on the near future tourism sustainability in Qatar.

Destination sustainability marketing and the role of the local community and soft marketing powers could be a topic for a follow-up study on Qatar's unique experience

with hosting a global mega-sport event. Considering the true size and impact of the mega-sport events from all dimensions some scholars (Müller, 2015; Wolfe et al., 2022) consider them as giga-events forming a new class of their own. The future research could choose the title “Impacts of giga-sport events on destination sustainability”.

8. Limitation

The study has several limitations that should be considered. The research focuses on a literature review spanning 47 years, but the scope might not cover all relevant publications due to limitations in database access and search parameters. The bibliometric analysis, while comprehensive, might have missed some pertinent studies outside the chosen keywords ‘sport tourism’ and ‘mega-sport’. The socio-economic and environmental contexts of earlier studies might differ significantly from current scenarios, potentially affecting the applicability of some findings to the present context of Qatar 2022. The literature review may exhibit a geographical bias, as much of the existing research on mega-sport events focuses on Western contexts. The unique socio-cultural and political context of Qatar as a Middle Eastern, Islamic country may not be fully represented in the broader literature, which could limit the generalizability of findings.

Measuring the impacts of mega-sport events on destination sustainability is inherently complex. Economic impacts can be quantified relatively easily, but social and environmental impacts are harder to measure and often require longitudinal studies to understand their full extent. The paper acknowledges the difficulty in quantitatively assessing socio-economic legacy components over an extended period. The study could have been strengthened with a perception study survey, but due to unexpected delays in receiving the results, it will be published in a follow-up paper. Figures from FIFA were used and referenced in this paper, although we are aware of the recommendation of Matheson (2006) and other researchers regarding the importance of vigilantly evaluating any economic benefit estimates presented by organizations that have motivations and interest to show exaggerated positive impact figures. For future work, it is worth verifying the figures against academic and official economic reports once they are released over time.

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