

## Environmental Sustainability Standards Implemented during FIFA World Cup Qatar 2022

Dr. Sana Abusin, Dr. Abduljalil Al Sufi<sup>1</sup>, Fahad Al-Boinin

<sup>1</sup>College of Arts and Science, Qatar University

The infrastructure projects initiated prior to hosting the FIFA World Cup in Qatar, including the construction of eight stadiums, gave rise to concerns about environmental issues related to the production of additional greenhouse gases, which contribute to climate change and air pollution, and the effects on biodiversity of noise pollution from construction sites and transportation. Other areas of concern included waste from construction materials and organic waste, in addition to the high consumption of energy and water for stadium construction. However, the State of Qatar implemented sustainability standards that protected the environment, thus avoiding all of the above-mentioned environmental issues. This policy brief presents the results of a survey conducted among Qatar University students to measure their knowledge and awareness of the sustainability standards implemented during the World Cup, and subsequently aims to raise awareness of the efforts made by the state to ensure the success of the event. Data were collected randomly from various colleges at Qatar University through a quick questionnaire prior to the start of the World Cup matches.

Conducting student public opinion surveys concerning national events contributes to enhancing their knowledge of important research topics. Qatar University students were recruited to participate in a survey regarding environmental sustainability standards. The survey was a collaborative effort between the Social and Economic Survey Research Institute (SESRI) and College of Arts and Sciences at Qatar University. A total of 430 students from different colleges and departments at Qatar University—including Engineering, Medicine, Arts and Sciences, and Sharia and Islamic Studies—participated in the survey. Around 73% of the students were Qatari nationals. The ages of participating students ranged from 17 to 45, and 21% were married. Females comprised 82% of the sample.

The results indicate that 50% of participating students had taken a sustainable development course, while 76% showed an interest in sustainable development topics. Students were asked to name the top three environmental concerns that might arise from hosting the World Cup in Qatar, including the construction of stadiums, waste management, and water, energy, and carbon emission management.

**Figure 1: Environmental concerns of hosting the FIFA World Cup**

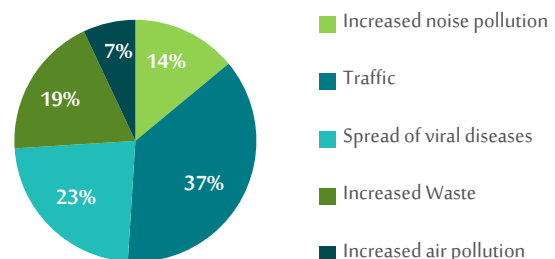


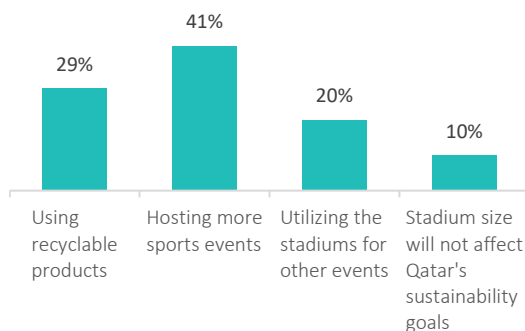
Figure (1) shows the spread of viral diseases as the students' main concern. In addition to making significant investments in the bus and taxi network,<sup>1</sup> to alleviate traffic congestion the State of Qatar developed the Doha Metro and the Lusail Tram, which include stations within walking distance from most stadiums. As a result, traffic congestion was not a serious problem or a cause of viral diseases.

### Sustainable Legacy of World Cup Projects

The state of Qatar was able to meet all FIFA requirements for making stadiums sustainable buildings. Any environmental issues that may

have arisen during the hosting of the tournament were taken into account and solved in sustainable ways. For example, sustainable materials were used in the construction of the stadiums, allowing for disassembly and recycling after the event, ensuring minimal impact to Qatar's land. Locations were also chosen to minimize impacts on biodiversity. To address noise pollution, sound absorption systems were implemented. As for energy issues, temporary power stations were built, and leak-detection systems were installed.<sup>3</sup> Seventy-three percent of the students believed that the construction of the eight stadiums was a sustainable long-term approach for the country (Figure 2).

