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## **Brazilian World Cup stadiums:**

### **A predictable legacy challenge**

*The legacy of the 12 new or refurbished stadiums for the 2014 FIFA World Cup in Brazil will all fall below international average if nothing is done to strengthen the plans for their after-use. This is the result of projections made by the Danish Institute for Sports Studies and Play the Game, where available information from Brazil is compared with the [World Stadium Index](#) 2011.*

#### **Prologue**

In August 2000 the FIFA Executive Committee agreed on the principle of FIFA World Cup rotation. The rotation agreement and the decision in 2001 to begin the rotation in Africa was seen as a settlement to guarantee Africa to host the 2010 FIFA World Cup, after South Africa in July 2000 lost out to Germany in bidding to host the tournament 2006 against Germany. Three years later, in 2003, it was decided that South America should host the 2014 tournament and, as Colombia withdrew their candidacy in 2007, there was only one candidate country left: Brazil.

#### **Stadiums and infrastructure investments**

In 2007 FIFA reported that the Brazilian Football Federation (CBF) estimated the investments related to construction and/or remodelling of stadiums at USD 1.1 billion (ibid.) and according to the former Brazilian Minister of Sports, Orlando Silva Jr., the total investment in infrastructure projects (stadiums, roads, airports, subways, etc.) would be USD 18.7 billion, with nearly 78 per cent of the investments coming from the public sector.

18 potential host cities were presented in the Brazilian bid and 12 of them were chosen as host cities in May 2012. Seven of the stadiums will be completely new or rebuilt while the other five will undergo major renovations.

Although USD 1.1 billion for stadiums may seem to be a fairly reasonable investment for hosting the event, it is still too early to tell if the budgets are kept. The [World Stadium Index](#) report from Danish Institute for Sports Studies and Play the Game as well as studies from professor Harry Arne Solberg (2012) at Trondheim Business School confirms that the initial event and construction budgets almost inevitably underestimated. As an example the 10 stadiums that hosted the 2010 World Cup in South Africa ended up 16 times more expensive than the initial budget.

According to BBC News July 2010, the total costs for the Brazilian World Cup stadiums before the final selection of stadiums in May 2012 were already estimated to end up at USD 3.2 billion, almost three times as expensive as the initial budget.

### **Legacy of the stadiums**

The legacy of international sporting event stadiums is of public interest and of huge importance as public agencies often are the main funders and owners of the stadiums and sport facilities - like in Brazil where eight of the 12 stadiums are publicly owned.

Like other countries hosting major sporting events, Brazil will have several state of the art stadiums when the event is over. But will the stadiums be utilised sufficiently and has Brazil the possibility to create a positive sporting legacy?

As the report from Danish Institute for Sports Studies and Play the Game has shown, major investments and state of the art stadiums cannot alone guarantee a positive sporting legacy. Other important factors are required in order to avoid empty stadiums and a questionable legacy.

### **World Stadium Index: Background and method**

In the World Stadium Index report we focus on the number of spectators visiting the stadiums each season/year in relation to each stadium's capacity.

Not only sporting events, but also cultural and religious events are basis for the calculations.

Only stadiums built for major sports events are registered, as of today 75 stadiums in total, and the index is gradually expanding. In the 2011 report it was possible to calculate index figures for 47 stadiums.

The index figure expresses the relationship between the number of spectators per season/year and the stadium's capacity. The higher the figure, the better, and to obtain an index of 100 a stadium needs a seasonal/annual attendance figure 100 times its capacity.

The World Stadium Index must be complemented by other types of information in order to assess whether a venue is successful or not. But even if the World Stadium Index is not an instrument that can stand alone, it is a valuable indicator for the sporting legacy and the operators' ability to fill the stadium in relation to its capacity. The index is also a valuable and significant indicator that can be used to rank the venues and compare across regions, countries and seasons

The stadiums that came out best in the 2011 index were the Turner Field, Atlanta (USA – index 50.6), the Sapporo Dome (Japan – 46.4) and Allianz Arena, Munich (Germany – 33.3).

