Event sustainability – Managing the environmental footprint of a sports event

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Introduction

While the concept of sustainability has become increasingly relevant to both household and business decision-making, its continually pressing nature means that it is highly unlikely to disappear from our agendas any time soon.

Even assuming that the world's climate returns to some kind of equilibrium in due course, it is likely that sustainability will be a key a factor in efforts to keep it there.

It is therefore worth considering how sport – a sector for whom, globally, climate adaptation is less possible than most – can play its part in reducing its carbon footprint. While the sector has adopted a range of good practices in recent years, there is no sense it can stand still. As Orjan Lundberg, Sustainability Expert to the Supreme Committee for Delivery and Legacy at the 2022 FIFA World Cup puts it in an interview for this case study:

"Sport has a responsibility to the environments because it's a global problem that we need to take care of. If we don't tackle that problem, some sports simply won't be able to go ahead. Every event is different and organisers can't simply rely on previous approaches. Of course, you need to learn from others but you also need to be prepared

to innovate to make sure what you are doing fits your event. The biggest challenge is coming up with the right mix of innovative solutions and the tried and tested ones."

Besides any moral responsibility which sport has to tackle climate change, there are also commercial imperatives at play. Lundberg adds:

"If you think of the revenue streams for sports organisations, sponsorship is a massive consideration. So if you cannot present yourself as a competition which cares about things like climate change, you may not be able to get the support of brands which have these values."

And while a framework has developed across sport in the past two decades, as this case study will show, Qatar has also been making its own commitments as a country. It was among the first countries to sign up to a number of important international agreements including the United Nations Framework Convention on Climate Change in 1996, the Kyoto Protocol in 2005, and the Paris Agreement in 2016, which it ratified in 2017.

In 2012, it also hosted COP18 (the 18th meeting of the Conference of the Parties to Climate Change), laying the foundations for what was to become the Paris Agreement. Closer to home, sustainable development is one of four pillars of the country's National Vision 2030, which aims to reduce its dependence on fossil fuels. Amongst its commitments is an aim to installing 10 gigawatts (GW) of solar power capacity by 2030.[1]

Moreover, in the shape of its hosting the event in 2022, Qatar is proposing that it will hold the first ever carbon neutral World Cup.[2] In doing so, organisers will be required to address this comprehensive framework:

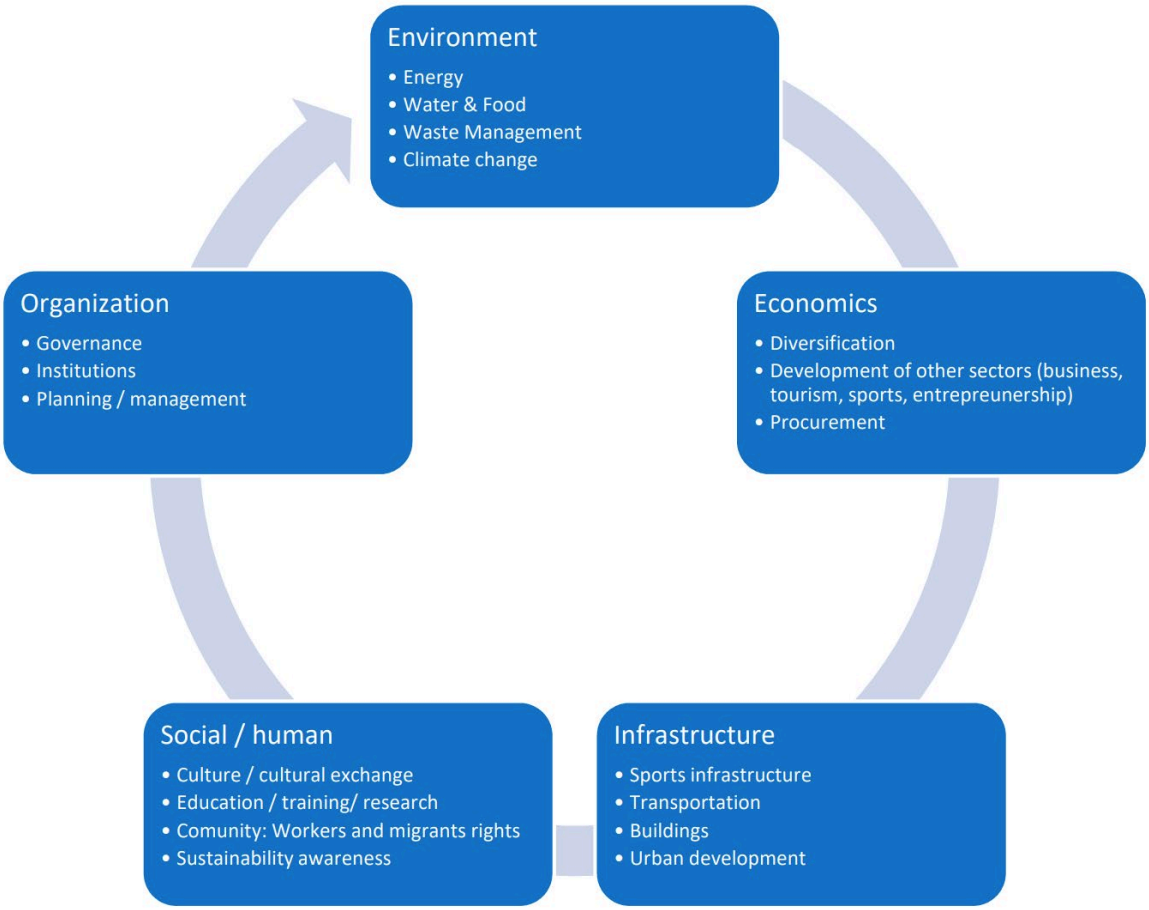

Figure 1 – Framework of sustainability assets

Source: Abel Meza Talavera, Sami G. Al-Ghamdi and Muammer Koç

Part 1 - The growth of sustainability in reference to sport – A policy framework

The United Nations (UN) has defined the concept of sustainability as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs". [3]

Furthermore, the UN has agreed that "*sport facilities, events, activities and the manufacture of sporting goods have an impact on the environment*" (UN, 2007, para.10) through:

- Noise and light pollution
- Consumption of non-renewable resources (fuel, metals, etc.)
- Consumption of natural resources (water, wood, paper, etc.)
- Emission of greenhouse gases by consuming electricity and fuel
- Soil and water pollution from pesticide use
- Soil erosion during construction and from spectators
- Waste generation from construction of facilities, and from spectators.[4]

Individual sporting organisations, like federations, leagues, teams and event organisers all have significant leadership roles to play in the reduction of carbon outputs (and concomitantly an increase in their sustainability). Indeed, Qatar 2022's Orjan Lundberg contends that many high-profile sports organisations are already mirroring the behaviour of corporate leaders in the field.

"We're seeing a shift among rightsholders on sustainability. The IOC has released a comprehensive strategy. FIFA have tackled it in FIFA 2.0. World Athletics are doing fantastic work, particularly around air quality and long-distance running. We're seeing the Ocean Race lead the way on cutting down on consumption of single-use plastics. Clubs are also doing work in this area and the sports industry is becoming more like corporations in their approach to CSR and formalised reporting on sustainability."

But notwithstanding individual actions, it has often been at the global level where the most relevant frameworks for sport have been set.

Although sport has been a major theme in the United Nations' Environment Programme, which dates back to 1994, it was not until 2006 that real progress was made in defining the responsibilities of the sector and setting benchmarks for its future performance.[5]

In that year, two of the world's handful of mega-events took place – the FIFA World Cup (Germany) and the XX Olympic Winter Games (Torino, Italy). Mindful of the current of opinion on climate change – the preceding year had seen the Kyoto Protocol on climate change come into force during, what was at the time, the world's second hottest year on record – both events set new benchmarks for sustainability in the sports world.[6]

FIFA's 2006 Green Goal Programme

The aim of FIFA's Green Goal Programme was to minimize the impact of the World Cup on the environment. The initiative identified five core areas: water, refuse, energy, mobility and climate neutrality. The World Cup stadiums were at the heart of this programme and each boasted an eco-friendly measure.[7] Nevertheless, the 2006 World Cup was estimated to generate incremental greenhouse gases totalling around 100,000 tonnes, with transport accounting for the vast majority of emissions.

FIFA now adopts a World Cup Sustainability Strategy and the Qatar World Cup, which will take place in 2022, will be the first to be delivered with a joint strategy between the hosts and FIFA.[8]

Winter Olympic Games 2006 – Heritage Climate Torino (HECTOR)

Torino's Heritage Climate Torino Project (HECTOR) had a dual objective of drawing attention to climate change, as well as neutralising carbon dioxide and other greenhouse gas emissions produced by the Turin Olympics of 2006.[9] The project featured two key tenets.

- Carbon credits – money allocated by the Piedmont region used to give companies that won games contracts the economic resources necessary to conduct projects in the field of energy and the environment.

- The adoption of the EU's EMAS (Eco-management and audit system) to assess and manage the full life-cycle of environmental impacts created by the Games, encompassing waste, transport, water, preservation, buildings, emissions, and re-use.

Although the Torino Games' legacy is mixed (large parts of the physical infrastructure created for the Games lie abandoned), the adoption of these measures in planning was in itself a landmark. It was also the first Games to obtain the environmental standard, the International Standard Organization (ISO) 14001 certification.

The policy framework as it stands

The next most significant step towards greater sustainability in the sports sector was the UN Sports for Climate Action Framework, initiated as part of the Paris Climate Change agreement.[10] The Framework is a movement for the sports sector aimed at ensuring that its members play their part in carbon reduction and prioritises five principles:

1. Undertake systematic efforts to promote greater environmental responsibility
2. Reduce overall climate impact
3. Educate for climate action

4. Promote sustainable and responsible consumption
5. Advocate for climate action through communication.

The framework asks sport to acknowledge and reduce the impact it has on the environment but also to use its platform to communicate the need for positive change in others. It also makes the important point that climate change has a direct impact on sport in a variety of ways:

