Poor tackling: Yellow card for 2022 FIFA World Cup's carbon neutrality claim

WHY THE 2022 FIFA WORLD CUP IN QATAR IS NOT ON TRACK FOR CARBON NEUTRALITY

Analysis · May 2022

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The views expressed in this report do not necessarily represent the views of GSCC.

Summary

The 2022 FIFA World Cup in Qatar is being advertised as a “carbon neutral” event. This means that its net impact on the climate is zero or negligible. However, our investigation of the available evidence casts serious doubts on this claim, which likely underestimates the tournament’s true emissions levels and climate impact. This is not a harmless exercise, as it misleads players, fans, sponsors and the public into believing that their (potential) involvement in the event will come at no cost to the climate.

This investigation objectively assesses the credibility of the “carbon neutrality” claim and identifies where it misleads the public.

The organisers estimate that the World Cup will emit 3.6 megatonnes of carbon dioxide equivalent ($MtCO_2e$). Our analysis finds that this does not accurately represent the tournament’s actual footprint due to the choice of accounting approach.

The footprint of permanent stadiums purpose built for the tournament was allocated to the event based on a “use-share” basis. To put it simply, this means that the number of days of the tournament were divided by the estimated lifetime of the stadiums to arrive at the share of the total emissions associated with the construction of these facilities attributed to the World Cup. This is problematic because these stadiums have been constructed specifically for the World Cup. Future extensive use of so many stadiums in such a small geographical space is uncertain, especially when considered against the fact that Doha had only one major stadium before it was awarded the World Cup.

Moreover, stadiums are unlikely to be the most efficient or effective venues for the community services that legacy plans envision. In our estimation, the total footprint of the permanent stadiums constructed for the World Cup might be underestimated by a factor of eight, amounting to $1.6MtCO_2e$, rather than the reported $0.2MtCO_2e$.

In addition, other sources of emissions could have been underestimated, such as those due to the exclusion of emissions from maintaining and operating stadiums in the many years following the tournament.

This report does not assess the full extent of the impact of implemented climate mitigation measures. However, some of the proposed actions also lack integrity. For example, the World Cup organisers have created a large-scale tree and turf nursery - the largest turf farm in the world - in the middle of the desert. While irrigation uses treated sewage water, the claim that this will absorb CO_2 emissions from the atmosphere and contribute to reducing the impact of the event is not credible as this carbon storage is unlikely to be permanent in these artificial and vulnerable green spaces, while carbon dioxide stays in the atmosphere for centuries to millenia.

To compensate the remaining emissions associated with the World Cup, organisers have contributed to establishing a new carbon credit standard, the Global Carbon Council. While it is supposed to deliver at least 1.8 million credits to offset World Cup emissions, it currently, just months away from the tournament, only has two registered projects, and has issued just over 130,000 credits.

The overwhelming majority of projects waiting for registration under this standard, as well as the two registered projects, are grid-connected renewable energy projects. These tend to not be “additional”, i.e. they are likely to happen regardless of whether they can sell carbon credits because renewable energy has become cost competitive in many regions of the world. This means that the credits they generate generally have a low level of environmental integrity. The vast majority of these types of projects can no longer be registered under the two largest carbon crediting standards - Verra and Gold Standard - due to this concern around their lack of integrity.

Finally, it is unclear how the World Cup in Qatar relates to FIFA’s own climate neutrality goal for 2040. The international footballing federation announced this target in 2021, but few details are available, and basic information such as the coverage of the target, reference years, and GHG inventory do not seem to be publicly available.

Introduction

The FIFA World Cup is one of the world's largest sporting events. The last edition, which took place in 2018 in Russia, was watched by 3.6 billion people.[1] In 2022, Qatar will host this major football tournament, which will see 32 national teams compete during a four-week period in November and December.

Beyond the sporting dimension, the FIFA World Cup is also a major cultural, societal and economic event. Host nations typically engage in significant investments, in the hope of attracting tourism and boosting the local economy over the long term, as well as for national prestige. Being a small country, with only one major city, Doha, and a total population of slightly over 2.7 million people,[2] Qatar did not have the necessary infrastructure to host a FIFA World Cup when it won the bid a decade ago.

The country has had to invest massively in infrastructure, including the construction of seven new football stadiums. It projected a budget of $8 billion ($ means USD throughout this report) for tournament infrastructure only.[3]

Hosting a FIFA World Cup, therefore, generates enormous greenhouse gas (GHG) emissions, including due to infrastructure development, travel and hospitality. The organisers of this year's edition claim that the 2022 FIFA World Cup will be "carbon neutral".[4]

This report assesses the credibility of the 2022 FIFA World Cup's carbon neutrality claim. It does not focus on the quality of the emissions reduction measures implemented by the organisers, but rather aims to identify elements which may mislead the public. As such, it is a fact-checking exercise rather than a quality assessment. In doing this, the objective is to provide the public with an objective assessment of the credibility of a claim with which they are being presented. Organisers of the 2022 FIFA World Cup have likely implemented some useful measures to address the climate impact of the event.

[1] FIFA (2018):"*More than half the world watched record-breaking world cup*"
[2] Planning and statistics authority Qatar (2022):"*Monthly figures on total population*"
[3] FIFA, the FIFA World Cup Qatar 2022 LLC and the Supreme Committee for Delivery and Legacy (2019):"*Fifa World Cup Qatar 2022 Sustainability Strategy*", p.10
[4] FIFA, the FIFA World Cup Qatar 2022 LLC and the Supreme Committee for Delivery and Legacy (2019):"*Fifa World Cup Qatar 2022 Sustainability Strategy*", p.12

However, the event will have a large carbon footprint, and the findings of this report suggest that the "carbon neutrality" claim is not credible. It is important to inform the public about the advertisements they are being shown. This was similarly done by Amnesty International when highlighting the human rights violations which occured during the preparation phase of this World Cup.[5] This report similarly aims to provide the public with objective information.