At the bottom end at the ranking you find Khalifa International Stadium, Doha (Qatar – 1.8), Miyagi Stadium, Rifu (Japan – 1.5) and Nagano Olympic Stadium (Japan – 0.6).

The average index among the 47 stadiums with index figures is 13.4. This average is influenced in a negative direction when the Brazilian stadiums are entered into the statistics.

### **The results for Brazilian stadiums**

It goes without saying that assessment of the legacy of Brazil's 2014 World Cup stadiums must be based on projections and logically contains element of insecurity. As a basis for our projections we have gathered information about the annual attendance (2011) in the national league and cup tournament for the main anchor tenants of the new or remodelled stadia.

For clubs belonging to Serie C and D, it has been necessary to operate with the average attendance as reported by the Brazilian Football Confederation (CBF).

It may well be that the new stadiums with modern facilities will give room for new business models and new types of audiences. Brazilians do have a massive interest in football, and the attendance to football matches may be influenced positively by continued growth in the booming Brazilian economy.

But even when Brazil is given the benefit of these doubts, our projection shows that the country is facing a huge challenge if it wants to secure a legacy that can match international standards.

As of today, the projected after-use of all 12 FIFA World Cup Stadia will fall below the average of the registered 75 stadiums worldwide in our index.

Some stadiums will do reasonably well, especially if the anchor tenant is a Serie A club. The Brazilian Série A had an average attendance of 14,976 in 2011 (worldfootball.net 2011).

For instance during 2011, Sport Club Corinthians Paulista, which is supposed to play its future games at the new Arena de São Paulo, had an average of 29,951 and a total of 569,061 spectators in the league (ibid). This should secure a relatively positive legacy in terms of utilisation of the new stadium.

But particularly four of the stadiums built or renovated for the 2014 tournament are likely to be under-utilised and experience a problematic legacy: The new-built *Arena Amazônia* in Manaus, *Arena Pantanal* in Cuiabá and *Estádio das Dunas* in Natal, as well as the refurbished *Estádio Nacional de Brasília* in Brasilia. The stadium in the capital Brasilia will host the opening game and have a capacity of 70,064 while the other three stadiums will have a capacity of about 42,000 – all in line with the requirements from FIFA. However, the rules set externally by FIFA are not in harmony with the future internal demand when the event is over; the audience base is too small.

Their current anchor tenants are clubs in Serie C and D, which gather an average of 4,404 and 2,132 spectators, respectively. Even in the cases where several clubs share a stadium, it seems impossible that they can gather significant audiences except for a few future occasions.

Even though Estádio Nacional de Brasília will focus on concerts and major cultural events, there are few events that can attract 60,000-70,000 people on a weekly or even a monthly basis, and the owners and operators of the stadium need to have this in mind when dealing with the legacy issues.

## Existing stadiums could have been used

To prevent many of the future problems, Brazil and FIFA could have chosen to use already existing stadiums. South Africa and FIFA made the same mistake before the 2010 World Cup, and as a result there is an over-establishment of major stadiums in South Africa, so they are often under-utilised.

When Brazil and Rio de Janeiro hosted the 2007 Pan-American Games, the Estádio Olímpico João Havelange was constructed. The stadium meets the FIFA capacity requirements, and as FIFA allow two stadiums in the same city Estádio Olímpico João Havelange could have been used again for the 2014 World Cup.

Another chance to secure a stadium would be utilised by a high-profile tenant after the tournament would have been to renovate Estádio Olímpico Monumental or construct a new stadium in Porto Alegre for Grêmio which has one of the best attendance figures in the Brazilian league. Estádio Beira-Rio was however chosen as the only World Cup stadium in Porto Alegre, and from a legacy point of view this is a debatable choice. Grêmio Arena – the new home for Grêmio will open in November 2012 and the 60,540 capacity stadium had been a sufficient choice to create a lasting legacy.

Although Brazil and FIFA have learned from previous tournaments and in some sense have tried to harmonize the external and internal needs, like when allowing the introduction of temporary seats and a possibility to downscale, there are still additional aspects that need to be considered in order to create a sustainable sporting legacy.