**Figure 2: Sustainable Legacy of Stadiums**



The results demonstrate the students' awareness of the sustainability standards used in constructing the stadiums, including the use of recycled materials in their construction (29%), the long-term goals for hosting more sports events (41%), and utilizing the stadiums for other events (20%).

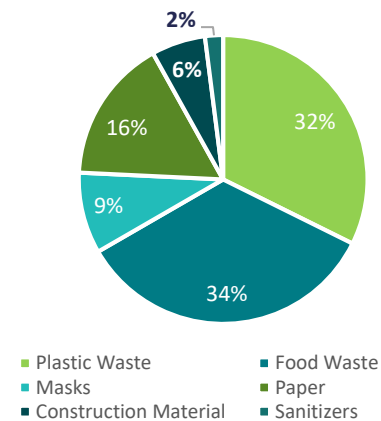
## Waste Management

If not managed optimally, construction waste and food waste may cause health and environmental issues. Qatar is highly motivated to prioritize waste management due to several factors, including the desire to minimize waste in areas most affected by pollution and climate change. In addition, and considering Qatar's significant environmental footprint, the proper management of food waste and avoiding its disposal in landfills is crucial. Qatar implemented the "circular

economy" strategy, an approach to production and consumption that aims to prolong the productive life of materials and products, increase resource value, and reduce waste during the FIFA World Cup. This closed-loop system involved recycling, repairing, refurbishing, and reusing goods and components to minimize waste and preserve resources. Qatar has been able to achieve 0% waste through the Ministry of Municipality Waste Management and Recycling Center, a feat that had not been achieved before or during previous World Cup events.<sup>2</sup>

The students were asked to name the three most significant sources of waste during the FIFA event. They perceived food waste as comprising the highest percentage, followed by single-use plastic waste and paper waste (Figure 3). According to the Waste Management and Recycling Department at the Ministry of Municipality, organic waste accounted for the highest percentage of waste components (40.7%), followed by paper waste (17%) and plastic waste (12%).<sup>3</sup>

**Figure 3: Waste Management**



When asked about the ideal method for managing organic waste, 81% of the students said that waste should be separated first and then recycled. It seems that the students were well aware of the importance of separating and recycling organic waste and transforming

it into useful products such as organic fertilizer and energy.

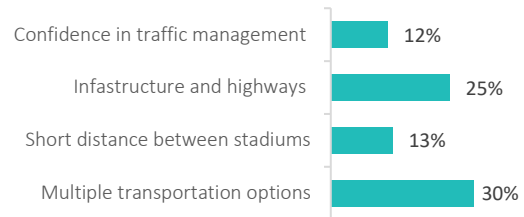
## Traffic

The Supreme Committee for Delivery and Legacy was very keen on eliminating traffic congestion during the World Cup, hoping to avoid disruptions that might hinder the timely arrival of the football fans before the start of the matches. Therefore, various strategies and temporary solutions were implemented. For example, air travel for visitors was managed and organized to avoid pressure on air carriers.

Additionally, reserve transportation assets, such as trains, were utilized, and temporary expansions of public transportation services and airports were implemented. School holidays were rescheduled to coincide with the tournament, and school buses were converted into transportation services for the event. As a result, traffic flow remained stable during the World Cup, and due to the success of the plan, no significant traffic congestion was observed.<sup>4</sup>

Traffic congestion was one of the most pressing issues for Qatar University students, as 37% believed it was going to be the biggest issue. The students were asked to indicate the ways in which traffic had been alleviated. Figure 4 shows that the most commonly cited method for alleviating traffic was the use of alternative means of transportation instead of private vehicles (30%). Additionally, 25% of the students believed that Qatar had invested significantly in roads that aid in traffic movement. Furthermore, 12% perceived that traffic management and organization by the traffic department could result in less congestion. The fact that multiple modes of transportation constituted the largest percentage suggests that the students were well acquainted with the metro, school buses, and electric shuttles that were designated for the FIFA World Cup 2022.