Governance structure of the 2022 FIFA World Cup in Qatar

The event is organised jointly by FIFA, the FIFA World Cup Qatar 2022 LLC (Q22), and the Supreme Committee for Delivery and Legacy (SC). Q22 is owned 51% by FIFA, and 49% by the "Qatar 2022 Local Organising Committee LLC"[6]. The SC is a government agency.

The SC has entered into a partnership with the Gulf Organisation for Research and Development (GORD) to deliver a "carbon neutral" World Cup. GORD is owned by Qatari Diar, a real estate investment company created by the Qatari sovereign wealth fund.[7] GORD has established the Global Carbon Council - the carbon credit standard expected to deliver most of the carbon credits to offset the World Cup's emissions - and manages the Global Sustainability Assessment System (GSAS), the body which certified the sustainability performance of all 2022 World Cup stadiums.

This raises questions about the independence of the carbon credit standard and the sustainable building certification used for the World Cup, given their ties to the event organisers.

[5] Amnesty International (2021): "*Qatar: Fifa must act on labour abuses as world cup qualifiers kick-off*"
[6] Fifa (2019):"*Fifa world cup Qatar 2022 LLC*""
[7] See "shareholders" page on the GORD website (https://www.gord.qa/about-gord/shareholders/)

What is carbon neutrality?

Carbon neutrality is defined by the UN's Intergovernmental Panel on Climate Change (IPCC) in the same way as "net zero CO_2 emissions". It is a situation where "anthropogenic CO_2 emissions are balanced globally by anthropogenic CO_2 removals over a specified period".[8] An important nuance is the reference to the *global* dimension of this state. It remains unclear whether and how the concept of carbon neutrality could be applicable to specific events, with some organisations such as the French Environment Agency claiming that it can only apply to a global and national level[9].

Carbon neutrality claims are controversial. While in theory they can help identify actors or objects that result in no net CO_2 emissions, in practice they are very difficult to implement and verify. Previous research in which we were involved has found that the "carbon neutrality" and "net zero" targets of the world's largest companies lack integrity.[10] For events, as for companies, it is crucial that all abatable emissions are reduced, before offsets are used.

As carbon neutrality claims tend to be widely relayed in the media and to the general public, it is important to assess their integrity.

In the case of the 2022 Fifa World Cup (FWC), some confusion remains in the terminology and how it can be implemented. The objective is to reach carbon neutrality, but all documents that could be consulted, including the sustainability report,[11] refer to the measurement, mitigation and offsetting of "GHG emissions". It appears that the organisers' objective is, therefore, to reach GHG neutrality, or what the IPCC defines as "net zero emissions" which covers gases other than CO_2 alone.

[8] IPCC, 2018: Annex I: Glossary [Matthews, J.B.R. (ed.)]. In: *Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty* [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)]. In Press

[9] Ademe (2021):"*Avis de l'ADEME - Neutralité carbone*""

[10] Carbon Market Watch & NewClimate Institute (2022): "*Corporate Climate Resonsibility Monitor*"

[11] FIFA, the FIFA World Cup Qatar 2022 LLC and the Supreme Committee for Delivery and Legacy (2019):"*Fifa World Cup Qatar 2022 Sustainability Strategy*"

In addition, FIFA, as one of the organisers, has communicated that the "objective is to reach carbon neutrality before the tournament kicks off".[12] It is unclear how this could be achieved given that offsetting emissions from an event can only be fully completed once the actual footprint of that event has been established. This carbon footprinting exercise can only take place *after* the event, and hence claiming carbon neutrality before the event takes place is premature and unworkable.

Is the World Cup's GHG footprint exercise credible?

An essential step in reaching "carbon neutrality" is to measure the greenhouse gas footprint of the event. This will be the basis used by the organisers to know how many carbon credits should be purchased to compensate for the emissions, at least on paper.

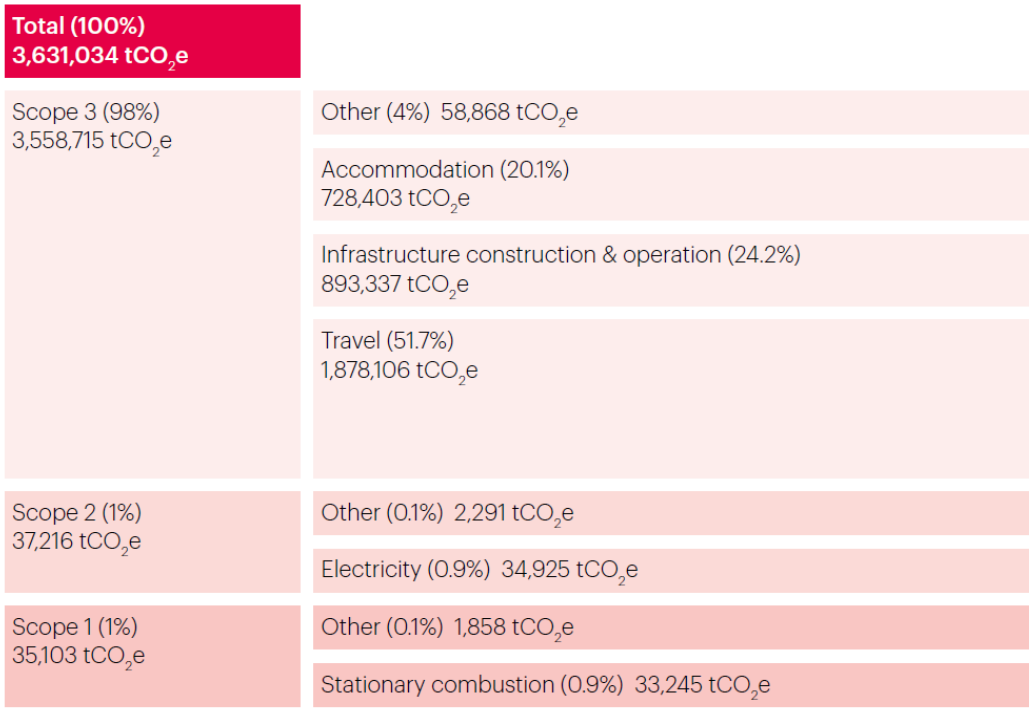
The final balance of emissions and offsets should be established based on a footprint calculation carried out once all the actual data has been collected after the event has ended. However, to provide an estimate before the event takes place, it is good practice to produce an ex-ante GHG calculation report, which has been done.