One of these aspects could be the allocation of host cities. FIFA could abandon the principle of spreading the event all over the host country and instead explore where there is an actual interest and a long-term need.

That could be the first step towards assisting the countries and cities in creating a lasting legacy.

The [World Stadium Index](#) report analyses 75 stadiums in 24 countries built, rebuilt or major renovated to host a major international sporting event.

The report is available to download at [playthegame.org](http://playthegame.org)

## References

BBC News (2010) *Delays cloud Brazil's 2014 World Cup preparations*. Paulo Cabral, 21 July 2010

<http://www.bbc.co.uk/news/world-latin-america-10698973> Available 9 October 2012

CBF (2012) *Campeonato Brasileiro 2011*

<http://www.cbf.com.br/competicoes/campeonato-brasileiro/serie-a/2011>

Available 22 October 2012

FIFA (2007) *Brazil Bid. Inspection Report for the 2014 FIFA World Cup*.

[http://www.fifa.com/mm/document/affederation/mission/62/24/78/inspectionreport\\_e\\_24841.pdf](http://www.fifa.com/mm/document/affederation/mission/62/24/78/inspectionreport_e_24841.pdf)

Available 4 October 2012

Solberg, Harry Arne (2012) *Major sports events – Why more costly than planned?* Conference presentation at European Association of Sport Management in Aalborg, Denmark, September 2012.

The World Bank (2012) *GNI per capita, PPP (current international \$)*.

<http://data.worldbank.org/indicator/NY.GNP.PCAP.PP.CD> Available 4 October 2012

World Cup Brazil 2014 (2010) *Infrastructure investments for the World Cup 2014 : US\$ 18.7 bn*

<http://www.v-brazil.com/world-cup/2014/page/3/> Available 4 October 2012

Worldfootball.net (2012) *Série A – Attendance – Home matches*.

<http://www.worldfootball.net/zuschauer/bra-serie-a-2011/1/> Available 4 October 2012

## Overview 2014 World Cup Stadiums

Stadium	Capacity	City	Anchor tenant(s)	Attendance 2011	World Stadium Index 2011	World Cup Matches	Ranking
Estádio Mineirão	62,547	Belo Horizonte	Cruzeiro	247,451	4.0	6	48
Estádio Nacional de Brasília	70,064	Brasília	Legião Futebol Clube	61,656	0.9*	7	56
Arena Pantanal	42,968	Cuiabá	Mixto Esporte Club et al	34,112	0.8*	4	N/A
Estádio Plácido Aderal Castelo	64,165	Fortaleza	Ceará and Fortaleza	347,719	6.4*	6	42
Arena Amazônia	42,377	Manaus	Nacional et al	136,448	3.2*	4	50
Estádio das Dunas	42,086	Natal	América-RN	61,656	1.5*	4	N/A
Arena da Baixada	41,456	Curitiba	Clube Atlético Paranaense	314,514	7.6	4	39
Estádio Beira-Rio	48,849	Porto Alegre	Internacional RS	540,347	11.1	5	29
Estádio do Maracanã	76,804	Rio de Janeiro	Flamengo and Fluminense	708,789	9.2	7	34
Arena de São Paulo	65,807 (20,000 seats are temporary)	São Paulo	Sport Club Corinthians Paulista	596,273	13.0	6	23
Arena Fonte Nova	48,474	Salvador	Esporte Clube Bahia	470,029	9.7	6	32
Arena Pernambuco	44,248	Recife	Clube Náutico Capibaribe	244,539	5.5	5	45

