The text below can be found at https://web.archive.org/web/20031207041154/https://www.gdrc.org/uem/footprints/what-is-ef.html. That archived copy has a timestamp of 7 December 2003. The source website can still be found online at https://www.gdrc.org/uem/footprints/what-is-ef.html.

Areas highlighted in yellow overlap exactly with McCrory P "Take nothing but pictures, leave nothing but footprints…?", Br J Sports Med 2006;40:565. 10.1136/bjsm.2006.029231

1. Introduction

Since the United Nations Conference on Environment and Development in 1992, population growth and increases in consumption in many parts of the world have increased humanity's ecological burden on the planet, even though there has not been an equal corresponding increase in the Earth's bounty of natural resources. As stated in World Wildlife Fund: Living Planet Report 2000, total global consumption of natural resources has risen by fifty percent since 1970, while Earth's natural wealth has decreased by over thirty percent.

At the same time, although global environmental problems are typically considered part of national and international decision-making, it is now much more important to consider the environmental impacts of urban areas, because a rapidly growing proportion of the world's population lives in cities. According to the United Nations Population Division, 2.9 billion people or 47 percent of the earth's population lived in urban areas in 2000. In 2007, it is projected that the global urbanization rate will reach 50 percent, and in 2030 it should reach 60 percent. In other words, the world's population could increase by 2.2 billion people in 2030, with 2.1 billion of these people living in cities. Nearly all of this additional population growth is expected to occur in developing nations, and practically all of it will be concentrated in urban areas.

As a response to this, municipal decision-makers must be able to measure urban and regional ecological impacts to inform environmental policy at the local level. One way to do this is through ecological footprint analysis, which was invented in 1992 by Dr. William Rees and Mathis Wackernagel at the University of British Columbia. As an introductory report, this guide focuses on the applicability of EF analysis for cities and regions, and does not explain footprint calculation methodologies in detail.

2. What is an Ecological Footprint?

All of the resources which people use for their daily needs and activities come from somewhere, even if not from their immediate surroundings. Food, electricity, and other basic amenities for survival must be produced within the confines of nature, using raw natural resources. Based on this relationship between humanity and the biosphere, an ecological footprint is a measurement of the land area required to sustain a population of any size. Under prevailing technology, it measures the amount of arable land and aquatic resources that must

be used to continuously sustain a population, based on its consumption levels at a given point in time. To the fullest extent possible, this measurement incorporates water and energy use, uses of land for infrastructure and different forms of agriculture, forests, and all other forms of energy and material "inputs" that people require in their day-to-day lives. It also accounts for the land area required for waste assimilation.

3. Scales of Measurement

Footprints can be measured at an individual level, or for cities, regions, countries, or the entire planet. Through specialized adjustments, EF analysis can also be used for specific activities, or to measure the ecological requirements of producing specific goods or services.

Analysts examine the quantity and different types of natural and manufactured materials and services used, and then use a variety of calculations to convert this into a land area. Footprints indicate how much "nature" is available for a defined population to use, compared to how much it needs to maintain its current activities. Obviously, the size of a footprint will vary depending on the volume and different types of natural resources consumed by a population, which will in turn depend on lifestyle choices, income levels, and technology. Therefore, footprints provide compelling evidence of the impacts of consumption.

The text below can be found at https://www.newscientist.com/article/dn7274-sports-events-leave-a-giant-ecological-footprint/, an article dated 16 April 2005.

Areas highlighted in pink overlap exactly with McCrory P "Take nothing but pictures, leave nothing but footprints…?", Br J Sports Med 2006;40:565. 10.1136/bjsm.2006.029231

LARGE sporting events have an "ecological footprint" thousands of times the size of the pitches they are played on. That's according to researchers who have calculated a sporting event's environmental impact for the first time.

Andrea Collins of Cardiff University in the UK and her colleagues looked at the 2004 soccer FA Cup final, held at Cardiff's Millennium Stadium. They converted the energy and resources used on the day of the match into an ecological footprint – the hypothetical area of land required to support the use of those resources. Energy consumed, for example, was converted into the area of forest needed to soak up the carbon dioxide generated in its production, while food consumption was represented as the amount of farmland needed to make it. This method gave the match a footprint of 3051 hectares.