- Damage to playing surfaces due to extreme temperatures, extended periods of drought, flooding, and/or pest species extending their natural range
- Damage to buildings and other infrastructure due to violent storms
- Coastal erosion and sea level rise directly affecting sport properties in seaside areas
- Warmer winters and lack of natural snow threatening ski resorts at lower altitudes
- Unseasonal rainfall forcing cancellation or abandonment of sport matches
- Heat waves forcing changes to timing of sport events
- Increased injuries to players from heat exhaustion and impact injuries from harder playing surfaces
- More potentially harmful algal blooms limiting direct contact outdoor water sports
- Sub-standard fan experience where high temperatures create potential health risks and detract from the enjoyment of the event
- Climate adaption measures being required in the design of new or refurbished sport venues. [11]

The framework sits within the UN's Sustainable Development Goals (SDGs – see Figure 2 below), which emerged as part of its 2030 Agenda for Sustainable Development, with the UN arguing that sport has a part to play in meeting all of the goals, making the sector a key enabler in achieving them.[12]

Figure 2 - The UN's Sustainable Development Goals

Source: United Nations

Although the goals use the term 'sustainability' in its broadest possible sense, taking in areas like health and justice, the International Olympic Committee (IOC) has embraced the SDGs and made them the basis for its own sustainability strategy.[13]

FIFA's sustainability strategy for its blue riband event - the 2022 Qatar World Cup - also aligns itself to the goals, explaining how the tournament can contribute to development of 11 of the 17 goals.[14]

As we have noted, its sustainability efforts for the Qatar World Cup are a joint effort between FIFA itself the local organising committee and the host country represented by the Supreme Committee for Delivery & Legacy, something which its Sustainability Expert, Orjan Lundberg, says has important benefits:

"Sustainability is a fast-evolving field in all sectors but even more in sport – and it's a newer subject in sport.

"The beautiful thing about having a joint strategy is that we've been able to link the strategies together. We can use that to produce some long-lasting change in the host country – which is a win/win situation.

"The official site operations is limited to stadiums and some hotels, media centres etc but there are lots of other sites that are run by the host country where we can utilize similar sustainability strategies and principles – in places like fan-zones and in the last mile around stadiums, and in non-official hotels."

A number of major sports organisations have now signed up to the UN's Framework, including UEFA, the NBA, Formula E, World Rugby, Wimbledon, the FIA, DFB, Formula 1, La Liga, UCI and World Sailing.[15]

These commitments are likely to be welcomed by many fans. Research from around the world suggests that being a sports fan does not preclude an interest in the protection of the environment. The data below (Figure 3) shows attitudes towards a handful of sustainable behaviours in the UK and US and demonstrates a relatively high level of commitment in these key markets.

	UK	US
I always make an effort to recycle	87	75
I always make sure I turn lights off when I leave a room	85	84
I think green energy is the future	69	72
I try to use less electricity to help the environment	61	70
Climate change is the biggest threat to civilisation	55	58
I think brands should consider environmental sustainability when putting on events	70	66

Figure 3 – Fans' attitudes to environmental issues

Source: YouGov Profiles 23 July 2020

Although the data is not reproduced in Qatar, we can make a relatively safe assumption that the attitudes of Qatari sports fans do not differ greatly from those of the general population. Environmental development is one of the four core pillars of the country's National Vision 2030, with one of the key targets to "build an environmental-aware society". A recent study by Qatar Environment and Energy Research Institute (QEERI) and the Ministry of Development Planning and Statistics (MDPS) suggests that people who live in the country have a relatively acute sense of environmental pressures, their causes and the sacrifices required to live sustainably.[16]

