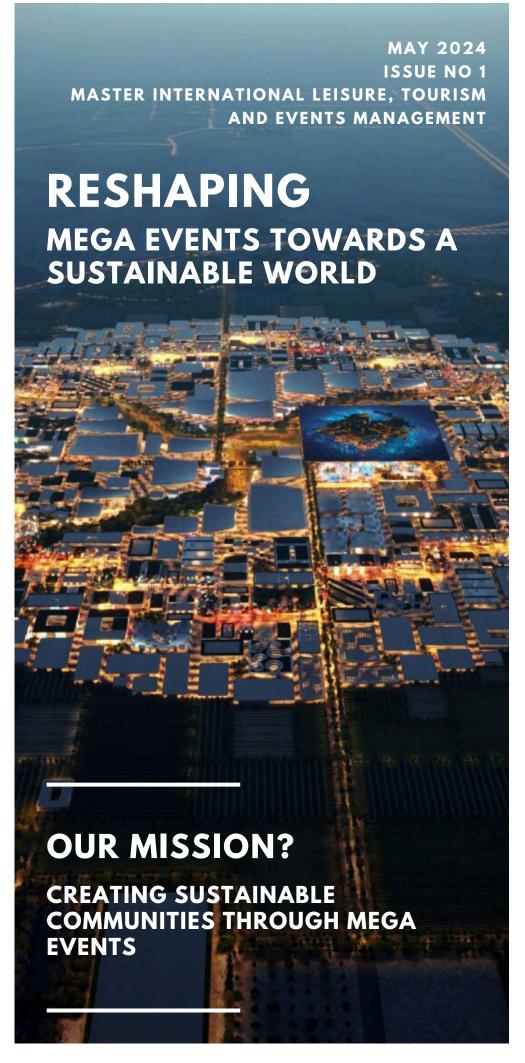


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#### INTRODUCTION

Mega-events such as the Olympic Games and World Expos have evolved from purely sporting and festive occasions into powerful catalysts for urban transformation and development. The modern interpretation of these large-scale events provides cities with the opportunity not only to enhance their infrastructure and revitalize neighborhoods but also to strengthen their image and promote sustainable growth. This series of articles explores the multifaceted impact of mega-events, with a focus on sustainability and the social and economic benefits for host communities.

Article 1 discusses how mega-events can contribute to urban development by creating sustainable systems that function well in the long term. Article 2 highlights the increasing attention to the environmental impacts of mega-events and the efforts of organizers to embrace sustainability through green construction practices, promoting public transportation, and effective waste management. Article 3 delves into ways to make the benefits of these events permanent, emphasizing the importance of leaving a sustainable legacy for host communities. Article 4 discusses the effects of "white elephants" after sports events and the challenges associated with financing and managing infrastructure after the event is over.

# SUSTAINABLE URBAN DEVELOPMENT: THE INFLUENCE OF MEGA-EVENTS ON INFRASTRUCTURE AND RENEWAL

Tobias Blouw I May 24, 2024

Where mega-events were once focused on sporting achievements and festivities, these events now serve as powerful catalysts for urban transformation and development (He, Zhu et al. 2020). This transformation ranges from revitalizing neighborhoods to constructing impressive infrastructure (SDG 9). Mega-events provide the opportunity to enhance the image of host cities and promote sustainable growth. The emphasis is on creating systems that not only function well in the present but also in the future (Esteve, Ingles et al. 2022). However, behind the glitter and glamour lies a complex web of challenges and opportunities. This article delves into the evolution of mega-events as instruments for urban development, with a special focus on sustainability and social impact. This article examines how these events can contribute to a more sustainable future and what pitfalls need to be avoided to ensure long-term success.



When cities use mega-events as instruments for urban development, we refer to this as an event strategy. According to Gratton et al. (2006), this approach has shifted the focus from purely economic benefits to a more holistic vision that also encompasses social and environmental issues. According to Esteve & Ingles et al. (2021), the pursuit of balanced development includes not only economic restructuring, as seen in the Olympic Games in South Africa where slums were replaced with modern infrastructure, but also social aspects and environmental conservation. Urban development resulting from mega-events encompasses various dimensions, including a growing focus on sustainability, hygiene standards, and health (Chalkley & Essex, 1999). For example, during the Olympic Games in Sydney and Beijing, industrial parks were relocated from the city center to the outer ring. This contributes to an improved living environment and health for residents (SDG 3 & SDG 11). Investments in infrastructure for megaevents contribute to the accessibility of host cities both during and after the event (Chen, 2011). These developments often positively influence the city's image and contribute to a greener and more sustainable environment. The urban development resulting from mega-events has not only direct consequences but also impacts other areas such as social cohesion and improved social amenities (Prior, 2022). The creation of new neighborhoods with meeting places contributes to enhanced social capital within the city (SDG 11).