The ex-ante emissions report - prepared by carbon finance consultancy SouthPole in collaboration with Astad, a construction project management firm - estimates that the total footprint of the World Cup will amount to 3.63MtCO_2e (Megatonnes of carbon dioxide equivalent - a measure of the quantity of GHGs emitted[13]).[14] The report includes emissions from all three accounting scopes of the GHG Protocol,[15] which is good practice, including direct and indirect emissions. Indirect (i.e. scope 3) emissions cover 98% of total emissions, with three categories accounting for most of the emissions: travel, infrastructure, and accommodation.

However, several elements suggest that the total footprint might be underestimated, which would cast doubt on the organisers' "carbon neutrality" claim.

[12] FIFA (2019):"*GORD to support delivery of Qatar's carbon-neutral Fifa World Cup*""
[13] 1 Kilotonne (kt) = 1,000 tonnes ; 1 Megatonne (Mt) = 1,000,000 tonnes
[14] SouthPole & ASTAD (2021): "*Greenhouse gas accounting report - Fifa World Cup 2022*"
[15] See https://ghgprotocol.org/

FIFA WORLD CUP 2022 GREENHOUSE GAS FOOTPRINT



Source: SouthPole & ASTAD (2021): "Greenhouse Gas Accounting Report - FIFA World Cup 2022"

Infrastructure emissions

A major source of emissions that appears to have been underestimated is the construction of infrastructure, in particular the new stadiums. Due to the chosen accounting approach, the construction of permanent new stadiums has been allocated a very small volume of emissions - 206ktCO_2e (kilotonnes of carbon dioxide equivalent) - equivalent to only 5.5% of the tournament's total emissions.[16]

[16] SouthPole & ASTAD (2021): "*Greenhouse gas accounting report - Fifa World Cup 2022*", p.36

The stadiums' GHG accounting explained

The tournament's matches will take place in eight different stadiums, only one of which existed prior to Qatar being awarded the World Cup bid. Seven new stadiums have therefore been constructed. One of these, stadium 974, is said to be temporary and has been partly built using shipping containers that can be fully dismantled and re-assembled in another location.

The GHG emissions for the construction of the temporary stadium amount to 438ktCO_2e, whereas the other six newly-built stadiums have been allocated a total combined GHG footprint of only 206ktCO_2e. This means that the six stadiums together are estimated to have a footprint that is equivalent to only about 50% of the emissions associated with the construction of the temporary stadium[17].

This seemingly illogical outcome is due to the chosen accounting methodology. The emissions for the six permanent stadiums are broken down into two categories. First, emissions from the construction of temporary seats, which will be dismantled at the end of the event, which account for 202ktCO_2e. Second, emissions from the construction of the full stadium (excluding temporary seats) have been calculated, but only 4.5ktCO_2e have been attributed to the 2022 World Cup.

For this second category, the 2022 World Cup was allocated emissions from the stadiums based on the duration for which the stadiums will be used as part of the tournament (as well as two FIFA Club World Cups which took place in Qatar in 2019 and 2020). Hence, the emissions associated with only 70 days of stadium use were allocated to the 2022 World Cup.[18]

