

The environmental impacts of major sporting events: a case study of the FA Cup

Author: Dr Andrew Flynn

Introduction

Organisers of major events and policy makers are increasingly interested in the environmental impacts of events as well as their economic impacts. Specifically in relation to sport events, there has been increased action to reduce their negative environmental impacts. For example, the organisers of the 2012 London Summer Olympic Games made a commitment to stage a Sustainable Games, and made significant progress towards this in terms of venue design, transport planning and the procurement of services and products.

The world faces shortages of fossil fuels, water and other natural resources, and there is a need to reduce the amount of carbon dioxide emitted into the atmosphere. So, how might organisers of major sports events begin to identify and measure the environmental impacts associated with staging major sporting events? One approach which can help us understand the environmental impact of a major event is the Ecological Footprint (EF).

This case study shows how the EF was used to assess the global environmental impacts of a major sport event – the 2004 FA Cup Final in Cardiff. It explains what the EF is, why the EF can be a valuable tool to assess the environmental impacts of major sporting events, how the EF of the 2004 FA Cup Final in Cardiff was calculated and it identifies those areas of visitors' consumption that had the greatest environmental impact. Finally, it shows how the ecological footprint can support policy makers and event organisers in staging sustainable events by developing and assessing the footprint reduction of various policy scenarios.

The case event: 2004 FA Cup Final

The FA Cup is one of the most prestigious competitions for football clubs in the UK. Cardiff (the capital city of Wales) hosted the FA Cup Final at the Millennium Stadium between 2001 and 2006 while Wembley Stadium in London was being rebuilt. An economic impact study of Cardiff's first year as host to the Cup Final and other major matches, estimated that £16.3 million of additional expenditure was generated. The 2004 FA Cup Final was held in Cardiff's Millennium Stadium on 22 May 2004. An estimated 73 000 visitors travelled to Cardiff for the event.

Measuring Tools: The Ecological Footprint

We all put pressure on the environment to provide us with our basic needs: food, water, shelter and the energy we use. The EF helps us to understand that impact by assessing the land area that a population needs to sustain their consumption without degrading the environment. The Footprint adds together the total land area required to provide us with the goods and services we consume as part of our everyday lives, including the way we travel, the food we eat, the energy we use to heat our homes, and the waste that we produce. The