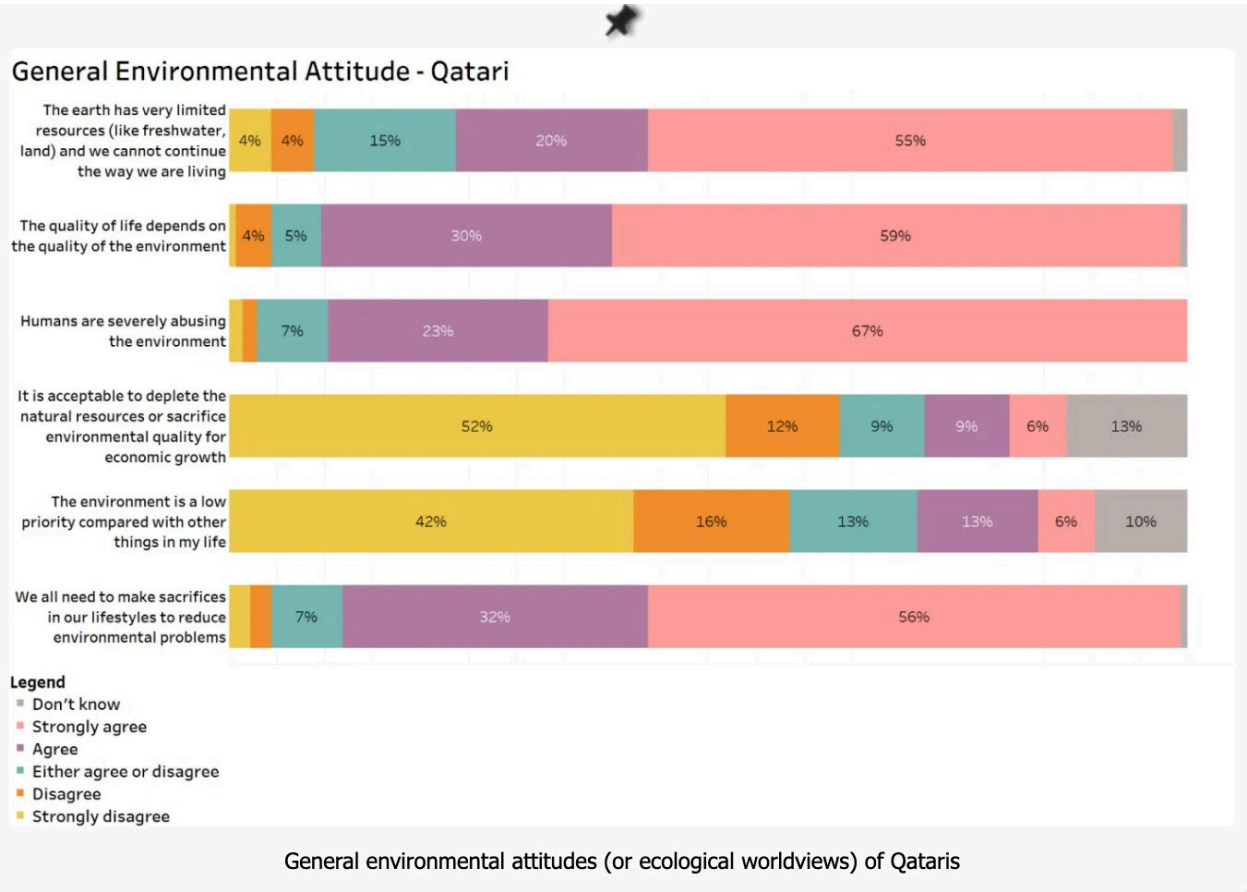

Figure 4 – Findings from joint study by Qatar Environment and Energy Research Institute (QEERI) and the Ministry of Development Planning and Statistics (MDPS)
Source: QEERI[17]

The data shows that 88% of Qataris believe that they need to make lifestyle sacrifices to reduce environmental problems, while 89% believe that their quality of life depends on the environment. Nine in ten (90%) say that humans are severely abusing the environment.

All this suggests that sports organisations and those responsible for events taking place in the country would be well-advised to seriously consider sustainability in the planning and execution of competitions.

The environmental footprint of sports can be very high. One study of the carbon footprint of fans travelling to watch the FA Cup final in England found that they had an impact seven times greater than someone going about normal, everyday life.[18] Organisers of the Rio Olympic and Paralympic Games in 2016 estimate that the carbon created by the event would total 3.6m metric tonnes, while FIFA say that the 2018 World Cup in Russia generated 1.5m metric tonnes less.[19] Formula 1 estimates its Scope 1, 2 and 3 footprint to be 256,000 metric tonnes of carbon, giving each race, including Abu Dhabi's an average of 12,000 tonnes – although its calculations seem to exclude spectators' contribution.[20]

Yet there is a growing movement towards addressing these outputs. For example, Formula 1 aims to make its competition carbon neutral by 2030.[21] By the same year, the IOC will require hosts to move beyond carbon off-setting and into 'climate positive' (denoting an overall or longer-lasting positive impact on the environment through zero-carbon technologies, for example).[22] Los Angeles has pledged to be the first 'energy positive' Games.

The UN Sports for Climate Action Framework also argues that sports have a duty to use their platforms to reinforce sustainability messaging, influencing fans to take up more positive behaviours as far as climate is concerned. The Green Sports Alliance, a global body formed to help organisations fulfil that duty, has created a Fan Engagement Playbook to assist teams, leagues, federations and organisers with that task.