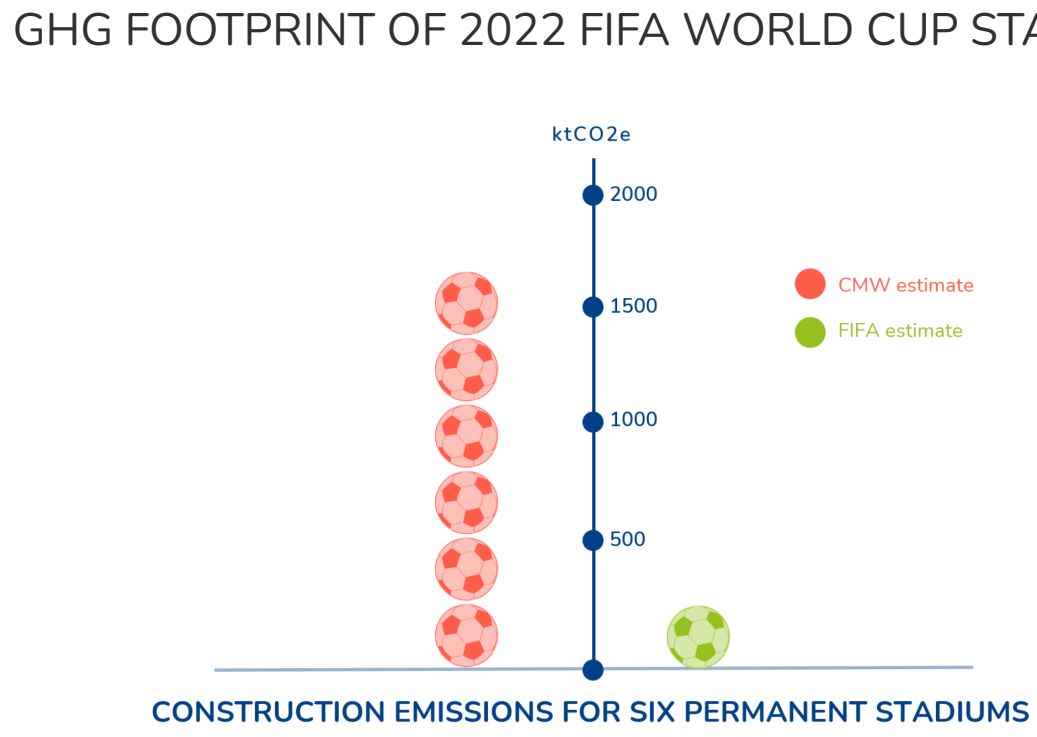
No details are provided in the report to understand how the 4.5ktCO_2e were calculated. One likely option is that the total footprint of the permanent stadiums was calculated, and multiplied by the ratio of days of FWC use to total infrastructure lifetime. The assumed lifetime of the stadium is not provided, but another FIFA report mentions that the expected lifetime for a stadium is 60 years.[19]

[17] idem.
[18] SouthPole & ASTAD (2021): "*Greenhouse gas accounting report - Fifa World Cup 2022*", p.8
[19] SouthPole (2021):"*Greenhouse gas emissions analysis of a demountabale FIFA World Cup stadium*", p.10

While the report provides no data regarding the total footprint of the permanent stadiums, a separate report looking at the temporary stadium's emissions mentions 270ktCO_2e as the average construction emissions (per stadium for the four 40,000-seats stadiums built for the 2022 World Cup).[20] Assuming that this applies to all the six newly built, permanent stadiums, the total footprint for these would be 1.62MtCO_2e.

This is about eight times the footprint attributed in the report (206ktCO2e) and it is likely an underestimate given that the two stadiums for which no emissions data could be found are significantly larger than the other stadiums (60,000 and 80,000 seats, compared to 40,000).

Adding the footprint of the temporary stadium, the total footprint for the construction of the seven new stadiums for 2022 World Cup is more likely to be at least 2.06MtCO_2e. This makes the infrastructure construction by far the biggest source of emissions for the 2022 World Cup, compared to only the third biggest as currently accounted for in the report.



[20] SouthPole (2021):"*Greenhouse gas emissions analysis of a demountable FIFA World Cup stadium*", p.20

Attributing the GHG footprint of stadiums to the World Cup

The assumption behind the very low attributed footprint of the permanent stadiums is that they will continue to be used after the 2022 World Cup, and so the tournament should not be held responsible for the total emissions of their construction. This raises several questions.

First, it is unclear whether these stadiums would have been built in the absence of the World Cup. As a major sporting event, the World Cup requires large, state-of-the-art stadiums that can accommodate large crowds (40,000-80,000 people). During and after the 2022 World Cup, Qatar will have eight such stadiums in and around the city of Doha. While the organisers have highlighted the sustainability dimension of having stadiums located close to each other, in order to avoid fans and teams having to fly between different cities to attend matches, this also means that there will be a high density of world-class stadiums in Doha after the World Cup.

The tournament's organisers have claimed that all stadiums will be used after the 2022 World Cup, and that legacy plans are in place. These are summarised below. It appears that many of the stadiums will continue to be used as sporting venues, with partial transformation into non-sporting facilities, according to the organisers' disclosure.

STADIUM	FWC CAPACITY	PLANNED POST-FWC CAPACITY	POST FWC PLANS FOR STADIUM	POST FWC PLANS FOR STADIUM SURROUNDINGS	REPORTED CONSTRUCTION FOOTPRINT
Al Janoub	40,000	20,000	Home of football team Al Wakrah Sports Club	Public park with fitness equipment, running track, football training pitches	270 ktCO2e (average for the four 40,000 seat stadiums)
Al Thumama	40,000	20,000	Home of two local football teams, Installation of a sports medicine clinic	Energy innovations research facility, football pitches, jogging and cycling track	270 ktCO2e (average for the four 40,000 seat stadiums)
Al Bayt	60,000	32,000	Boutique hotel, sporting venue, community facilities	Public park with tracks for running, cycling and horse riding, football pitches and play areas	No data identified
Ahmad Bin Ali (aka Al Rayyan)	40 000	20 000	Home of football team Al Rayyan Sports Club and sporting venue	Football and cricket pitches, tennis courts and other community facilities	270 ktCO2e (average for the four 40,000 seat stadiums)
Education city	40,000	20,000	Home of Qatar women's national football team, football stadium for Education City needs and host for national and international football matches. "Sports, leisure and social hub for students and surrounding communities"	Two schools, sports facilities for surrounding universities	270 ktCO2e (average for the four 40,000 seat stadiums)
974 (aka Ras Abu Aboud)	40 000	0	Stadium to be completely dismantled to allow alternative development	Waterfront site will be a premium location for new uses after stadium dismantling	438 ktCO2e
Khalifa International	40 000	40,000	Qatar National Stadium, main athletics stadium in the country and home of Qatar men's national football team	Aspetar sports medicine hospital, sports academy, aquatics centre, football pitches, multi-purpose sports complex, hotels	This stadium already existed in Doha
Lusail	80,000	0 (See next column)	Various non-football related options were under review in 2020. As of May 2022, the stadium webpage suggests that the stadium will be transformed into non-sporting activities. One publication (see sources below) suggests it will become a "community hub"	Integrated with surrounding residences, recreational facilities and parklands	No data identified