More than half the footprint came from transport. The 73,000 supporters collectively travelled nearly 42 million kilometres to reach the match. Fewer than half travelled by car, but car use generated 68 per cent of the transport footprint. If those fans had travelled by bus instead the footprint would have been 399 hectares smaller.

Food was the second-largest contributor, weighing in at 1381 hectares for the 36,500 snacks consumed. The researchers say this could easily be reduced: for example, substituting all the beef with chicken would have taken 428 hectares off the footprint.

The impact of waste disposal, at 146 hectares, was surprisingly low, says Collins. Recycling would have trimmed this by 39 hectares.

Collins argues that the footprint is a useful management tool to assess the effect of activities. "We'd like to see organisations and policy makers look at the results and hopefully instigate measures to reduce the impact," she says.

The text below can be found at
https://www.globalurban.org/GUDMag06Vol2Iss1/Roper.htm, an article dated March 2006.

Areas highlighted in blue overlap exactly with McCrory P "Take nothing but pictures, leave nothing but footprints…?", Br J Sports Med 2006;40:565. 10.1136/bjsm.2006.029231

Major events can harm the environment by, among other negative effects:

- Changes in land-use and the destruction of natural environments through building construction, transportation, and other forms of physical development;
- The consumption of non-renewable resources;
- Emissions to soil, air, and water, and the generation of large amounts of waste;
- Contributing to ozone depletion, global warming, and air pollution; and diminishing biodiversity.

Ever since the 1994 Winter Olympics in Lillehammer, hosts and organizers of major events have been challenged to reduce the harmful environmental effects of their events. There is now overwhelming evidence and justification of the need for all negative impacts to be examined and either eliminated, reduced, or in relation to carbon emissions, offset. Examples of good and best practices are now plentiful. Developing nations for whom technology or finance may be a barrier, such as the 2010 World Cup Football competition in South Africa, should receive the necessary financial assistance from global public and private donors.

The text below can be found at https://indianwildlifeclub.com/ezine/view/details.aspx?m=11&y=2005, an article dated November 2005.

Areas highlighted in green overlap exactly with McCrory P "Take nothing but pictures, leave nothing but footprints…?", Br J Sports Med 2006;40:565. 10.1136/bjsm.2006.029231

Some estimates indicate that the 2004 Athens Olympic Games generated half a million tonnes of greenhouse gases on top of what would normally have been generated. This is 25 per cent more than a city the size of Munich would generate in a two week period. The emissions estimate for 2006 FIFA World Cup in Germany is 250,000 tonnes of greenhouse gases from within Germany . This includes international flights, and also factors in energy efficiency and carbon offset schemes that are being put in place. That's half of the Athens total, but still a significant addition to the environmental bill. Let me give you another World Cup example: each event at a Bundesliga stadium will use approximately 10,000 to 20,000 cubic metres of water. That's as much as eight Olympic size swimming pools. Each game will also use between 2 and 3 million kilowatt hours of energy. That's the annual consumption of between 500 and 700 households in Europe . It is also estimated that each match will generate 5 to 10 tonnes of waste, as much as would be thrown away in one day by between 350 and 650 households. The bottom-line is that sport has an ecological footprint that requires all stakeholders to think about ways of reducing the impacts. "

The text below can be found at https://web.archive.org/web/20030906153759/http://www.gdrc.org/uem/footprints/. That archived copy has a timestamp of 14 May 2003. The source website can still be found online at https://www.gdrc.org/uem/footprints/.

Areas highlighted in grey overlap exactly with McCrory P "Take nothing but pictures, leave nothing but footprints…?", Br J Sports Med 2006;40:565. 10.1136/bjsm.2006.029231

Consider the immense pressure put on the environment. Researchers Bill Rees and Mathis Wackernagel have developed the ecological footprint concept - the area of land needed to provide the necessary resources and absorb the wastes generated by a community - to highlight the impact of cities on the environment. London, UK serves as a good example: the ecological footprint of that city is 120 times the area of the city itself. They estimate that a typical North American city with a population of 650,000 would require 30,000 square kilometres of land - an area roughly the size of Vancouver Island, Canada - to meet domestic needs alone without even including the environmental demands of industry. In comparison, a similar size city in India would require 2,800 square kilometres.