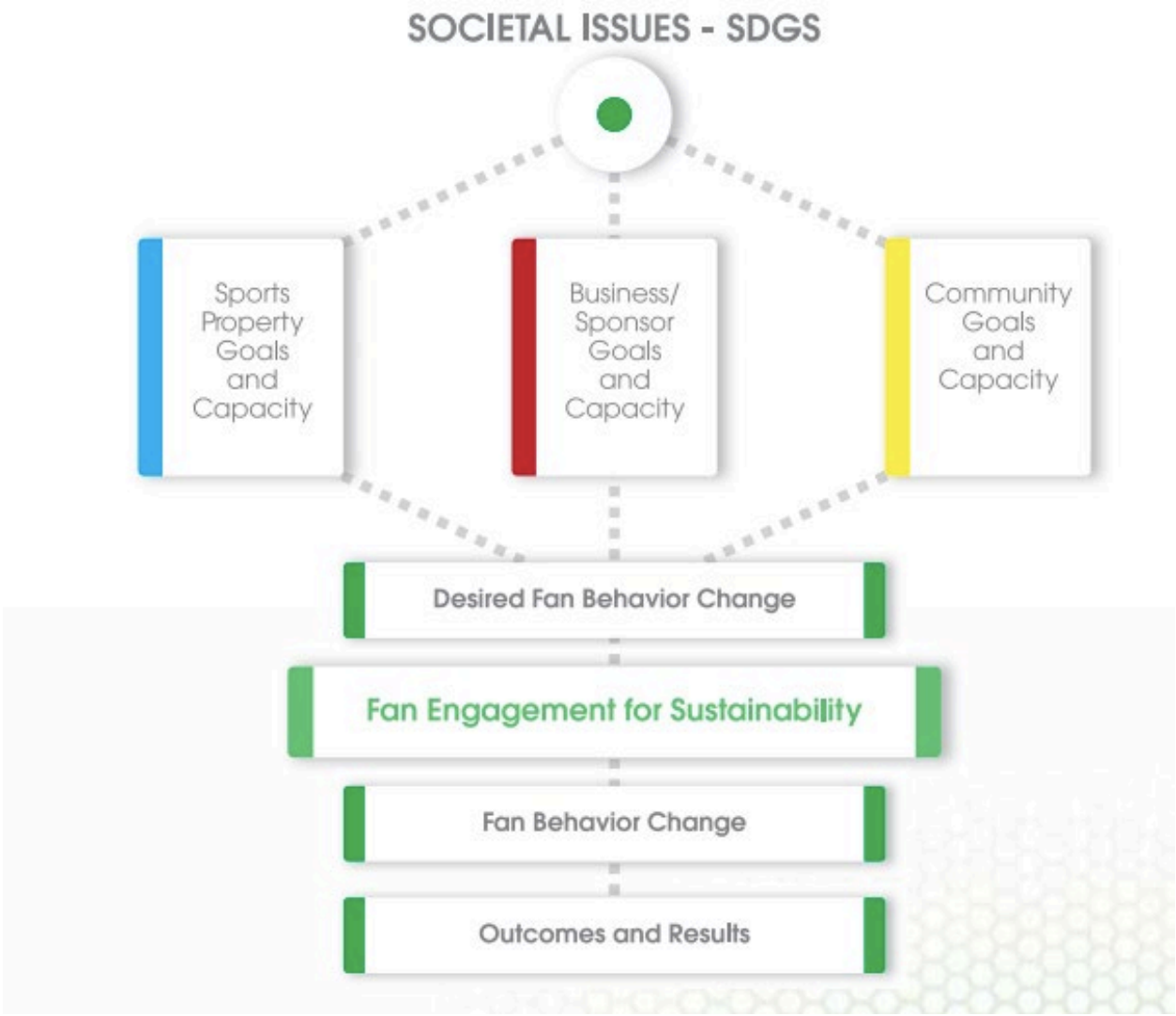

Figure 5: Societal issues and SDGS

Source: Green Sports Alliance, 2018

It has created a model (see Figure 5) designed to illustrate the role which sports organisations can have in responding to fans' attitudes to the environment but also in promoting change to them, alongside other parts of society.

Part 2 – How sport can assess their carbon footprints

Although making an environmental impact assessment based around carbon output can be a relatively complex undertaking, it is considered to be best practice in setting a benchmark and making improvements to a competition's environmental performance.

Options which may grab more headlines and are superficially attractive but not ultimately successful in reducing carbon emissions in the long-term are known as 'greenwashing'. They can result in a net reputational loss for an organisation if exposed by close scrutiny.

The region stands to benefit specifically from successful carbon reduction schemes. As the Gulf Organisation for Research and Development (GORD) finds, the Gulf Cooperation Countries (GCC) have some of the biggest environmental challenges in the world (see Figure 6 below).[23]