Sources: Most of the content is adapted from *FIFA (2020): "FIFA World Cup Qatar 2022 - First Sustainability Progress report" (p.40). The footprint data comes from* SouthPole (2021): "Greenhouse gas emissions analysis of a demountabele FIFA World Cup stadium" and SouthPole & ASTAD (2021): "Greenhouse gas accounting report - Fifa World Cup 2022". Additional information sourced in *Fifa World Cup Qatar 2022 (undated): "Sustainable stadiums"; Lusail stadium webpage; Education City Stadium webpage;*

Some of these legacy plans raise questions about how sustainable they will be in practice. For example, the Al Janoub stadium will have a capacity of 20,000 people, and will be home to a local team which was playing in a stadium of 12,000 seats until Al Janoub was built. It is unclear whether the local team will attract a sufficient crowd to fill, and maintain, the new stadium, and what will happen to the 12,000 seat stadium they previously used. If the team does not succeed in filling the new stadium, then the additional capacity will be wasted. In addition, if the stadium it formerly occupied remains vacant, this would constitute a significant waste of resources (and their associated emissions).

Similarly, the Education City stadium will be the home of the Qatar women's national football team, as well as host other sporting events. As women's football is still in its infancy in Qatar, it's unclear whether this team will attract sufficient crowds to fill a 20,000-seat stadium. This would be close to the average attendance for women World Cup matches at the past two World Cups which are events that attract large crowds compared to non-World Cup matches.[21]

Overall, it is very difficult to assess the credibility of the legacy plans, especially those involving transformation of stadiums into community hubs, offices, clinics and hotels. These depend strongly on demand from the local population, as well as interest from companies to invest in maintaining the infrastructure.

Evidence from previous World Cups is informative.

- Similarly to Qatar, Russia's stadiums - which hosted the 2018 World Cup - were not home to major football teams, which raised serious concerns regarding their financial viability.[22]
- The World Cup before that, in 2014 in Brazil, saw several new stadiums being built, but these are struggling today. One stadium in the Amazon is barely used, while another one is partly used as a bus parking lot.[23]

[21] BBC (2019):"*Women's World Cup: Fifa revises attendances in France*"
[22] DW (2018):"*Who will pay for Russia's oversized world cup stadiums?*"
[23] New York Times (2016): "*In the Brazilian rain forest, 'a white elephant, a big one*'"

- In South Africa, which hosted the World Cup in 2010, stadiums are underutilised and a burden on public finances, according to media reports[24] and academic research.[25]
- One must venture back to 2006, when Germany hosted the World Cup, to find an example of a host country that continues to utilise its stadiums. However, contrary to Qatar, local football teams in Germany regularly attract large crowds.[26]

Overall, there is a lack of evidence that the stadiums built for the 2022 World Cup will continue to be used effectively and optimally after the event. Even if the legacy uses do materialise, it is likely that the construction of stadiums is not the most efficient way of creating new infrastructure for many of the stated purposes.

Therefore, it would have been more conservative, and probably more accurate, to allocate all of the emissions associated with the construction of the stadiums to the 2022 World Cup, given the large uncertainties regarding future use of the stadiums. This would have increased the reported expected footprint by 1.4MtCO_2e.

Impact of temporary infrastructure

Stadium 974 has been touted by the organisers as a main feature of the 2022 World Cup's sustainability strategy, along with the option of dismantling a portion of the seats from the permanent stadiums in order to reduce their capacity.

This is a laudable improvement, although previous World Cup hosts, such as Russia, have also used demountable seats to reduce stadium capacity after the event. However, Qatar will be the first time that a fully demountable stadium is used in a mega sporting event. This offers several benefits.

First, it could lead to fewer stadiums being built in the future, if stadiums from previous competitions can be transported and reused. Second, it offers the possibility to locate stadiums in more central

[24] The Guardian (2014: "*South Africa spent £2.4bn to host the world cup. What happened next?*"
[25] Humphrey & Fraser (2016)): "*2010 Fifa world cup stadium investment: does the post-event usage justify the investment?*", African Review of Economics and Finance, Volume 8, Issue 2
[26] See compiled annual attendance statistics here: https://www.transfermarkt.com/bundesliga/besucherzahlen/wettbewerb/L1/plus/?saison_id=2010

locations, that are more accessible to fans and hence reduce traffic, without having to occupy that central location for years or decades after an event has ended. Third, it could also make the hosting of mega-events more accessible to developing countries, as the initial costs of stadium construction could be shared between several countries that will host the event in different years.

However, it is not a perfect solution, and comes with drawbacks.