In developing countries, mega-events are often seen as opportunities for economic growth and infrastructure improvement. According to the United Nations (2020), developing countries often lag in modernizing infrastructure. A mega-event offers a great opportunity to implement developments in this area (SDG 11). However, as Wu et al. (2016) emphasize, a thorough evaluation must take place to ensure that the benefits outweigh the drawbacks. The example of the World Cup in South Africa illustrates how the demolition of slums was accompanied by a lack of attention to the original residents. Wu et al. (2016) argue that more attention must be given to the current residents of slums. There should be a focus on how to provide these people with better housing (SDG 11). Such issues must be integrated into long-term strategies for megaevents. These long-term strategies for sustainable urban development also include the repurposing of infrastructure after the event (Bocarro et al., 2018). For example, the Olympic villages in Atlanta were converted into student housing. This approach not only contributes to the city's long-term livability but also minimizes the negative impact of abandoned stadiums and facilities. If there is insufficient consideration of repurposing, it can lead to 'overkill'. The danger of 'overkill', where developments are not sustainable and ultimately neglected, is real (Verrycken, 2018). According to Getz (2018), the success of mega-events depends on the ability to implement long-term strategies that take these aspects into account.

Mega-events have evolved into powerful instruments for urban transformation, with an emphasis on sustainability and social impact. While they offer opportunities for infrastructure improvement and economic recovery, they also present complex challenges that require careful planning. The success of these events depends on a holistic approach that integrates economic benefits with social and environmental issues (SDG 9, SDG 11). Repurposing infrastructure and addressing the needs of all residents are crucial to ensuring long-term success and minimizing negative consequences. By balancing these elements, mega-events can contribute to a sustainable and inclusive urban future.

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# GREENER GAMES: MEGA SPORTS EVENTS AS FRONT RUNNERS OF SUSTAINABILITY

Nóra Lili Kecskés I May 24, 2024

Mega-events, like the Olympics or World Expos, have traditionally been seen as economic engines, drawing in tourism and investment. However, their environmental impact has come under increasing scrutiny (Cui et al., 2023). In response to their contribution to greenhouse gas emissions, organizers are embracing sustainability practices for example, sustainable venue construction, encouraging public transport usage, and waste management, leaving a positive legacy that extends beyond the closing ceremony (Sieverdingbeck, 2014). This article sheds light on how event organizers can move mega sports events towards environmentally sustainable event management by showcasing examples of sustainability practices.

#### A Deep Dive into Environmental Sustainability

Sustainability is defined by Brundtland & Khalid (1987) as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (Liu & Lei, 2021, p. 214). Sustainable development consists of three key areas: economic, social, and environmental sustainability (Cui et al., 2023). According to Pourpakdelfekr & Oboudi (2022), environmental stewardship means implementing environmentally friendly practices and regulations in events, for example, outsourcing recycling bins or encouraging participants to use public transportation.

#### How Can We Reach the Goals of the 2030 Agenda?

There are various initiatives from both sport-related and non-sport-related international bodies already that aim to promote the sustainable development of sports events. One major framework is the United Nations Sustainable Development Goals (SDGs) which aim to guide all nations towards economic efficiency, environmental integrity, and social equity. As stated by Parra-Camacho et al. (2023), the environmental impact of major sports events is usually evaluated in reports, especially by critically looking at SDG 11 (Sustainable Cities and Communities) and SDG 12 (Responsible Consumption and Production).



Transforming the Olympic Village into a sustainable city district as it is planned for the upcoming Olympics in Paris 2024, is a good example of SDG 11 while aiming for the reduction of carbon footprint, and recycling or reusing the materials can be connected to SDG 12 (Sustainability and Legacy Report - Paris 2024, n.d.)

#### **Best Greening Practices**



In practice, reducing the environmental impact starts with sustainable venue construction. Temporary structures made from recycled materials are becoming more common, while permanent structures are designed for energy efficiency. For example, according to Brittain et al. (2018), the 2012 London Olympics, showcased the world's first-ever major stadium built to a sustainable design code.

Public transport infrastructure is often upgraded in preparation for mega-events, encouraging residents and visitors alike to leave their cars at home. Event organizers also promote cycling, walking, and electric vehicle usage as sustainable transportation. The 2010 Vancouver Winter Olympics, for example, set a record for the lowest-ever car usage during the Games (University of British Columbia, 2010). Waste management including extensive recycling initiatives, and promoting reusable containers are all helping to divert waste from landfills. The case of the 2020 Tokyo Olympics is a testament to the importance and promotion of proper waste management strategies, resulting in 62% of the used materials (e.g. plastic bottles) during the Games were recycled (Tokyo 2020 Goes Beyond Carbon Neutrality and Helps Create a More 'Sustainable Society, 2021). Furthermore, as a result of the rentals and leases of non-consumable items they achieved a 99% reusing rate.