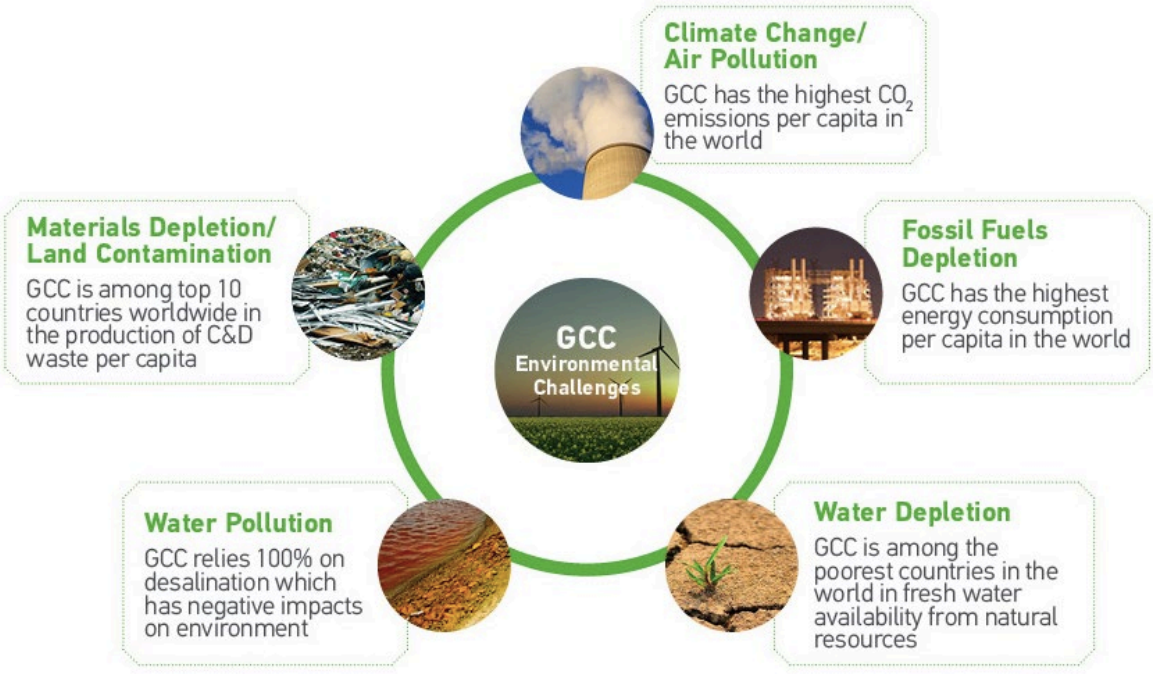

Figure 6 – GCC environmental challenges

Source: GORD

Indeed, Qatar in 2017 was reported to be the world's leading CO_2 emitter per capita, something which is consistent across oil producing countries – albeit that this is exacerbated by these countries' small populations. [24]

Measuring carbon emissions has been largely standardised by the work of the Greenhouse Gas Protocol (GHG Protocol), a multi-stakeholder partnership of businesses, non- governmental organizations (NGOs), governments, and others, convened by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD).

Launched in 1998, the mission of the GHG Protocol is to develop internationally accepted greenhouse gas (GHG) accounting and reporting standards and tools, and to promote their adoption in order to achieve a low emissions economy worldwide.

Greenhouse gases are categorised into three groups or 'Scopes', widely used by the Greenhouse Gas (GHG) Protocol. Scope 1 covers emissions from owned or controlled sources, such as boilers or cars. Scope 2 covers indirect emissions from the generation of purchased electricity, steam, heating and cooling consumed by the reporting company. It generates emissions wherever it is created and Scope 2 includes them. Finally, Scope 3 includes all other indirect emissions that occur in a company's value chain but which are created from sources not owned or controlled by the company. Scope 3, while difficult to pin down, is the most comprehensive reporting since it takes in the emissions created by the goods and services a company (or sports organisation) buys, as well as by its employees' travel and commuting and a wide range of other factors (see Figure 7 below). [25] Responsible sourcing and purchasing can drive Scope 3 emissions down for an organisation, while commissioning goods and services without consideration to how they are created (for example, purchasing goods made from materials that require lots of energy to manufacture or harvest) will bump up an organisation's footprint.

Scope 1	Scope 2	Scope 3
Fuel combustion Company vehicles Fugitive emissions	Purchased electricity, heat and steam	Purchased goods and services Business travel Employee commuting Waste disposal Use of sold products Transportation and distribution (up- and downstream) Investments Leased assets and franchises

Figure 7: Greenhouse gas scopes

Source: Carbon Trust

Scope 3 emissions can often be far greater than the more strictly-defined Scopes 1 and 2 but give a much more accurate sense of an event's carbon emissions – and how to reduce them. See Figure 8 below for Scope 1, 2 and 3 emissions from the 2018 FIFA World Cup. [26] It shows how indirect emissions make up almost 99% of its carbon footprint.

Scope	tCO_2e	% of total
Scope 1: direct GHG emissions	8,641	0.4%
Scope 2: indirect GHG emissions from purchased electricity, heat and steam	21,921	1.0%
Scope 3: other indirect GHG emissions	2,136,556	98.6%
Total	**2,167,118**	**100%**

Figure 8: Results by scope 2018 World Cup[27]

Source: FIFA[28]

Part 3 – Applying theory to real life sports events

In this final section, we will examine some of the steps to take when putting the theory of event sustainability into practice.

Orjan Lundberg, Sustainability Expert for Qatar 2022 has some valuable advice for sports event organisers:

"Senior management buy-in is very important. Our strategy has been published and signed by the Secretary General of FIFA and the Secretary General of the Supreme Committee for Delivery & Legacy. They are buying in and endorsing this strategy and that gives it weight within the organisations, as well as outside it.

"Stakeholder engagement – both internal and external – has been very important. You get nowhere by writing a plan in isolation. Hear your stakeholders, answer their questions, understand what they care about. At Qatar 2022, we started with a long list of 110 priority topics. Through consultation, we were able to prioritise around 20 objectives that really matter to our stakeholders.

"Team work and collaboration is vital. We create formal and informal processes to work with all the project managers delivering this World Cup – from transport, accommodation, construction, catering – everything. We work very closely with all of

those to understand what it is that matters in our sustainability strategy in their area of work. Then we ask ourselves, can we provide them with research or training or other resources to improve sustainability in their area?"

These and other points are covered below:

1. Win senior team buy-in - Always start with the support of senior staff. Implementing anything new can be challenging and without help from around the organisation, you increase your chances of falling short of your aims.
2. Resources – Ensure you have enough budget and capacity to both develop the plan and to execute it.
3. Structure – Begin by looking at your organisation's strategy/business plan. Identify the sustainability risks and opportunities to what it aims to achieve. Set out your plan based on where your organisation is NOT dealing with those risks or opportunities. Think about not just the risks/opportunities now but also those that are coming down the line.
4. Take people with you – Always consult your stakeholders – both internal and external, including fans and athletes. Let them know about your aims and try to carry them along with you. You may need their support. Prioritise stakeholders and work out a plan to keep them involved.
5. Based on risks/opportunities and your consultation, identify the most important issues to act on. Don't just choose the most interesting or the most likely to catch the eye, although you may wish to include them in your mix of activities. Choose objectives where you will make the most difference – this is what experts call

materiality. Draft a plan and take it to your stakeholders again, including the senior team. Set clear goals and support them with action plans.

