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**PRIMING HOST CITY PHYSICAL LEGACY PLANS: THE BIDDING CHRONICLES
OF BRAZIL'S DERAILED SPORTING EVENT INFRASTRUCTURE PROJECTS**

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EVENT MANAGEMENT

ABSTRACT

This paper presents a case study of the 2014 FIFA World Cup in Brazil and the 2016 Olympic Games in Rio de Janeiro to explore infrastructure development and physical legacies connected to the planning, bidding and staging of mega sporting events. Primary data was collected in Cuiabá in two phases during the 2014 World Cup and after the event in 2015. This entailed participant observation, structured observation, document analysis and 15 semi-structured interviews with the local population, as well as current and former government and stadium employees. Following the Rio 2016 Olympic Games primary data was collected from Porto Maravilha, Rio de Janeiro. In January 2018, 15 semi-structured interviews were undertaken with tour operators and cultural businesses. Significant evidence indicates the ineffectiveness of urban and rural infrastructure development and facility improvements, delays and cancellations in infrastructure programmes, stadiums and venues overshooting their original costs and budgetary requirements, and controversial targeted transport interventions. Practical managerial recommendations and strategies are offered to aid the implementation, management and maintenance of host city infrastructure during the planning, bidding, hosting and post-sporting event phases.

Key words: Mega sport event (MSE); Infrastructure; Legacy; Event planning and policy; Brazil 2014; Rio 2016; Cuiabá; Porto Maravilha.

INTRODUCTION

Over recent years, 'Global South' cities and nations have increased their bidding activities in an attempt to compete to host a range of mega sporting events (Haferburg & Steinbrink, 2017; Maharaj, 2015). The primary justifications for wishing to stage these global events is that they can function as tools for progressing and leveraging major economic revenue streams, re-shaping infrastructure, exploiting tourism demand, and expanding urban upgrade projects throughout the host city or nation (Gratton & Preuss, 2008; Jones, 2001; Müller, 2012; Thornley, 2002). Successful bids have been tabled by the emerging markets of Brazil, Russia and South Africa, who have intentionally pursued strategies to fast track infrastructure construction programmes which address a lack of basic physical structures and sporting facilities (Gaffney, 2015; Haferburg & Steinbrink, 2017; Müller, 2012; Silvestre, 2016).

Whilst frameworks to test and measure legacies have been discussed, particularly in academic circles (e.g. Dickson, Benson & Blackman, 2011; Kassens-Noor, Wilson, Müller, Maharaj & Huntoon, 2015), we argue these evaluations tend to fall short politically due to the lengthy period of time needed to evaluate the success of sporting event legacies (Carlsen & Taylor, 2003). Tensions are prevalent between these evaluation processes and the political justification for short-term legacy results. Coakley and Souza (2013) suggest event legacies are envisaged, debated and created in the political actions of the bid preparation. We align with this notion and use the pre-event phase as our focus for this short-term legacy assessment.

This article tracks the infrastructure impacts and legacy of two mega sporting events (MSEs) in Brazil within a two year period. Brazil hosted the 2014 FIFA Football World Cup and the Rio 2016 Olympic Games, a feat not previously achieved by any other country (Li, 2013), and therefore offers an opportunity to analyse the two events within the context of the same

country. In doing so, the article makes two contributions to the literature. First, our paper responds to calls for examinations on the Global South MSE experience (Maharaj, 2015). Second, we contribute to knowledge surrounding how the pre-event forces are enacted in the ‘glocal’ production of sporting infrastructure and how that influences the post-event infrastructure legacy (Horne, 2011; Thomson, Schlenker & Schulenkorf, 2013). The paper now unfolds as follows: in the next section, we begin by reviewing the literature on pre-event, bidding and planning ambitions in a number of locations. Infrastructure, venue development and budgetary management are outlined and assessed in relation to recent men’s FIFA football World Cups and Olympic Games. Following this, we present our case studies and discuss the results pertaining to pre-event evaluations and post-event legacies. Finally, managerial implications, practical recommendations and further research directions are proposed.

Hosting Mega Sporting Events: Budgets, Infrastructure and Urban Development

Cities, regions and nations have long been drawn to hosting MSEs for their plethora of positive social and economic benefits. However, there is now a growing literature which warns that some hosts have experienced negative socio-economic outcomes (Preuss, 2007, 2015). For example, initial costs and budgets for a host city or region can be hopeful and linked to economic predictions which are frequently overstated, resulting in a failure to materialise long-term tangible benefits (Cashman & Horne, 2013; Preuss, 2009). The funding of these projects often culminates in hosting regions accepting enormous debts connected to infrastructure development and maintenance (Thomson et al., 2013). Li (2013) separated the infrastructure requirements for large-scale sporting events into two categories. Specific infrastructure established primarily for the event (e.g. stadia and accommodation for athletes). Moreover, the second category accounted for infrastructure essential for hosting the event, such as transportation systems (Li, 2013; Searle,

2012). Cabral & Silva (2013) extended this to include the use of ancillary facilities, which they emphasised to incorporate museums and convention centres located nearby stadiums. Preuss (2009) argues it is often these ancillary facilities which form a positive legacy, although the future operational costs are largely underestimated (Mills & Rosentraub, 2013).