The GHG footprint associated with the construction of stadium 974 is 60% higher than that of the permanent structures, due to the use of more durable materials that can enable the dismantling and reassembling of the stadium multiple times. Whether the temporary stadium has a lower total GHG footprint than a permanent stadium crucially depends on how many times, and how far, the stadium is transported and reassembled. For example, if the stadium is moved only once, and to a distant destination (>7000km transport), then building two stadiums would likely have a lower GHG impact.[27]

A key question is, therefore, whether and how such temporary infrastructure will be reused. While the 2022 World Cup organisers have highlighted the dismountable nature of the temporary stadium, we could identify no specific plans showing where the stadium will be moved, if at all.

Similarly, there could be upwards of 200,000 seats removed from the permanent stadiums,[28] in addition to the full stadium 974, but no concrete plans could be found for their distribution. The emissions associated with the transport and reconstruction of these seats and of the temporary stadiums have been deemed out of scope of the GHG footprinting exercise[29], and hence were not included in the report prepared for FWC.

[27] SouthPole (2021):"*Greenhouse gas emissions analysis of a demountable FIFA World Cup stadium*"
[28] 20,000 seats in each of the AL Janoub, Al Thumama, Al Rayyan and Education City stadiums, plus 28,000 from Al Bayt stadium and 80,000 from Lusail although it is unclear how many seats exactly will be taken out of Lusail stadium whose legacy plan does not seem to include sporting events. The GHG accounting report mentions "over 170,000 temporary seats".
[29] SouthPole & ASTAD (2021): "*Greenhouse gas accounting report - Fifa World Cup 2022*", p. 37

Impact of stadium operation

In addition to the GHG emissions associated with the construction of stadiums, their use is also energy intensive. In a country such as Qatar where 99% of electricity is generated from fossil-fuel powered infrastructure,[30] the impact of using stadiums can be high.

In one report, the operational emissions of a stadium based on the average of the four 40,000-seat 2022 World Cup stadiums represents between 22.8% and 38.4% of total lifecycle emissions for the stadiums.[31]

This notably excludes emissions from cooling the stadium, and is highly sensitive to the carbon intensity of energy generation in the specific country where the stadium is located. At least one FIFA report highlights the energy efficiency of the cooling technology installed in the 2022 World Cup stadiums, claiming up to 45% energy savings. However, the document does not mention the baseline against which the reported saving is compared.[32]

The GHG footprint estimation for the 2022 World Cup does not include emissions after 25 June 2023, and hence excludes emissions from operating stadiums for their remaining 59 years of lifetime. Of course, it's unclear whether and how much the stadiums will be operated after the tournament. While not all operational emissions should be attributed to the World Cup, it is likely that Doha will not need eight world-class stadiums in the future, and hence future utilisation of the stadium is likely to be less than optimal in terms of efficiency.

In other words, the future uses are likely to be designed to "make do" with the existing stadiums, but could have taken place in less grandiose venues. For this reason, the legacy impacts associated with continued operation of the stadiums could justifiably have been allocated, at least in part, to the 2022 World Cup's footprint.

[30] Our World in Data, Qatar: Energy Country Profile
[31] SouthPole (2021):"*Greenhouse gas emissions analysis of a demountable FIFA World Cup stadium*", p.22 & 26
[32] FIFA (undated):"*Fifa climate strategy*", p.11

How credible is the carbon-neutrality strategy?

Emission reduction measures

An essential step in any climate strategy is to reduce emissions associated with a specific product, event or organisation. No carbon neutrality claim can be credible without the utmost being done to reduce all emissions that can be reduced. Offsetting must only be a last-resort measure, and even then it is imperfect.

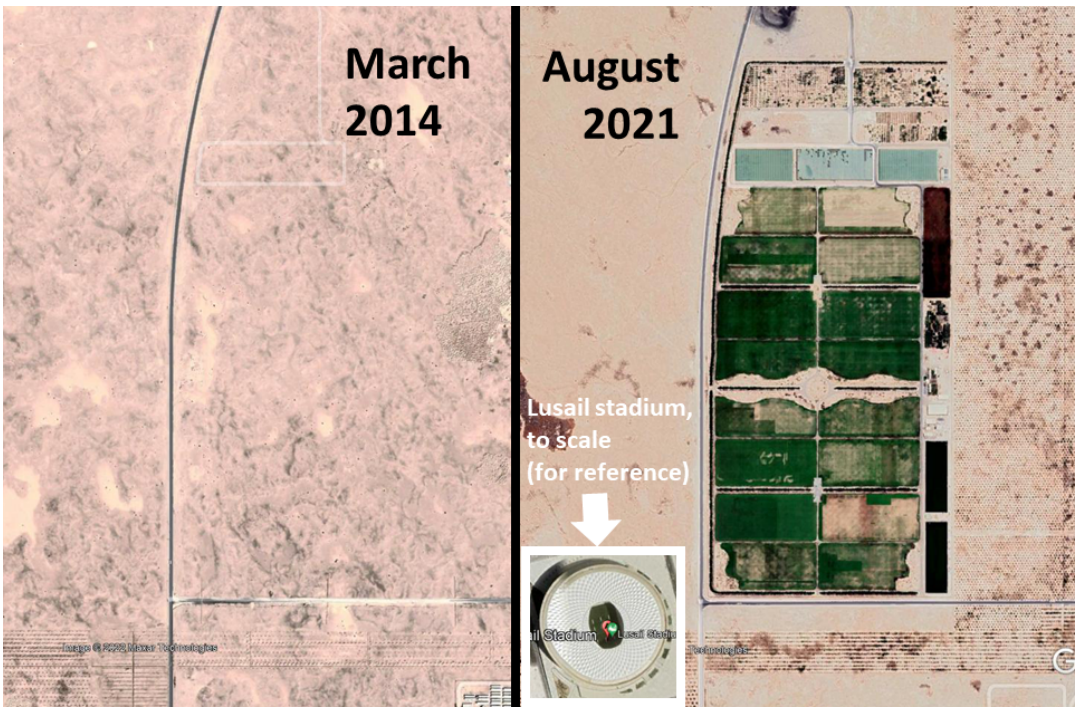
The 2022 World Cup has put in place a wide range of measures to attempt to reduce the GHG footprint of the event. Assessing the impact of each measure is outside the scope of this report. The objective of the present analysis is not to assess whether the event has implemented successful climate measures, or has lowered its emissions compared to a credible and conservative baseline, but rather to assess whether the claim of "carbon neutrality" is well founded.