6. Once it's finalised, tell people about it. This will help in holding the organisation to account and create a sense of transparency about the goals.
7. Set up monitoring – so you know how you are progressing. And share your progress in reporting to make sure your organisation is accountable.
8. Make progress each year and adjust your goals accordingly. Don't sit back once goals have been achieved. Continue to review materiality (the issues that are most important).

Part 4 - Single-use plastics

In recent years, single-use plastics have become an emblem of poor environmental stewardship. Every piece of plastic ever made still exists – and nowhere is that more visible than in drinks bottles and food containers.[29] Despite efforts to re-use them, a recent study found that only 9% of plastics had been recycled.[30]

As a result, consumers are becoming increasingly wary of single-use plastics and have been educated that their consumption is damaging the planet, our health and particularly our oceans. Many businesses have responded by supporting changes in consumer habits (for example, offering water fountains or providing bio-degradable packaging) or by leading the way and trusting their customers will follow.

At sporting events, a number of factors mitigate towards the consumption of large amounts of single-use plastics including high numbers of spectators, security which

discourages bag-carrying, warm weather and long days in the outdoors. As a result, sports events can generate significant and highly visible amounts of waste plastic and the UN estimates that a major sports event can generate up to 750,000 waste plastic bottles.

As Qatar 2022's sustainability expert, Orjan Lunderg says, that situation is exacerbated by the COVID-19 pandemic:

"Tackling single-use plastics at major events is not as easy as you might think. High volumes of product are bought in very small windows of time and the COVID-19 situation doesn't make it easy to solve. But we're doing lots of work on this and also working with our partners to help reduce their use of single-use plastics despite the difficulties."

A large number of other sports organisations are also making progress at reducing plastic use and here are some examples:

Kia Oval, London, UK – This cricket ground, home to Surrey and host of a number of England matches, had reduced plastic consumption by 90% by May 2019, a year ahead of its target to become plastic-free.

- All alcoholic drinks are now served in re-useable glasses (as opposed to recyclable ones), with a deposit scheme encouraging their return
- All soft drinks are served in cans

- Hot drinks are served in compostable cups
- Food is served in recyclable cardboard
- The shop no longer offers plastic bags
- 14 water fountains have been installed around the ground.

FIFA World Cup 2022 – Organisers are planning a range of initiatives to make the World Cup in Qatar carbon-neutral.[31] Specifically on waste, organisers plan to use the event to increase the proportion of solid waste that is recycled from 10% to 15%. Single-use plastic would fall into that category. Organisers will also engage with local accommodation, food, beverage and merchandise sectors to encourage best practice in waste management. All facilities are being designed to accommodate waste segregation.

Plogging – This new Swedish activity combines the words for picking and jogging and involves picking up litter while you jog.

Volvo Ocean Race – The round-the-world sailing race organisers have created a 40-page guide to reduce or eliminate plastic use, alongside the United Nations. The guide is broken up into 5 sections – Rethink, Refuse, Reduce, Replace and Recover.

Wimbledon (All England Tennis Club) – The Championships introduced water fountains to fill up their recycled and recyclable water bottles and staff are on hand to help spectators recycle waste appropriately. Plastic bags are no longer available and

returnable cups were due to be introduced in 2020. By 2030 the Championships plan to eradicate all single-use plastic.

Tools and resources

Playing for our Planet – How sports win by being sustainable - https://www.uefa.com/MultimediaFiles/Download/uefaorg/General/02/55/63/72/2556372_DOWNLOAD.pdf

Green Sports Alliance – Fan Engagement Playbook - https://greensportsalliance.org/wp-content/uploads/2019/02/FanEngagementPlaybook2018-06-27FINAL.pdf

UN Sports for Climate Action - https://unfccc.int/climate-action/sectoral-engagement/sports-for-climate-action

IOC Sustainability Strategy - http://extrassets.olympic.org/sustainability-strategy/executivesummary/8-1

FIFA World Cup 2022 Sustainability Strategy - https://resources.fifa.com/image/upload/fifa-world-cup-qatar-2022tm-sustainability-strategy.pdf?cloudid=p2axokh26lzaafloutgs

Writing a sustainability strategy podcast - https://sustainabilityreport.com/2020/07/21/developing-a-well-thought-out-sustainability-strategy-for-sport/

Volvo Ocean Race Turn the Tide on Plastics guide - https://d10n410n1bycop.cloudfront.net/files/m119843_volvo-ocean-race-turn-the-tide-on-plastic-at-sporting-events-user-guide-lr.pdf

Scope 3 - https://ghgprotocol.org/sites/default/files/standards_supporting/FAQ.pdf

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[13] http://extrassets.olympic.org/sustainability-strategy/executivesummary/8-1

[14] https://resources.fifa.com/image/upload/fifa-world-cup-qatar-2022tm-sustainability-strategy.pdf?cloudid=u25obd7303tdxupsjysn

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Teaching asset

Introduction

As the effects of climate change continue to grow, environmental sustainability is climbing up the priority list for individuals and organisations. Sport is no exception – indeed the sector stands to suffer more than many from changes in the world's temperature. From damage to playing surfaces, through a lack of snow, to weather causing abandonments and diminished fan experiences, only a few corners of the sports experience will remain untouched by climate change.