\*Calculated from the 2011 average attendance figures for Série C and Série D

Stadium	World Stadium Index
1. Turner Field, Atlanta (USA)	50.6
2. Sapporo Dome, Sapporo (JPN)	46.4
3. Allianz Arena , Munich (GER)	33.3
4. RheinEnergie Stadion, Cologne (GER)	22.2
5. Stadion Letzigrund, Zürich (SUI)	20.3
6. Etihad Stadium, Manchester (GBR)	19.7
7. Estádio da Luz, Lisbon (POR)	19.3
8. Commerzbank Arena, Frankfurt am Main (GER)	19.1
9. Mercedes-Benz Arena, Stuttgart (GER)	19
10. BC Place, Vancouver (CAN)	18.3
12. Olympic Stadium Spiros Louis, Athens (GRE)	17.7
13. Estádio do Dragão, Oporto (POR)	15.9
14. easyCredit-Stadion, Nürnberg (GER)	15.9
14. Stade de Suisse, Bern (SUI)	15.9
16. Cape Town Stadium, Cape Town (RSA)	15.5**
17. Peter Mokaba Stadium, Polokwane	14.4**
18. ANZ Stadium, Sydney (AUS)	14.3
19. Saitama Stadium, Saitama (JPN)	13.8
20. Tohoku Denryoku Big Swan Stadium, Niigata (JPN)	13.5
21. Ooita Bank Dome, Ooita (JPN)	13.4
22. AWD-Arena, Hannover (GER)	13.3
23. Arena de São Paolo	13.0
24. Fritz Walter Stadion, Kaiserslautern (GER)	12.8
25. Estádio José Alvalade XXI, Lisbon (POR)	12.2
26. Olímpico João Havelange, Rio de Janeiro (BRA)	12.0

27. Olympiastadion, Berlin (GER)	11.7
28. Redbull Arena, Salzburg (AUT)	11.3
29. Estádio Beira-Rio	11.1
30. ESPRIT Arena, Düsseldorf (GER)	10.4
31. Kashima Soccer Stadium, Kashima (GER)	10.2
32. Arena Fonte Nova	9.7
33. Estádio D. AfonsoHenriques, Guimarães (POR)	9.5
34. Estádio do Maracanã	9.2
35. Nelson Mandela Bay, Port Elizabeth (RSA)	8.8**
36. Misaki Park Stadium, Kobe (JPN)	8.1
37. Estádio AXA, Braga (POR)	7.8
38. Arena da Baixada	7.6
39. Nissan Stadium, Yokohama (JPN)	7.6
40. Rice-Eccles Stadium, Salt Lake City (USA)	7.2
41. Estádio Plácido Aderaldo Castelo	6.4*
42. Estádio Cidade de Coimbra, Coimbra (POR)	6.3
42. Stade de Genève, Geneva (SUI)	6.3
44. Hiroshima Big Arch, Hiroshima (JPN)	5.8
45. Arena Pernambuco	5.5
46. Wörthersee Stadion, Klagenfurt (AUT)	4.7
47. Red Bull Arena, Leipzig (GER)	4.1
48. Estádio Mineirão	4.0
49. Ecopa Stadium, Fukuroi City (JPN)	3.6
50. Arena Amazônia	3.2*
51. Estádio Dr. Magalhães Pessoa, Leiria (POR)	2.7
52. Estádio do Bessa Século XXI, Oporto (POR)	2.7
53. Estádio Municipal de Aveiro, Aveiro (POR)	2.0



54. Khalifa International Stadium, Doha (QAT)	1.8
55. Miyagi Stadium, Rifu (JPN)	1.5
55. Estádio das Dunas	1.5*
57. Estádio Nacional de Brasília	0.9*
58. Arena Pantanal	0.8*
59. Nagano Olympic Stadium, Nagano (JPN)	0.6