#### Standards Established

In 2012, as the legacy of the London 2012 Olympics, the ISO 20121 Sustainable Event Management Standard was established. It provides guidance on environmental, social, and economic aspects of event sustainability and it is widely used by non-sport event organizers as well (Building Sustainable Mega Sports Events: A Foundation in Human Rights, n.d.).

The upcoming Paris Olympics is a good example of taking steps towards sustainability with a main focus on economic, social, and environmental responsibility. They aim to implement circular economy practices and reduce their carbon footprint by 50% compared to previous Games ("Less, Better and for Longer: Five Ways Paris 2024 Is Delivering More Sustainable Games," 2024). Paying attention to sustainable venue creation, all structures installed for only the purpose of the Games will be reused or recycled. The Village area is built on an industrial wasteland which by 2025 will be transformed into a new, sustainable city district, that will provide housing, workplace, and stores for almost 12.000 people (Sustainability and Legacy Report - Paris 2024, n.d.).

By embracing information technology for efficient operations and sustainable practices, the Olympics can become a front runner in showcasing how major sports events can act as catalysts for smart city development, ultimately improving the quality of life. Smart cities use information technology to give intelligent responses to demands including environmental protection (Cui et al., 2023). By prioritizing innovative practices in areas such as renewable energy, waste reduction, and accessible public transportation, mega-events can showcase destinations' offerings without overlooking negative environmental impacts. In the past, organizing mega sports events often resulted in significant unsustainable practices including high emissions, but today, they are redefining sustainable event management, turning these global spectacles into game changers for environmental stewardship.

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# BUILDING THE FUTURE: SUSTAINABLE LEGACIES OF MEGA EVENTS

Noelia Leiva Jiménez | May 24, 2024

How can we use mega events to make their benefits permanent and for long-term growth for host communities? The Olympic Games are mega events that draw global attention and huge investments due to their high logistical and financial requirements (Gruneau & Horne, 2016). The role of these events is essential in improving economies, infrastructure, and the society of the host cities (Busa et al., 2010c), in other words in bringing sustainable legacies to the city. The urgency of claiming a sustainable legacy from mega events, implies ensuring that these legacies bring long-term benefits to the host community (Hancock, 2020).

#### Flash vs. Future: Short-term gains against long-term benefits

Mega events are catalysts, especially to the tourism, hospitality, and infrastructure development industries (Matheson, 2006). The increase of tourists and visitors attending the event help to boost the revenue of local businesses and can create several job opportunities (Walsh, 2008). Furthermore, investments in infrastructure, including transportation services, technological innovations, and venues construction will contribute to lasting enhancements in the host community.

For this to happen, the development of an appropriate planning should be required to ensure their sustainable continuity after the event is finished (Walsh, 2008). However, some institutions prefer to make small-scale investments over investing in extensive infrastructure projects (Kaplan, 2024). Kaplan (2024) states that this decision can be due to several factors but highlights the cost and risk management, which would include high initial costs, risk aversion, and return on investment. The challenge of balancing economic, social, and environmental objectives along with risks and costs will usually lead to short-term investment strategies that brings more profitable projects rather those that can offer long-term lasting benefits (Kaplan, 2024).





#### A gaze to the future: Transforming cities post-mega events

Considering Walsh's (2008) statement, it can be affirmed that the sustainable use of such infrastructure after the event is very important for society, economy, and environment.

For example, after the Barcelona 1992 Olympics, the Olympic village was transformed into residential housing, revitalising an industrial part of the city, and contributing to its urban development (Kennett & De Moragas, 2006). The same happened in London 2012 Olympic games, where the Olympic village turned into an area called East Village, which nowadays offers more than 2500 houses, shops, schools, and parks, thus contributing to the well-being of the community and the needs of the residents (Berkeley, 2022).

Barcelona and London are two examples of how mega events are the first step to create urban revitalization, economic development, improved infrastructure, community cohesion, environmental benefits, and cultural enrichment, which are benefits that transform areas and improve the quality of life for residents after the event is finished (Boukas et al., 2013).

The legacies in mega events do not need to be all tangible. According to Kim (2018) this social legacy not only allowed the creation and reinforcement of bonds among residents and tourists, national pride, and identity but also the reduction of social tensions. Although these legacies are more difficult to measure than the economic ones, Kim (2018) strongly believe that are crucial for the social health of the host country and its development, thus contributing to SDG 11, leaving both tangible and intangible legacies that will play an important role in the development of sustainable cities and communities.