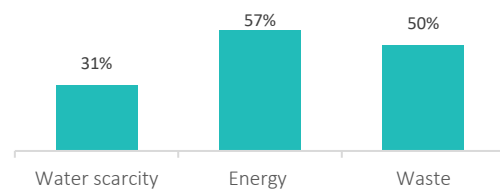
**Figure 4: Smooth Traffic Factors**



## Consumption of Natural Resources

The massive preparations undertaken by the Supreme Committee for Delivery and Legacy to host the FIFA World Cup could have consumed excessive amounts of depleted natural resources, posing a threat to adherence to sustainability standards. A small percentage of students perceived the consumption of natural resources as a threat to sustainability. Figure 5 illustrates that students considered excessive energy consumption to be the most concerning potential natural resource issue during the games, followed by food waste and water scarcity.

**Figure 5: The Most Consumed Natural Resources during FIFA World Cup**



Qatar, one of the most water-scarce countries in the world, has benefited from circular economy strategies, including wastewater reuse and water use reduction. During the event, Qatar met its growing energy demands and reduced its reliance on fossil fuels by utilizing bioenergy from waste, which can generate electricity and heat. Bioenergy can also be used to power vehicles, reducing the need for traditional fossil fuels. In general, Qatar has an opportunity to promote sustainable growth, reduce waste, and address climate change issues through bioenergy.<sup>5</sup>

# SESRI Policy Brief

*“We need to remember the unique sustainability measures that were taken to host Qatar FIFA World Cup. The sustainability standards adopted during the 2022 FIFA World Cup will represent a benchmark that changes the direction of major sporting events globally in the future”*

Part of the speech by the previous Qatar University President at the opening of the Global Sustainable Development Report 2023 Conference. Doha, 24-25 January 2023.

## References

1. Kucukvar, M., Kutty, A. A., Al-Hamrani, A., Kim, D., Nofal, N., Onat, N. C., ... & Al-Nahhal, W. (2021). How circular design can contribute to social sustainability and legacy of the FIFA World Cup Qatar 2022™? The case of innovative shipping container stadium. *Environmental Impact Assessment Review*, Elsevier 91, 106665 <https://doi.org/10.1016/j.eiar.2021.106665>.
2. Al-Hamrani, A., Kim, D., Kucukvar, M., & Onat, N. C. (2021). Circular Economy application for a Green Stadium construction towards sustainable FIFA World Cup Qatar 2022™. *Environmental Impact Assessment Review*, 87, 106543. <https://doi.org/10.1016/j.eiar.2020.106543>
3. FIFA World Cup Qatar 2022: Waste treatment Strategy Ministry of Municipality -Centre for waste treatment and recycling -ministry of municipality.
4. FIFA World Cup Qatar 2022: Sustainability Strategy by the FIFA Secretary General
5. Spanos, I., Kucukvar, M., Bell, T. C., Elnimah, A., Hamdan, H., Al Meer, B., ... & AlKhereibi, A. H. (2022). How FIFA World Cup 2022™ can meet the carbon neutral commitments and the United Nations 2030 Agenda for Sustainable Development?: Reflections from the tree nursery project in Qatar. *Sustainable Development*, 30(1),203-226. <https://doi.org/10.1002/sd.2239>

## Policy Recommendations

1. Offer programs about national events as part of the university curricula and host events activists at universities.
2. Encourage students participation in national events as a means to enhance their mental health and well-being and reduce academic pressures.
3. Implement sustainability standards on a national scale and maximize the benefits of the FIFA 2022 experience in the optimal management of natural resources.
4. Provide opportunities for postgraduate studies in the field of sustainable development and environmental economics to enhance research in optimal natural resource management and policies development.