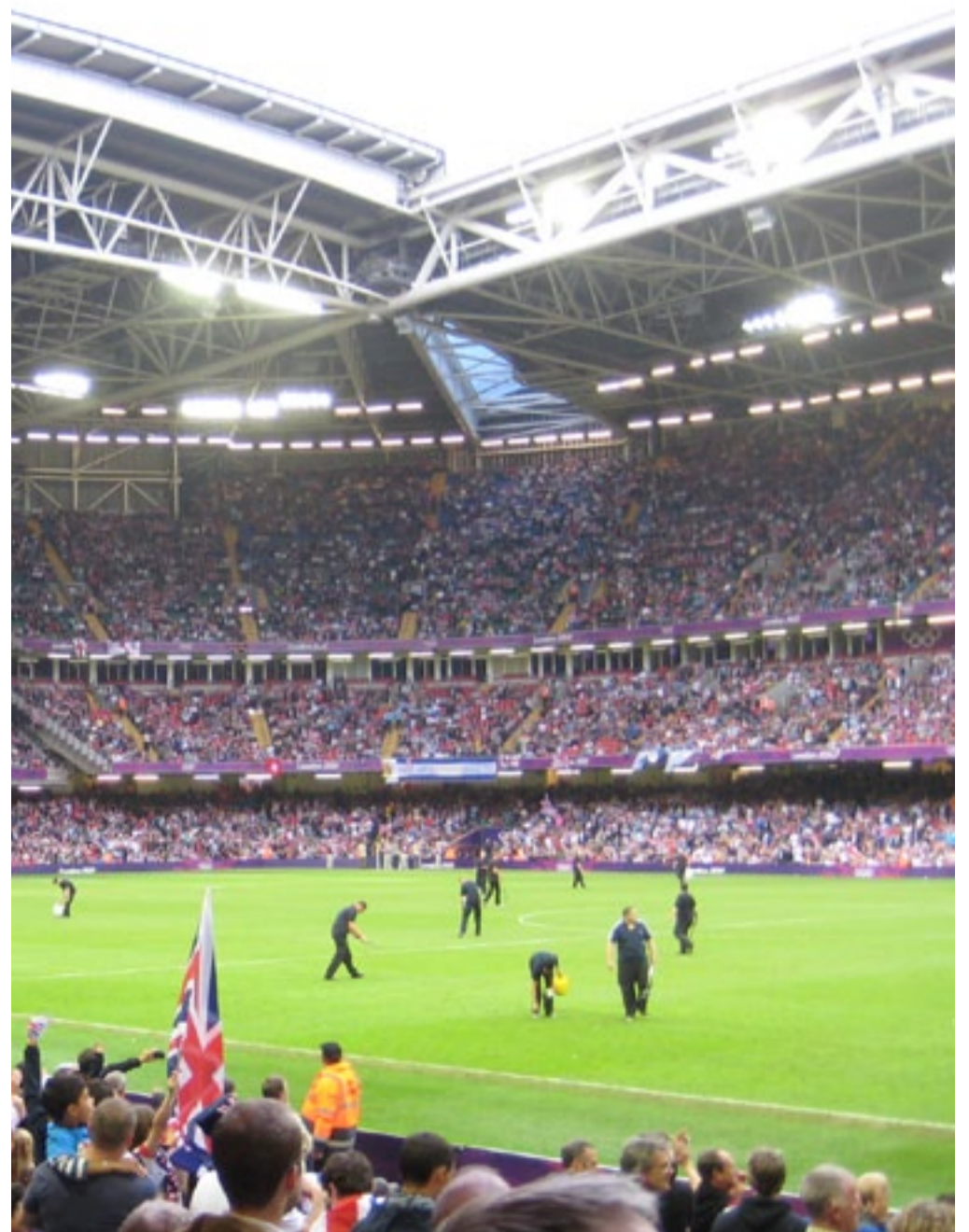
EF's unit of measurement is the 'global hectare', and is usually expressed in global hectares per capita (gha/cap).

In 2007, the average person living on the planet had an EF of 2.87 global hectares. The available biocapacity for the same year was estimated to be 1.8 gha per person. Compared to the available biocapacity, the average person living on the Planet had an EF which exceeded the Earth's biocapacity by 50% (WWF, 2010).

Putting sport events in the picture

Applying the EF to a major sporting event such as the FA Cup Final can be valuable to event organisers and stadium owners for a number of reasons:

1. It is a good awareness raising tool, which can be used to communicate to supporters the link between their local (consumption) activities and global environmental impacts, thus enabling them to appreciate that impact.
2. It can identify and compare the environmental impacts of different types of activities such as supporters' travel, waste and energy use.



- It offers the potential to plan and manage events in a more sustainable way, and can be used to assess the impact of proposals to reduce environmental impacts.

Findings

Calculating the EF of the FA Cup Final

The geographical boundary of the study was the host city of Cardiff, and the study population included all event visitors (ticket and non ticket holders). Data for the FA Cup Final day was collected for the following key areas:

- Supporters' mode of travel to the match, using data provided by the local council and surveying supporters on match day.
- Supporters' food and drink consumption, calculated using sales data from caterers at the stadium, and food and drink outlets and mobile food operators outside the stadium.
- Infrastructure of the Millennium Stadium, using data relating to the quantities of materials used to construct the Millennium Stadium, provided by construction companies. The estimated lifespan of the stadium and an estimate of the total number of events staged during that period were also factored into the calculations.

Waste generated by the event and supporters, calculated using data supplied by the stadium and its waste contractors, the local council, food and drink outlets and mobile food operators outside the stadium.