Mega events boost the economy, but there is still a gap on how to invest to leave lasting and beneficial changes in the host communities. Bridging this gap would imply the integration of some sort of economic stimuli with long-term community benefits, offering tax incentives to projects with long-term community value and aligned with broader sustainable development goals (Xiang et al., 2023).

#### Integrating community planning for lasting legacies post-mega events

By following Xiang et al. (2023) approach, the most important feature in this case is the integration of community planning into the legacy of these events so that the infrastructure continues to serve the community after the events are over, such as in Barcelona or London. Tangible legacies will enhance the hist city's environment and functionality, whereas intangible legacies will contribute to social stability, and community engagement, both enhancing the quality of life in the city. While events like the Olympic Games and the World Cup provide huge economic benefits and spectacular moments of celebration, let's make sure to build a legacy beyond the spectacle that contributes to the city's heritage and improves everyone's life.

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# WHITE ELEPHANTS: THE COSTLY LEGACY OF MEGA SPORT EVENTS

Alexander Pineda | May 24, 2024

Mega events can have political and economic benefits for a country due to the increase of publicity and prestige. This can lead to the development of infrastructure, which sometimes can be financed by other entities (Witt, 1988. Do you know what is the costly legacy of mega sports events? Fang-Ying & Tian (2015) mention that literature on the economic impacts of major sports events has gained more recognition over the past years. But what about the impact of building infrastructure and how they manage it after the event? This aspect has gained less attention than it should.

According to Alm et al. (2014) "white elephant" is a concept which has become familiar for mega sport events hosts over the past years. This concept has its origins back in ancient times specifically in Thailand and other Asian countries. Where maintaining a white elephant was an exceedingly costly task as the expenses associated with its care far exceeded its practical value. Therefore, as a means of punishment for causing financial ruin upon a subordinate, a king would often give a white elephant to them. Catlin (2023) states that in practice this concept is referred to infrastructure projects that result from mega sports events which impose financial burdens on a city. According to Tünde (2015) after the event is held, certain infrastructure, often located in remote regions or in the middle of nowhere, are left unutilized and suffer from severe disrepair. These infrastructures are usually hard to keep in use due to its expensive cost of maintenance without any viable solution for their utilization. According to Chapplet (n.d.) an example of this can be seen on how several stadiums constructed on the site of the former Athens airport for the 2004 Games have been left abandoned.

According to Tünde (2015) white elephants are essentially prestige projects that have practical purpose and usually cannot be effectively utilized in the future. They tend to be an internal consequence of major sports events, where the construction of large-capacity stadiums is mandatory. It can be argued that white elephants commonly emerge following events such as the Olympic Games and FIFA World Cups, particularly in cases where securing the right to host the event carries significant prestige, serving as a way to showcase power or simply to show off. There are numerous examples that can be analysed but according to Yun (2018) one extreme case that still has huge repercussions on the host country is the 2004 Summer Olympics in Athens, Greece, after they experienced a severe financial crisis as its sovereign debt reached unsustainable levels. Consequently, numerous venues constructed for the Olympics now lie abandoned and overrun with vegetation dominating the landscape.

So, how should these "White Elephants" be deal with? According to Tünde (2015) the challenge lies in finding practical solutions for the planning and utilization of sports facilities. Architect John Barrow proposes a concept of "prefabricated stadiums" that are designed to be easily dismantled and potentially relocated. The author also states that the primary objectives of this vision are to ensure 100% future utilization of the infrastructure and to mitigate the substantial costs associated with traditional stadium construction. By implementing such prefabricated designs, the aim is to create a more sustainable and cost-effective approach to sports venue development in the future. This perfectly aligned to SGD number 9 "Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation (United Nations, n.d.), because this can reduce the effects of white elephants resulting from mega sport events in the host cities. According to Rogers (2022) the past FIFA World Cup in Qatar, proposed the construction of the first fully demountable covered football stadium for a World Cup, which is entirely constructed from modular steel and 974 shipping containers, after the event the stadium may travel to Uruguay for the next World cup.

According to Malchrowicz-Mośko and Poczta (2018) the effect of "white elephants" remains as a big issue, since many desolate sport facilities are being left behind after mega sport events. Many economists believe that the investment for these events doesn't pay for itself since host countries cannot make revenue after the event concludes and will have costly repercussions to their economy. After the success of the Stadium 974 in Doha (Rogers, 2022) and knowing the negative effects of "white elephants" host countries of mega sport events need to carefully plan the infrastructure with long term viability in mind, flexible and innovative stadiums designs since they offer a more sustainable model to avoid costly and underutilized legacies after these events conclude. Would mobilizing stadiums reduce the costly legacy of white elephants? It is too early to know but stay tuned for further analysis.

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