Substantial budgets and resources are needed to develop the appropriate sporting, transport and ancillary infrastructure which commonly leads to a reliance on public expenditure and subsidies from taxpayers (Gratton & Preuss, 2008; Mills & Rosentraub, 2013; Preuss & Schnitzer, 2015). These funds can be diverted from social and environmental programmes to the development of sporting infrastructure (Cabral & Silva, 2013; Jones, 2001; Li, 2013; Preuss, 2009). In turn, most large-scale facility and venue constructions are justified on the basis of their prospective benefit to the economy and local participation levels post-event (Gaffney, 2015). Searle (2002) noted that this relocation of spending and resources could have negative impacts on urban development in other areas of the city or region. Hence, understanding locals' perceptions in pre-event periods, engaging the host community in the decision making processes, and securing locals' MSE support are seen as critical success attributes (Michopoulou & Giuliano, 2018; Pappas, 2018; Ritchie, 2000). For example, in response to accusations of facilities becoming 'white elephants' after the event, where the stadia are underused, some structures are designed to be dismantled after the event or reduced in capacity (Gratton & Preuss, 2008; Li, 2013; Müller, 2012; Thornley, 2002).

Towards Theorising the Importance of Pre-event Evaluation for Legacy

In the MSE lifecycle - bidding, planning and preparation, event delivery and post-event wrap up and handover (Hiller, 1998; Kirby, Duignan & McGillivray, 2018), legacy is broadly accepted as occurring in the post-event stage and incorporates the events context, temporal

nature of planning and positive and negative aspects that form in the hosting region (Preuss, 2007, 2015; Thomson et al., 2013). The above studies, like most examinations on legacies, predominantly focus on the immediate post-event outcomes. Coakley and Souza (2013) suggest rather than measuring the legacy outcomes at the post-event stage, there is room to evaluate the processes in the pre-event stage and identify the factors which may detract favourable legacy outputs. To understand how legacies are formed, it is important to recognise the actors who have power to influence the development of legacy plans. In his evaluation of Brazil, India and South Africa, Maharaj (2015) found the public had little or no consultation as costs escalated and the poorest became increasingly adversely constrained by the MSEs. He recognised the relationship between the private and public sector controlling the flow of capital and direction of activities during the planning and construction phases. On the other hand, Nunkoo, Ribeiro, Sunnassee and Gursoy (2018) developed a theoretical framework associated with public trust in institutions organising mega sporting events. They posit corruption, transparency and knowledge as influential dimensions upon the levels of public trust and retaining or restoring this trust requires multiple stakeholder engagement and political will. Furthermore, the authors establish that public trust should form an integral part of any future bid package, but to date, organisers have failed to appreciate such elements. Other researchers such as Henne (2015) argue that little is known about the consequences of transparency and corruption linked to MSEs, and empirical infrastructure analysis is scant within MSE studies (Li, 2013). Therefore, we address this gap by analysing the impact of pre-event organisation on the legacy of two events. Specifically, we focus on two host territories Cuiabá (Brazil 2014 FIFA World Cup) and Porto Maravilha, Rio de Janeiro (Rio 2016 Olympic Games).

Brazilian Political and Policy Environment

Brazil is unique in the social and political context in which the two mega sporting events, Brazil 2014 and Rio 2016, took place. Politics is closely aligned to functioning components of society within Brazil; military dictatorship is still in living memory, and senior political officials are involved in ongoing national corruption investigations, which led to the 2015 impeachment of President Dilma and imprisonment of former President Lula (Cowie, 2018). This is set against the backdrop of over 1 million people taking to the streets in 2013 to protest against hosting the 2014 World Cup (Watts, 2013). In Rio, there were similar anti Olympic Games street marches and protests. Ultimately, the public was voicing their concerns on public spending for event infrastructure (e.g. stadiums) when health and education needed to take priority. Although a country at peace, Brazil's internal politics and social divisions are stark (Korstanje, Tzanelli & Clayton, 2014), therefore offering a contested terrain in which politics played a significant role in the planning, running and evaluation of the two MSEs.

In recent times, comparable to the internal political implosion in Brazil, the International Olympic Committee (IOC) and Fédération Internationale de Football Association (FIFA), has come under increased scrutiny over costly host outlays and the lack of transparency in how these 'regimes' award bidding contracts to host cities. In particular, FIFA have struggled to cope with corruption scandals, facing a public backlash and garnering attention from the press which has ensured that their problematic reputation remains a continual issue (Horne & Silvestre, 2016). Both the IOC and FIFA have tried to counter-act these claims by aligning themselves with the global discourse on sustainable development, declaring their flagship events are socially and environmentally beneficial (Hayes & Karamichas, 2012).