Claiming carbon neutrality, or net-zero, implies no net impact on GHG concentrations in the atmosphere. This is a very ambitious objective, and should not be claimed lightly. It requires far-reaching mitigation strategies to be put in place.

In this regard, some of the measures advertised by the FWC organisers are unconvincing. One example is the creation of a large-scale tree and turf nursery in the desert, to produce trees for parks around the stadiums, and grass for the stadiums and training sites. This will be the largest turf farm in the world, according to the organisers,[33] covering an area of 425,000m^2.

[33] Supreme committee for delivery and legacy (2018):"*SC inaugurates tree and turf nursery*"

SATELLITE VIEW OF THE TURF FARM SITE



Source: Google Earth. Lusail stadium is the largest of the FWC stadiums, with a capacity of 80,000 seats. It is represented here to show the scale of the turf farm. Lusail stadium is not located next to the turf farm.

The tree and turf nursery is located next to a large sewage treatment facility and the treated water will be used to irrigate the plants. However, it is unclear whether this might displace the use of water that is otherwise needed to meet the demand from a population and its economic activity in this arid region.

Beyond the water-intensive nature of this programme, the advertised climate benefit is not durable. While the organisers claim that these plantations will help "to absorb thousands of tonnes of carbon per year" this is only one part of the story. In order to have a real climate benefit, this carbon needs to remain stored for centuries, at least 200-300 years, before it can be credibly claimed that this carbon removal contributes to climate mitigation.[34] In the case of this tree and turf nursery, it is highly unlikely that the plants will remain alive for this long, as they will be placed in artificial parks around the stadiums which require intensive watering and human maintenance.

[34] Carbon Market Watch (2021):"*Respecting the laws of physics: principles for carbon dioxide removal accounting*"

This is only an example, and one should not jump to the conclusion that all emission reduction measures put in place for the World Cup have a low level of integrity. Numerous measures are advertised by the organisers, and a more detailed evaluation would be needed to estimate their overall impact.

Potential supply of carbon credits

The final step in claiming carbon neutrality would be to offset unabatable emissions from the event. Yet tonne-for-tonne compensation of GHGs is a risky approach to take. Given the large uncertainties in measuring the real impact of climate mitigation projects, it is often very difficult to ensure that carbon credits, used as offsets, really represent a full tonne of CO_2e reduced or removed from the atmosphere.

Based on the ex-ante GHG footprint estimate for the tournament, the organisers will need to purchase 3.6 million credits, to compensate for the 3.6MtCO_2e that they estimate the event will generate. This ignores any potential underestimation of emissions as reported above.

Some of these might be offset by fans and other individuals participating in or attending the 2022 World Cup, given that encouraging fans to "reduce and/or offset" their emissions is one of the specific objectives of the sustainability strategy.[35] But as the share of flight passengers that voluntarily offset their emissions today tends to be very low, it is likely that organisers of the tournament will have to purchase carbon credits covering close to the full GHG footprint of the event.

With respect to this, making carbon neutrality claims for an event that has a large GHG footprint is problematic. According to the GHG footprint report for the World Cup released in advance of the tournament, international travel, mostly aviation, is the single largest contributor to the overal climate impact of the event.[36] Compensating emissions from air travel is not a viable way of dealing with the sector's climate impact in the long run. Encouraging this practice today by claiming that conventional air travel can be done in a "carbon neutral" way, sends the wrong signal to the public. Consumers, in this case mostly football fans, will have the impression that they can continue flying around the globe without a net impact on the climate, which is not true.

[35] FIFA, the FIFA World Cup Qatar 2022 LLC and the Supreme Committee for Delivery and Legacy (2019):"*Fifa World Cup Qatar 2022 Sustainability Strategy*", p.70, objective EN2.8

[36] SouthPole & ASTAD (2021): "*Greenhouse gas accounting report - Fifa World Cup 2022*"

Organisers have placed the emphasis on purchasing credits from projects in Qatar and the region.[37] To find these credits, the tournament's organisers have partnered with the Gulf Organisation for Research and Development (GORD) to set up a new carbon market standard, the Global Carbon Council (GCC).[38] At least 1.8 million credits should be coming from this standard.[39] This raises questions regarding the origin of the supply of the credits, and their quality.

GCC currently (as of 10 May 2022) only has two registered projects, both of which are renewable energy projects in Turkey.[40] Only one of these has issued credits according to the public registry, meaning the current total supply of GCC credits is 133,667,[41] far below the 1.8 million that will need to be available to fulfill the purchase agreement that was apparently concluded, let alone the 3.6 million to cover the total (but probably underestimated) footprint of the 2022 World Cup.