Sport, therefore, has a role to play in ensuring its impacts on the environment are limited. But it can also provide a platform to promote more responsible attitudes towards sustainability among fans.

Comprehensive global structures to support sport's efforts in this sphere have been provided through the United Nations and its Sports for Climate Action Framework. In turn, these sit under the organisation's Sustainable Development Goals.

But it is up to sports bodies themselves to interpret these frameworks, apply them to their own circumstances and make the changes necessary to reduce their carbon footprints and this can be altogether more time-consuming and effortful.

Teaching

A motor-racing team wants to calculate its Scopes 1, 2 and 3 emissions. It has calculated its main items as follows:

Item	Metric tonnes CO2
Power unit (engine) emissions	1
Staff travel to events	28
Factory heating (gas)	19
Event operations	7
Equipment logistics (transport)	45
Factory light (electricity)	5
Air conditioning	2
Purchased bodywork	8
Employee commuting	4
Purchased tyres	10
Waste disposal	1
Petrol for cars	3

1) Sort the items into Scopes 1, 2 and 3 as per the definition provided by the Green House Gas Protocol.

Answer

Item	Metric tonnes CO2	Scope
Power unit (engine) emissions	1	1
Staff travel to events	28	3
Factory heating (gas)	19	1
Event operations	7	3
Equipment logistics (transport)	45	1
Factory light (electricity)	5	2
Air conditioning	2	1
Purchased bodywork	8	3
Employee commuting	4	3
Purchased tyres	10	3
Waste disposal	1	3
Petrol for cars	3	1

2) Equipment logistics (transporting cars and equipment to and from races) and staff travel (to and from races) appear to be the biggest impact items. Think about the measures the team/organisers might put in place to reduce their impacts in these areas specifically.

Answer

Answers may include:

- Reduction of head count at races
- Shortened journeys where possible (using more local people)
- Using alternative, greener modes of transport
- Using less equipment
- Travelling less far (arguing for a smaller circuit of GPs around the world)
- Setting rules on the amount of equipment/staff permitted at races
- Packing better to take less space
- Working remotely
- Reducing the number of parts allowed under the rules
- Reducing the number of races

3) Considering one or more of the other items, come up with a creative and eye-catching idea that the team could introduce to reduce their carbon emissions.

Answer

Options here can go in a variety of directions but it is important to steer students towards materiality in decision-making – in all cases, it is important to address big-ticket items, rather than concentrate on gimmicks.

So while the brief here is to come up with initiatives that are interesting, they must also make a difference – in order to deal with a common criticism of piecemeal efforts in fighting climate change, known as greenwashing.

Initiatives could include replacing factory heating with solar or wind-sourced energy or even using the engineering know-how of the team to move towards going off-grid completely; sourcing tyres of new, sustainable materials or finding ways to make them last longer; or identifying more local, shorter supply chains for something like the purchase of bodywork (Eg - “Every part for our car was built or sourced within 40 miles of our HQ”)

4) Now thinking about a domestic football league, across each of the following areas, list three practical steps a single club could take to improve their sustainability performance:
    a. Clean energy
    b. Energy efficiency
    c. Sustainable transport
    d. Single-use plastic reduction or replacement
    e. Waste management
    f. Water efficiency

g. Plant-based/low carbon food

h. Hard infrastructure (ie stadium, training ground) construction and maintenance

i. Communications and engagement on sustainability issues

Answer

Clean energy	Solar, wind, hydrogen sourcing etc
Energy efficiency	Insulation, turning off lights, reducing zombie energy etc
Sustainable transport	Encouraging staff to cycle, remote working, no domestic flights etc
Single-use plastic reduction or replacement	No takeaway coffee cups allowed in building, supply reuseable crockery, source sustainable packaging in canteens and concesssions etc
Waste management	Set 100% recycling goals, on-site sorting facilities, energy efficient disposal etc
Water efficiency	Modern watering systems for ground and pitches, low flow flush toilets etc
Plant-based/low carbon food	Locally sourced ingredients, offer vegetarian and vegan options, seasonal food etc
Hard infrastructure (ie stadium, training ground) construction and maintenance	Low carbon construction techniques, planned-

	sustainability facilities (eg waste sorting)

Further reading

- https://sustainability.sport/
- https://basis.org.uk/
- https://www.sustainabilityreport.com/
- http://www.sustainabilityinsport.com/
- Jill Savery and Keith Gilbert – Sustainability and Sport (2011)
- Cheryl Mallen, Greg Dingle - Sport and Environmental Sustainability: Research and Strategic Management
- Routledge Handbook of Sport and the Environment (2017)