The politics within the government and arrangements with international organising bodies were fundamental to the special political circumstances which the paper discusses. This

paper takes a chronological perspective and charts how Cuiabá and Rio de Janeiro were selected for, prepared and hosted these events. As such, we have proposed a conceptual framework to visualise the creation and development of planned infrastructure goals (see Figure 1). The ‘Host Event Project Planning for Infrastructure’ (HEEPI) Nexus presents and delineates the planning processes enlisted throughout the bidding protocols of the two Brazilian MSEs. A number of planning dimensions must be prioritised for the hosting of the event to go ahead. For instance, constructing venues, upgrading facilities and/or delivering stadia renovations. Simultaneously a range of factors act as an external force on the operations of the MSE. This includes the host city or region’s physical location, the current economic outlook and the extent to which politicians possess a final say in key event decisions. A constellation of external contingent actors impart and influence the trajectory of the MSE with their divergent perspectives e.g. public authorities or state-run departments. Other agreements like the host city contract (HCC) are activated between the private sport’s governing body (e.g. IOC) and local host city. Additionally, the representation of the host region is mediated through their involvement with prominent international corporations and global press outlets.

<<<INSERT FIGURE 1 HERE>>>

METHOD

The study is informed by empirical data collected by the two researchers from the most recent mega sporting events held in Brazil - the 2014 FIFA World Cup and Rio 2016 Olympic Games. We present case studies of the two cities, Cuiabá (World Cup) and Porto Maravilha, Rio de Janeiro (Olympic Games) to illustrate contextual similarities and differences in a bounded time-scale, determined by the wider socio-economic circumstances (Saunders, Lewis & Thornhill, 2009). It is acknowledged that the results from these cases cannot be generalised to all

host cities but reflect the types of issues which host cities might encounter. They are therefore presented as standalone examples.

According to Yin (2018), there are four testing criteria for judging the quality of case study research design. These include construct validity, internal validity, external validity and reliability. These tests for quality were applied throughout the collection of primary and secondary sources and triangulation was used to ensure the validity of sources. Validity in the primary data collection was maintained through the recruitment of a wide spectrum of state, corporate and local community actors.

The second author collected data on the 2014 FIFA World Cup host city of Cuiabá, capital city of Mato Grosso. 11 months of ethnographic fieldwork in Cuiabá was undertaken in two phases between 2014 and 2015. The first phase coincided with the World Cup tournament and focused on the preparation of the tournament, whilst the second phase in 2015 focused on the short-term infrastructure and legacy impacts. 15 semi-structured interviews were held with the local population, current and former government and stadium employees. Documentary analysis was conducted on mainstream press and social media reports, official government, FIFA documentation, and unofficial blogs of residents in Cuiabá. Structured observation of the stadium, airport and light railway system line were undertaken in 2014 and 2015 and participant observation was used to support or challenge the various claims by actors. Triangulation was an essential aspect of data collection and analysis of data came from a multitude of sources (Atkinson, 2015).

The portion of the study conducted in Rio de Janeiro by the first researcher mirrored the 15 semi-structured interviews conducted by the second researcher. Interviews were delivered with tourism and cultural organisations in January 2018 to uncover insights into the post-Rio

2016 Games physical infrastructure legacies. Over the course of a three-week period, 1700 photographs were obtained, this was supplemented by regular videos - nine individual online videos were created altogether. Approaches to ethnographic techniques generated knowledge and themes using visual data (photographs), web-based tools and digital video recordings (e.g. vlogs) to represent the researchers' experience and issues relating to MSE infrastructure outcomes (Pink, 2013). Moreover, the first author undertook and analysed a range of host city materials including official bidding plans, local authority/government and non-governmental organisation (NGO) reports.

RESULTS AND DISCUSSION

Case Study: The 2014 World Cup Host City of Cuiabá

Cuiabá, the capital of Mato Grosso, is situated in the centre-west region of Brazil (Crabb, 2018, see Figure 2). During the bid phase, Cuiabá was one of 18 Brazilian cities who bid to host the 2014 World Cup. In a FIFA inspection, Cuiabá was one of 6 cities thought to not have the appropriate infrastructure and therefore could not host the World Cup (FIFA, 2007). However, in 2009, Cuiabá was announced as a host city, a coup largely achieved through political manoeuvring and use of personal networks of state level elites, some of whom travelled to Switzerland to liaise with FIFA officials (Wilson, 2014). As a peripheral city, there was a consolidated infrastructure development programme, including a new stadium (Arena Pantanal) to achieve international environmental certification and a new light railway system linking the stadium to key areas within the city. However, these two projects were beset with problems from the start.

<<<FIGURE 2 HERE>>>

Arena Pantanal Construction and Delivery

The initial bid package sent to FIFA was prepared by local architectural firm Castro Mello; they were also contracted by the Mato Grosso government to produce architectural drawings for the new stadium in the preparation phase. These drawings were never produced and before Cuiabá were declared as hosts, mismanagement had cost the tax payer R\$500,000 (BRL R\$) or £117,361 (Bess, 2013). Cuiabá were given host city status in 2009, construction started in early 2010 but was temporarily suspended in November 2010 after Mato Grosso state auditors prevented funding from the state government due to irregularities with the budget (Tavares, 2011). In addition, the preparation phase was also tarnished by the change of seat supplier. The contract to supply the seats was won in July 2013 by a Cuiabá based company, Kango. They were to supply 44,500 seats at a cost of R\$19.4 million (£4,553,608). An investigation by the civil prosecution service advised the cancellation of the contract as they found Kango supplied the National Stadium in Brasilia at R\$175 (£39.14) each. As a result of this investigation Kango lost the contract to another company, Desk, who quoted the state government R\$150 (£35.21) per seat. Due to inconsistencies related to another contract in Sao Paulo, the company were not permitted to hold a contract with a government based enterprise for five years. At this point in 2013, the original company, Kango, had their contract reinstated after they offered their original contract at a 6% discount. A new contract was then drawn up and Kango stated the seats would be installed by 2015 unless a premium was paid (Segalla, 2013).