Match Statistics

- Supporters' consumption at the FA Cup Final created an EF of 3,051 global hectares.
- The biggest challenge facing the FA Cup in terms of environmental impact is how supporters travel to the match. In total, fans travelled nearly 42 million kilometres to reach the match, mostly by car. This resulted in an EF of 1,670 gha, some 55% of the total Footprint of the event. This Footprint is some 14 times greater than that for an average UK resident had they stayed at home and gone about their everyday activities.
- Supporters' consumption of food and drink also had a large EF- some 1,381 global hectares. This Footprint is large because of the amount, type and pattern of food and drink consumed by supporters at the match.
- Supporters consumed some 370,000 pints of beer and lager, 38,000 pasties, 27,000 sandwiches, 24,000 portions of chips and 13,000 beef burgers. These are highly processed foods, which were mostly purchased from 'fast food' outlets and require substantial amounts of energy to produce - and so result in a large Footprint. Such high levels of consumption almost inevitably produce large amounts of waste.
- A total of 59.2 tonnes of waste was generated by supporters and food and drink businesses in Cardiff. The bulk of waste was glass, food waste, and paper and card



packaging. The majority of this was sent to landfill.

- The 75,000-seat Millennium Stadium was found to contribute a very small amount to the overall EF of the FA Cup Final. Despite using 40,000 tonnes of concrete and 20,000 tonnes of steel, the predicted 100 year lifespan of the stadium, combined with an estimated 100 million visitors, means that on a per event basis, the venue attracts a very low Footprint.

Recommendations

For reducing the Footprint of the FA Cup Final

Understanding visitor consumption and its environmental impact can assist decision makers and event managers to plan and organise events in ways to limit negative impacts. The ecological footprint has the potential to assist event managers in assessing the impact of different policy scenarios. This case study offers reduction scenarios for three areas: visitor travel, visitor food and drink, and event-related waste.

- 1. Reducing the impact of supporter travel:** supporter travel to the event created a Footprint of 1,670 gha, and the car was responsible for 68% of this transport Footprint result. If 100% of car travel was replaced by coach, this would reduce the Transport Footprint by 41.6%. Replacing car travel with rail could reduce the Transport Footprint figure by 41.1%. If all supporters travelled by car, this could increase the Transport Footprint figure to 2,421, an increase of almost 45%.
- 2. Reducing the impact of supporter food and drink:** food and drink also generated a large EF (1,413 gha for all supporters). Supporters' consumption of meat and meat products was responsible for 46% of the total Footprint figure, and beef accounted for 81.4% of this Footprint result. If all beef food products were replaced with chicken, this could reduce the food Footprint figure by 30.3%. Increasing supporter consumption of locally produced food and drink (i.e. reducing food miles) would only reduce the food Footprint figure by 0.4%. This is mainly because the energy and resources required for food transportation is relatively small compared to that used for its production and processing. Increasing the proportion of organic food and drink consumed by supporters to 100% could reduce the food Footprint figure by as much as 35%.
- 3. Reducing the impact of event-related waste:** waste generated by the event created a Footprint of 146 gha. Increased recycling of paper and card packaging by 30% could reduce the waste Footprint figure by 2.5%. Increased recycling of glass by 30% could reduce the waste Footprint figure by 1.2%. Composting 30% of food waste could reduce the waste Footprint by 1.7%.

Conclusions

- Within a relatively short space of time, a major sport event can generate a large ecological impact.

- The ecological footprint can be a valuable event management tool, not only for assessing the environmental impact of the activities undertaken by visitors, but also in assessing the potential impact reduction of different policy scenarios.
- The number of supporters, how they travel to an event, the types of food and drink they consume, and the litter and waste that they produce all have significant impacts on the environment.
- Supporters, football clubs, stadium owners, event organisers and host cities all have a responsibility to ensure that the impacts of such events are minimised.
- There is a need to review how major events are currently being managed and consider how visitors' impacts can be reduced when attending similar events in the future.