There are also 238 projects in the GCC "pipeline" awaiting registration, most of which – including the only two registered projects – are grid-connected renewable energy projects of unclear environmental integrity.[42] Given the increasing cost-competitiveness of renewable energy around the world, such projects typically suffer from a high likelihood of not being "additional", i.e. these projects are likely to go ahead regardless of whether or not they can sell carbon credits, thereby failing one of the most basic rules for carbon crediting. Buying these credits does not generate extra reductions, given that finance is likely to be simply channelled to projects that would happen anyway.

The two main voluntary carbon market standards that operate today - the Verified Carbon Standard (VCS) and Gold Standard (GS) - have both excluded such project types from registration, due to their high risk of non-additionality. It is, therefore, unsurprising that such a large share of projects seeking registration under GCC are grid-connected renewable energy projects, because they would most likely not be eligible under other standards. This raises concerns.

[37] FIFA, the FIFA World Cup Qatar 2022 LLC and the Supreme Committee for Delivery and Legacy (2019):"*Fifa World Cup Qatar 2022 Sustainability Strategy*", p.70
[38] Formerly known as Global Carbon Trust, see Fifa (2019): "*GORD to support delivery of Qtara's carbon-neutral fifa world cup*"
[39] Fifa webpage on "*offsetting remaining GHG emissions*", consulted on May 18th, 2022
[40] GCC project registry, consulted on May 18th, 2022
[41] GCC unit registry on the IHS marki platform
[42] GCC project registry, consulted on May 18th, 2022

If this type of credit were to be used to offset the emissions from the 2022 World Cup, this would seriously put into question the actual climate impact of such action. Most likely, this would lead to spending money on the purchase of carbon credits that have no, or marginal, benefits for the climate, and that certainly do not fully compensate for the emissions from the event.

The only GCC credits issued to date, from a Turkish wind power project, have already been purchased by one of the three tournament organisers.[43] This suggests that the emissions from the 2022 World Cup will likely be offset with this type of credits, which would provide very little benefit to the climate.

Environmental integrity of current GCC credits

According to an investigation from SourceMaterial, the only GCC project which has issued credits to date is highly unlikely to be additional.[44] The Alibey wind turbine project is located in western Turkey and has been operating since 2018. Its developer claims that the project is not common practice in Turkey and that other similar projects only exist because of carbon credit revenues. This is at odds with the fact that Turkey ranks fourth in Europe for wind power installation. The developer cites six different projects that supposedly rely on carbon credit revenues to operate, to show that this is the only viable busines model. However, among these six projects, three have never been issued a single carbon credit.

Beyond the possible lack of quality, it remains unclear whether GCC will be able to supply enough credits to offset the 3.6MtCO_2e that the 2022 World Cup organisers estimate the event will generate. In March 2022, GCC claimed that it would be able to issue 25 million credits by the end of the year[45].

[43] Holdings accounts on the GCC registry on the IHS markit platform, consulted on May 10th, 2022
[44] The content of this box is fully based on the investigation from SourceMaterial. All sources and a more detailed investigation can be found in the original article: https://www.source-material.org/blog/qatar-world-cup-relying-on-flawed-carbon-offsets
[45] CarbonPulse (2022): "Gulf-based carbon standard eyes 2022 issuance of 25 mln credits as pipeline clears", https://carbon-pulse.com/154297/.

However, in January 2021 GCC had also announced that they expected to issue 10 million credits by the end of the year,[46] yet actually issued fewer than 150,000.

The 2022 World Cup's organisers might, therefore, have to turn to other standards to purchase carbon credits.

FIFA's carbon neutrality target

A final element to consider is whether the 2022 World Cup's carbon neutrality target can be reconciled with FIFA's own goal of reaching "climate neutrality" by 2040[47].

It is unclear whether and how the two targets are related, given that FIFA's target lacks substance and precision. The scope, i.e. emissions coverage, of FIFA's target is unclear. It is described as covering "FIFA's three emission hot spots, namely business travel, logistics and accommodation".[48] However, it is unclear what this includes - for example, whether it includes FIFA's indirect (scope 3) emissions, such as those from the tournaments it organises.

Tournament emissions are likely to be significant compared to FIFA's organisational emissions, and so it would appear problematic if these have been excluded. For example, emissions from past World Cups are above 2MtCO_2e per tournament since 2014 while FIFA's reported organisational emissions in 2015 were only 0.77MtCO_2e[49].

As no greenhouse gas emissions inventory seems to be publicly available for FIFA, it is unclear what the coverage of their target is, let alone how much they will have to reduce.

FIFA also includes an interim target of halving emissions by 2030, but no base year seems to have been selected.

[46] CarbonPulse (2021): "Gulf-based carbon standard targets issuance of 10 mln offsets in 2021"
[47] FIFA (undated):"*Fifa climate strategy*"
[48] FIFA (undated):"*Fifa climate strategy*", p.15
[49] FIFA (undated):"*Fifa climate strategy*", p.12

Announcing targets without specifying any details or communicating on the volume and share of emission reductions can be misleading. It sends a positive signal to the public, without allowing any external observer to verify the veracity of the claim and the real level of ambition that it involves.

Conclusions

The 2022 FIFA World Cup organisers' claim that the event will be carbon neutral raises many questions and doubts. It appears that the total expected footprint of the event is likely to have been underestimated, and the carbon credits being considered to compensate the emissions are at risk of having a low level of environmental integrity.

Some of the emission reduction measures implemented are unlikely to have a meaningful and durable impact on the concentration of greenhouse gases in the atmosphere, and might lead fans and citizens around the world to believe that the organisers are achieving more positive climate results than they actually are. This could lead to present and future complacency about a tournament with a significant carbon footprint, resulting in continued damage to the climate.

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