Although the event delivery phase was successful, the post-event phase of the cycle has been controversial. Since the 2014 Brazil World Cup, the stadium has been chronically underused, primarily due to construction problems still not being resolved. The stadium was closed in January 2015 due to flooding caused by the wet season. By 2016 the official capacity of the stadium was reduced to 10,000 (Pablo, 2016). On the 15th July 2016, the Mato Grosso

government blocked R\$28 million (£6,572,219) to the construction company Santa Barbara and Mendes Junior after they had not completed the agreed works (Pablo, 2016). In 2016, only R\$100,000 had been made from events with an average crowd of 766 for the local football team, compared to monthly maintenance costs of R\$600,000. In January 2017, a survey was undertaken to assess the main problems of the stadium. Findings of this survey revealed the sound system was not fully-functioning, obvious flooding in the dressing rooms from the wet season and homeless squatters occupying the restaurant areas (Rimoli, 2018). One resident summarised their feelings *“I am so sad when I look at the stadium, it could have been so beautiful, but corruption is everywhere. Welcome to Brazil, welcome to my city”* (interview 3).

VLT Infrastructure Programme

The other main infrastructure project, the railway system (VLT), was contentious from the outset of the bid phase (see Figure 3). When the original bid package was created in 2009, the state government intended to build a railway system in the city. After consultation they revised the plans and developed a bus expressway, costing R\$488.8million (£114,732,167). In 2011, a new state government travelled to Porto, Portugal and after witnessing their train system decided to re-instate the train plans at a cost of R\$1.477 billion (£346,684,555). It was thought the VLT would promote Cuiabá as a modern city (Farinha, 2011). The former governor who endorsed the bus expressway gave his perspective on the change, *“it was obvious to everyone the VLT was too expensive, we didn’t need it. We needed more buses with more routes. The route of the VLT would not help the congestion in the down town area, that is why we chose the bus expressway”* (interview 7). Cuiabá was the smallest 2014 Brazil Football World Cup host city and is suggested to have suffered the most extensive government infrastructure project intervention (Gaffney, 2015). The preparation phase was beset with problems and this resulted in the train system not

being in place by the event delivery phase. The widened roads ready for the installation remained unfinished and large stretches of the road contained high fencing which was still visible throughout the tournament (see Figure 4-1 and 4-2). A commuter reflected on the impact of the transport developments on her daily life: *“I use the bus every day, but it takes so long. The buses are old, so the windows have to be open, but the fumes from the traffic jams make the air horrible. This VLT should have been finished months ago, but it’s barely started”* (interview 12).

<<<FIGURE 3 HERE>>>

<<<FIGURES 4-1 and 4-2 HERE>>>

Works were still not concluded in the post-event phase. This is a consequence of contractual disputes, and delays in the construction of the VLT system which stopped in December 2014, and to date has yet to restart. In September 2016, the only actor bought to account for the corruption in the construction of the stadium and the VLT was the Governor during that period. Governor Silval Barbosa was responsible for signing off contracts and releasing funds. He was at the centre of a corruption investigation in June 2014 where he was initially arrested but released on bail. As part of the police investigation ‘Sodom’, Silval was later arrested again in September 2015. This investigation sought to uncover claims that the state government defrauded the federal government by falsely claiming grants. Barbosa is said to have endorsed 34 contracts as Governor of Mato Grosso, including RS1.4 billion (£328,610,953) for the VLT, of which, R\$500 million (£117,361,054) was said to be distributed to his colleagues (Ultimo Segundo, 2017).

Case Study: Rio 2016 Olympic Games and Porto Maravilha’s Urban Development Programme

Porto Maravilha was deployed through urban regeneration projects to remodel ambitious reforms of the old industrial and historic port (Carvalho, 2016: Guerra, Ferreira & Kipnis, 2018).