\*Calculated from the 2011 average attendance figures for Série C and Série D

\*\*2010 World Cup matches included

### **Estádio Mineirao**

City: Belo Horizonte

Capacity: 62,547

Anchor tenants: Atlético Mineiro and Cruzeiro

Attendance 2011: 567,687

World Stadium Index Projections: 9.0

Matches during WC: Six



### **Estádio Nacional de Brasília**

City: Brasília

Capacity: 70,064

Anchor tenant: Legião Futebol Clube

Attendance 2011: 0.9

World Stadium Index Projections: 61,656

Matches during WC: Seven



### **Arena Pantanal**

City: Cuiabá

Capacity: 42,968

Anchor tenants: Mixto Esporte Club et al

Attendance 2011: 34,112

World Stadium Index Projections: 0.8

Matches during WC: Four



### **Estádio Plácido Aderal Castelo**

City: Fortaleza

Capacity: 64,165

Anchor tenants: Ceará and Fortaleza

Attendance 2011: 347,719

World Stadium Index Projections: 6.4

Matches during WC: Six



### **Arena Amazônia**

City: Manaus

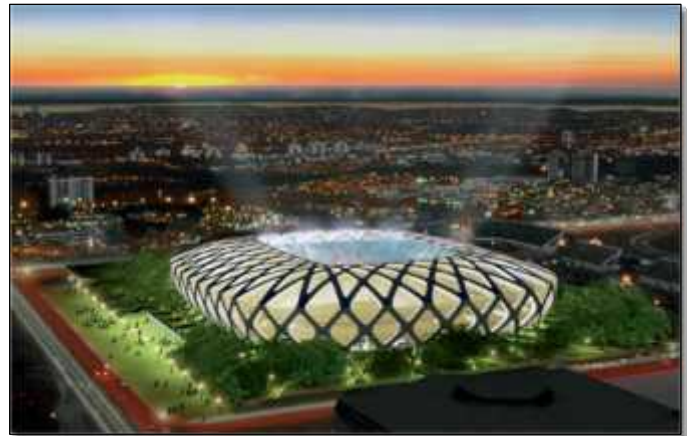
Capacity: 42,377

Anchor tenant: Nacional et al

Attendance 2011: 136,448

World Stadium Index Projections: 3.2

Matches during WC: Four



### **Estádio das Dunas**

City: Natal

Capacity: 42,086

Anchor tenant: América

Attendance 2011: 61,656

World Stadium Index Projections: 1.5

Matches during WC: Four



## **Arena da Baixada**

City: Curitiba

Capacity: 41,456

Anchor tenant: Clube Atlético Paranaense

Attendance 2011: 314,514

World Stadium Index Projections: 7.6

Matches during WC: Four



## **Estádio Beira-Rio**

City: Porto Alegre

Capacity: 48,849

Anchor tenant: Internacional RS

Attendance 2011: 540,347

World Stadium Index Projections: 11.1

Matches during WC: Five



## **Estádio do Maracanã**

City: Rio de Janeiro

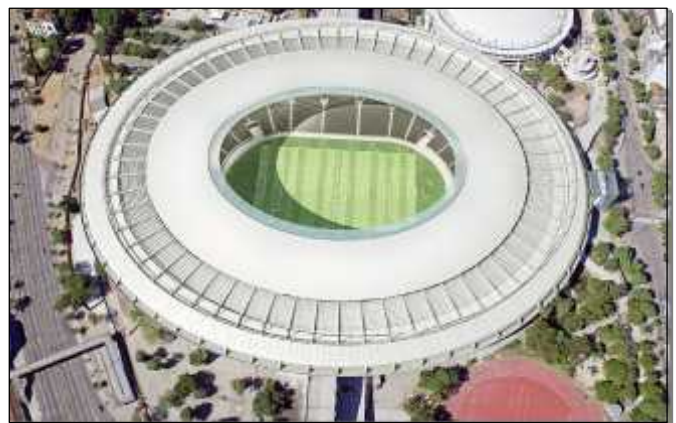
Capacity: 76,804

Anchor tenants: Flamengo and Fluminense

Attendance 2011: 708,789

World Stadium Index Projections: 9.2

Matches during WC: Seven





### **Arena de São Paulo**

City: São Paulo

Capacity: 65,807 (20,000 seats are temporary)

Anchor tenant: Sport Club Corinthians Paulista

Attendance 2011: 596,273

World Stadium Index Projections: 13.0

Matches during WC: Six



### **Arena Fonte Nova**

City: Salvador

Capacity: 48,474

Anchor tenant: Esporte Clube Bahia

Attendance 2011: 470,029

World Stadium Index Projections: 9.7

Matches during WC: Six



### **Arena Pernambuco**

City: Recife

Capacity: 44,248

Anchor tenant: Clube Náutico Capibaribe

Attendance 2011: 259,829

World Stadium Index Projections: 5.9

Matches during WC: Five