The ‘Marvellous Port’ revitalisation of the harbour and downtown areas can be credited to the Eduardo Paes administration, who was the former mayor of the city from 2009-2017 (Carvalho, 2016). Urban development strategies amounted to infrastructure costs of R\$8 billion covering an area of five million square metres (see Figure 5), incorporating the docklands, VLT transport implementation and the opening of new boulevards and squares e.g. the Olympic Boulevard (CDURP, 2016; Guerra, Ferreira & Kipnis, 2018; Rio de Janeiro City Government, 2014; Silvestre, 2016). In preparation for the Olympics, the revitalisation of the port district was designated as one of the main legacies, and a neoliberal experiment to capture the city (Ribeiro & Junior, 2017). Ancillary infrastructure was also planned, including the Rio Museum of Art (Museu de Arte do Rio - MAR) and the Museum of Tomorrow (Guerra, Ferreira & Kipnis, 2018). The Rio Museum of Art opened before the start of the 2014 World Cup in March 2013 and both museums are housed in the Mauá Square (Praça Mauá, see Figure 5). The Museum of Tomorrow (Museu do Amanhã) is a lavish waterfront building erected at the Pier Mauá in late 2015, designed by lauded Spanish architect Santiago Calatrava (Carvalho, 2016; Sanchez & Essex, 2017). At first glance, the museum is seen to project the values and practices of sustainability in its engineering and internal exhibitions, blending art and science and enabling visitors to envisage an ecologically sound future (Watts, 2015). These developments enacted were perceived to be marginal to the 2016 Olympics, but they have become increasingly intertwined with the preparation of the Games (Carvalho, 2016). Additionally, construction companies and other corporate interests (e.g. office towers, hotels) played a major role in expediting Porto Maravilha’s regeneration plans (Ribeiro & Junior, 2017; Silvestre, 2016).

<<<FIGURE 5 HERE>>>

Ancillary Infrastructure, Facility Development and Urban Spatial Transformation

Reconfigurations catalysed by the Porto Maravilha project have changed the dynamics in the Pier Mauá plaza, as emphasised by a number of interviewees. One cultural organisation exemplified that the land was *“completely destroyed... it was a bus parking lot... nothing happened here before it was a dead zone... with this project, what happened is that you have a completely renovated area”*. Although, these physical environmental changes could deter desirable outputs for the local, deprived populations and spark gentrification processes in the port area. One participant remarked that there was a *“high social cost... but it’s more of an aesthetic thing, just a facade. It looks good but is it really good because we still have problems with health, and education and security...”* In the media, misleading figures have circulated and been reported on concerning the costs of the construction of architectural installations and facilities in Porto Maravilha. Figures relating to the Museum of Tomorrow are disputed from £40m or \$59m (Watts, 2015) to claims from one interviewee of astronomical levels of R\$245 million. On the face of it, a range of hard infrastructure implementations did not satisfactory meet local demand for facilities (Gratton & Preuss, 2008; Li, 2013; Thornley, 2002).

Moving out from the main Porto Maravilha precinct, poor quality of facilities for the local community is evident. For example, this is reflected in the sad state of affairs of the Gamboa Olympic Village (Vila Olímpica da Gamboa, see Figure 6-1 and 6-2). The venue was inaugurated in 2004 as a recreation centre and physical site designed to support sport and leisure activities (e.g. athletics, swimming and skateboarding) for the local community in Gamboa. This perspective was emphasised by a local tour operator who reiterated the depressing sights of the facility: *“this use to be setup as a skate park. You can see there was a track here for running and you can see the condition of this and a football installation... they build it and leave, there’s no maintenance, there’s no budget to take care of this stuff... This park use to be a really nice*

facility when they opened it. It's absolutely shocking!" The current situation of the infrastructure and recreation sites has demonstrated minimal preparation to feasibly maintain and upkeep the conditions of the facilities. In a number of instances, infrastructure and venues have been left redundant.

<<<FIGURES 6-1 and 6-2 HERE>>>

On the other hand, some would argue the outlook of the rejuvenated port is a clear improvement, recognising all the physical structures that sprung up from this development and renovated 'Olympic Boulevard' (Boulevard Olimpico). A cultural centre spoke positively about the transformation of the port and the signals emanating from the residential market, *"we are looking very optimistic about the Porto Maravilha project. But we know that takes time and it's important that the residential area of Porto Maravilha becomes a success"*. However, in terms of real estate development and the corporate vacancy rate, a plethora of factors have influenced the current stock of retail and industrial office space in the port. Developing and retaining international corporations is a prevalent issue in Porto Maravilha. This is illustrated through the widespread empty and dilapidated corporate offices and towers littering the skyline (see Figure 7).

<<<FIGURE 7 HERE>>>

Real-time analysis post-Games found that Rio de Janeiro's ex-Olympic event public spaces and dwellings have been designated to stage temporary events. A couple of the interviewees highlighted the central port area acting as a springboard and focal point as public space opportunities start to ripen for commercial event animation (Smith, 2018), including Praça Mauá and the Olympic Boulevard. One participant stated these spaces are *"areas that allow for these big events and shows"*. Spatial transformations in Praça Mauá have led to new initiatives

such as pop-up markets. Another interviewee mentioned events developed in partnership with local cultural partners (e.g. museums) in the port zone, including the debut of the Rio de Janeiro Women of the World Festival (Festival Mulheres do Mundo, 2018). This festival is described as a celebration of the achievements of women and the inaugural edition landed in Rio in November 2018.

Urban Transport Network: Targeted Removal or Inclusive Improvements?

A sign of the planning and targeted interventions in Porto Maravilha is the implementation of the light rail vehicle (VLT). The government promise was to add substantial investment in transportation to connect routes stretching in and out of Porto Maravilha. Paes' ideas on the transit reforms were to link the transport networks - metro, buses and airports, particularly the 28km light rail from Gamboa to Central to Santos Dumont terminal (Carvalho, 2016; CDURP, 2016). Key stations related to this study have been mapped and illustrated in Figure 5. The controversy was evident surrounding which members of the local community the VLT served and the planned placement of the VLT tracks on streets. This assertion was highlighted by some participants, who claimed that *"it's not a means of transportation. It's not a means of transportation... it's a means of changing the neighbourhood, of valuing the neighbourhood"*. In this sense, problems in assembling the integrated transport system were the ongoing dilemmas faced by city planners, policymakers and the local organising committee. In some extreme cases for neighbourhoods urban planning devices like the execution of the VLT have dogmatically reaped chaos upon citizens, leaving behind a homogenised, characterless ghost town - awaiting the next urban retail market pump. Accessibility and the temporary creation of transport systems for the local population was a highly questionable tactic pursued by the local authority.

Our analysis has presented multiple examples of infrastructure development as a consequence of hosting an MSE. Both cases demonstrated issues during the planning phase which ultimately lead to deficient legacy outcomes for the cities under the spotlight. The time constraints between being awarded host city status and delivering finished infrastructure often invite complications for the local organising committee and the state. For example, the seats in the Arena Pantanal were charged at a premium as the suppliers knew the constructors were working to a deadline. The seat suppliers were then able to profit at the expense of the taxpayer. A lack of transparency in the negotiation of contracts has had long term impacts. The final bill for taxpayers in Rio is still unclear as contradictory reports on the costs circulate. In Cuiabá, the difficulties surrounding negotiating contractual agreements meant the VLT was not completed and the governor was imprisoned.

These underlying issues in the preparation phase have led to more widespread ramifications for both host cities. There has been no funding set aside for maintenance of venues and facilities in Rio de Janeiro and there are office building blocks standing empty. In Cuiabá, the VLT still remains unfinished and the stadium is falling into disrepair. These case studies have shown how external actors have been able to influence the development of infrastructure projects. This includes the federal and state governments, sports organising bodies, international corporations, and the local population. Each of these actors has their own agendas and has different abilities to influence outcomes, however, this is not static and can shift as priorities, funding and time scale change. In Table 1, we have provided a detailed review of the parallels and disparities relating to planning and infrastructure impacts which emerged from the two host city destinations.

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CONCLUSIONS

In this paper, we intended to provide rich, empirical and critical insights to establish the state of planned infrastructure development and returns post mega sporting event (MSE). The two case settings in question, Cuiabá and Porto Maravilha illustrate how the infrastructure and urban legacies have been created and delivered in the short-term. The review of the literature established what is not known in terms of the physical legacies. For example, the legacy of these infrastructure works attached to the events' bid preparation and delivery, and how this co-existed and operated within the confines of policy and decision-making. In this regard, understanding the production of these legacies across the MSE lifecycle is pivotal. Particularly how they are conceived across multiple locations, coupled with how key stakeholders seize upon the power to influence the eventual manifestation of legacy plans. Hence, MSE bidding and planning has been explored in order to make a judgement on the host cities physical and spatial legacies.

A number of persistent issues have been stressed in relation to the hosting capacity of the city or nation i.e. Brazil. For instance, the role and demands of 'collective elites' (e.g. public authority and local organising committee) in pushing through their local infrastructure agenda. In these examples, primary infrastructure as categorised by Li (2013) accounted for an extensive proportion of requirements e.g. Cuiabá's Arena Pantanal. The importance of ancillary facilities encompassing museums and the extension of commercial buildings or units were more prominent in Rio de Janeiro - mainly due to the increased tourist numbers anticipated in this area. However, similarities can be drawn relating to the spiralling operational costs and budgetary management of both sites. In mega sporting event led planning and development, analysis of Cuiabá's and Porto Maravilha's urban projects highlights the lack of broader long-term thinking around how facilities are designed and organised. This includes visions for the

positioning of ancillary infrastructure renovations, and dynamic interactions with urban ‘Live Site’ public space regeneration (Smith, 2018), to new or upgraded urban transport systems. Across the board, host community involvement in the decision-making process was absent.

Applied to the context of the Global South, this examination delves into the critical relationship between MSE planning and urban infrastructure and renewal (Li, 2013). The cloud of uncertainty surrounding the degree to which infrastructure programmes are seen to be unfinished and often terminated, grounding to halt at the various MSE phases is surely a missed opportunity for Brazil. Instead, hosting cities have become burdened by a political infliction which ignores citizen-led initiatives, in exchange for the pursuit of aesthetically homogenous, built-material city infrastructure.

Drawing upon the notions and distinctions of infrastructure costs and benefits to a host city or nation, this article explored how the evolving corruption saga serves to derail infrastructure projects and threatens the instability of the host city environment. State actors were seen to be engulfed in multiple corruption scandals, which have been identified and discussed in both city settings of Cuiabá and Rio de Janeiro. To limit and address these corruption concerns, MSE planning and bidding procedures must actively deal with issues of transparency. Global and pan-European bodies (e.g. FIFA, UEFA) have started to respond to these challenges posed to host cities. For instance, as part of the reformed 2026 FIFA Football World Cup bidding process, transparency is now listed as a key principle (FIFA, 2017). Likewise, within the planning and procedures of the 2024 Olympiad, the IOC, has brought to the fore a number of anti-corruption practices to combat fraudulent activity (IOC, 2017). Changes to regulatory structures could enable hosting cities to amend, retract or veto certain event requirements if the stadiums and venues are thought to be unnecessary and usable. Furthermore, more incentives could be offered

to hosting cities to develop temporary venues or replicate similar approaches devised for major sporting events, specifically, the 2018 Gold Coast Commonwealth Games. In this instance, the organisers created a venues and services division responsible for the planning and delivery of temporary and permanent infrastructure services (Gold Coast 2018 XXI Commonwealth Games, 2017, p. 26). Holistic and integrated sustainability policies and corporate social responsibility instruments may assist in coping with infrastructure resource frailties, such as facility size, as well as negating the possibilities of political figureheads benefiting from engaging in corruption and bribery as a consequence of planning and bidding to host an MSE.

This paper made two contributions to the mega sporting event literature. Firstly, it answered calls to further understand the ‘Global South’ experience of MSE hosting (Maharaj, 2015). This is particularly important as more developing countries are set to host MSE events in the future. With lower levels of public expenditure than their Global North counterparts, they are more susceptible to corporate sector exploitation. Secondly, we have contributed to the growing focus on pre-event planning as the catalyst for transforming post-event outcomes. Here, it was found that the plethora of actors with different agendas and scope for influence attempt to assert their demands on the bidding and planning stages. This has been visualised in the “HEEPI” Nexus model which was conceptualised earlier on in this paper. Further research directions could be directed toward exploring the relationship between MSE facility developments, the expectations of locals and achieving social outcomes. Longitudinal studies are necessary to tease out venue construction operational issues and evaluate the infrastructure decision-making processes of various relationships between government officials, policymakers and building contractors. To this end, the study provides a critical event studies perspective and an in-depth picture of large-scale flagship development programmes. Mechanisms and approaches for

maintaining longer-term investments in the physical landscape have to be realistic and manageable, which considers local, host community participation and inclusion to ultimately derive benefits from heavy infrastructure and facility construction.

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Table 1.

Host City Review of Planning and Infrastructure Impacts

Key Host City Themes	Cuiabá and Porto Maravilha, Rio de Janeiro Case Study Focus and Impact
Budgets and costs	<ul style="list-style-type: none"> • Original costs have overrun their estimations. In Cuiabá, the bus expressway was initially expected to cost R\$488.8 million (£114,732,167) but this was replaced by the VLT at a staggering cost of R\$1.477 billion (£346,684,555), funded by public finances. • The construction costs for Porto Maravilha's prodigious installations (e.g. Museum of Tomorrow) are contested and surpassed their projected budgets (Watts, 2015).
Infrastructure construction and transportation plans	<ul style="list-style-type: none"> • Unfinished infrastructure development programme - The Arena Pantanal (Cuiabá) did not receive the planned international environmental accreditation as construction was not finished on time. Disputes between the state government and construction company led to R\$28 million (£6,572,219) being withheld from the construction company. • Delayed and/or cancelled projects - Cuiabá's new light railway system (VLT) was not completed in time for the 2014 World Cup, due to a number of major construction delays and contractual disagreements. The Governor signed contracts worth RS1.4 billion (£328,610,953) and the project remains unfinished at the time of writing. • Transportation faults - In Rio de Janeiro, implementing the VLT project contributed to widespread disruption and eroded access for local communities, especially in areas such as Gamboa. The

	<p>controversy was also evident with regards to the location and routes of the VLT, and which communities the VLT served to benefit.</p>
Stadiums, venues and ancillary facilities	<ul style="list-style-type: none"> • Stadia and venue usage - Due to the lack of strategic longer-term foresight in both cities, some venues and facilities remain under-utilised. Although the Arena Pantanal's capacity was reduced after the 2014 World Cup, the stadium possesses many of the facets of a 'white elephant'. • Ancillary infrastructure and recreational facilities - The planning and integration of key ancillary facilities (e.g. the Rio Museum of Art and the Museum of Tomorrow) was poorly designed, coordinated and ineffective in its execution. Moreover, the recreation centre and site, Gamboa Olympic Village, has fallen into a dire state of disrepair and is therefore not able to fulfil its role in supporting local community sport and leisure activity.
Real estate development	<ul style="list-style-type: none"> • Abandonment and unoccupied urban space - In the port region of Rio de Janeiro, empty buildings, abandoned office towers and industrial space can be linked to the development of real estate. This has exacerbated corporate vacancy rates in Porto Maravilha when compared to other districts in the city.
Transparency and corruption	<ul style="list-style-type: none"> • Corruption scandals - The Governor in Mato Grosso was charged with misusing public funds - VLT expenditure contributed to this conviction. Substantial evidence in the two host cities points to how the political elites were the beneficiaries to the detriment of the local communities, commuters and the natural environment.

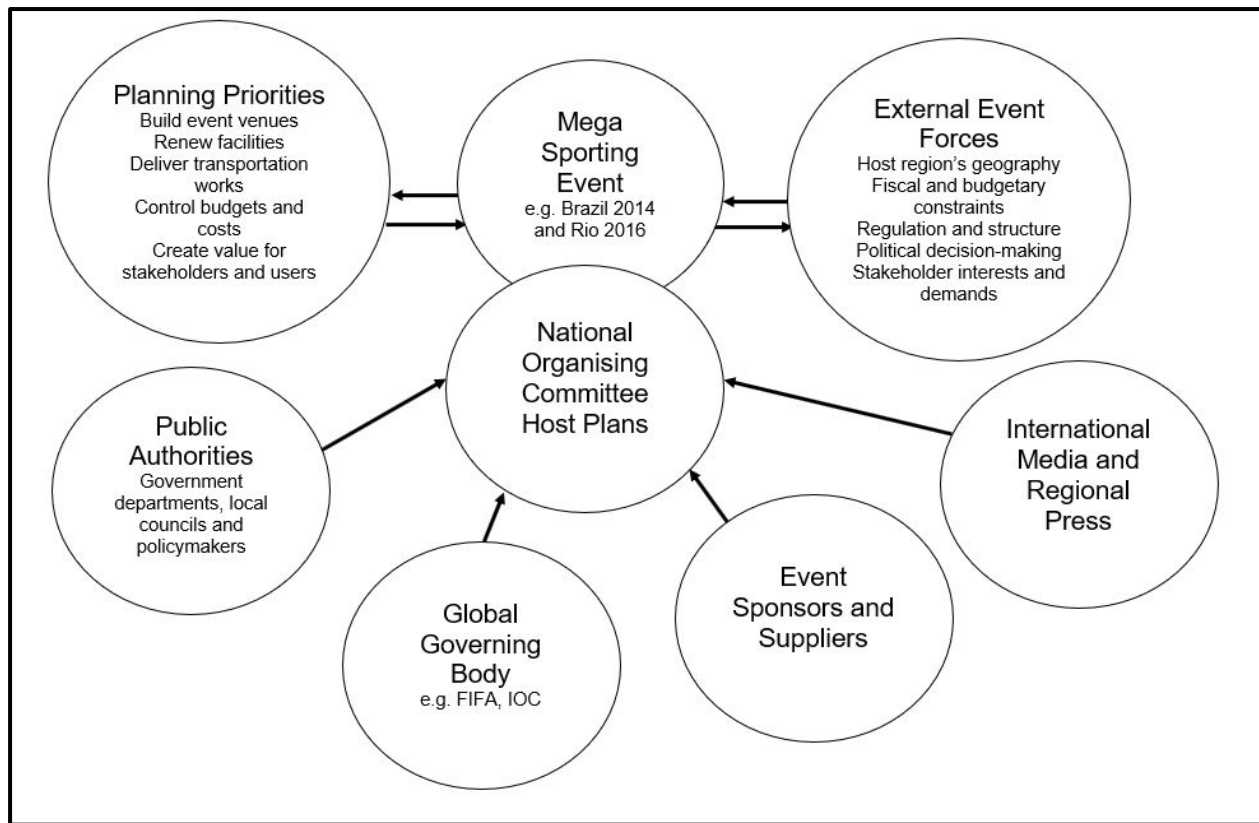


Figure 1. Host Event Project Planning for Infrastructure Nexus

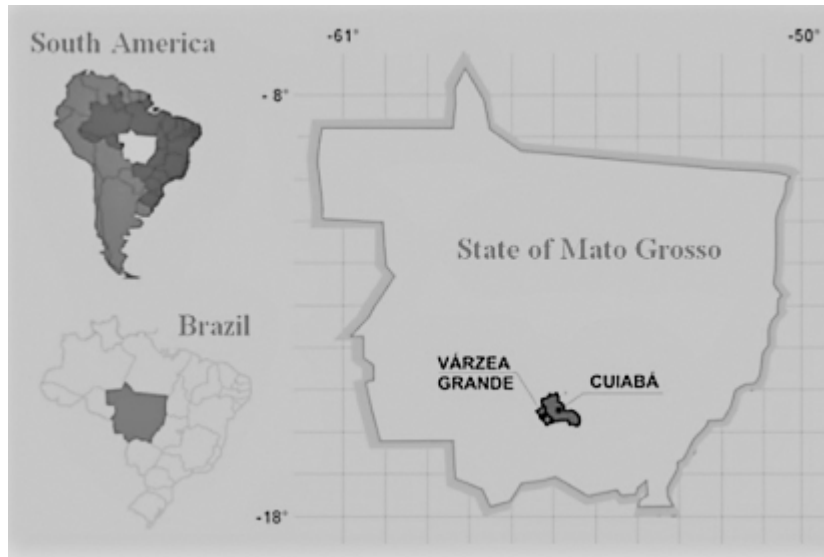


Figure 2. Location of Cuiabá, capital city of Mato Grosso state, Brazil (Callejas, de Oliveira, de Moura Santos, Durante, Nogueira & Zeilhofer, 2011).

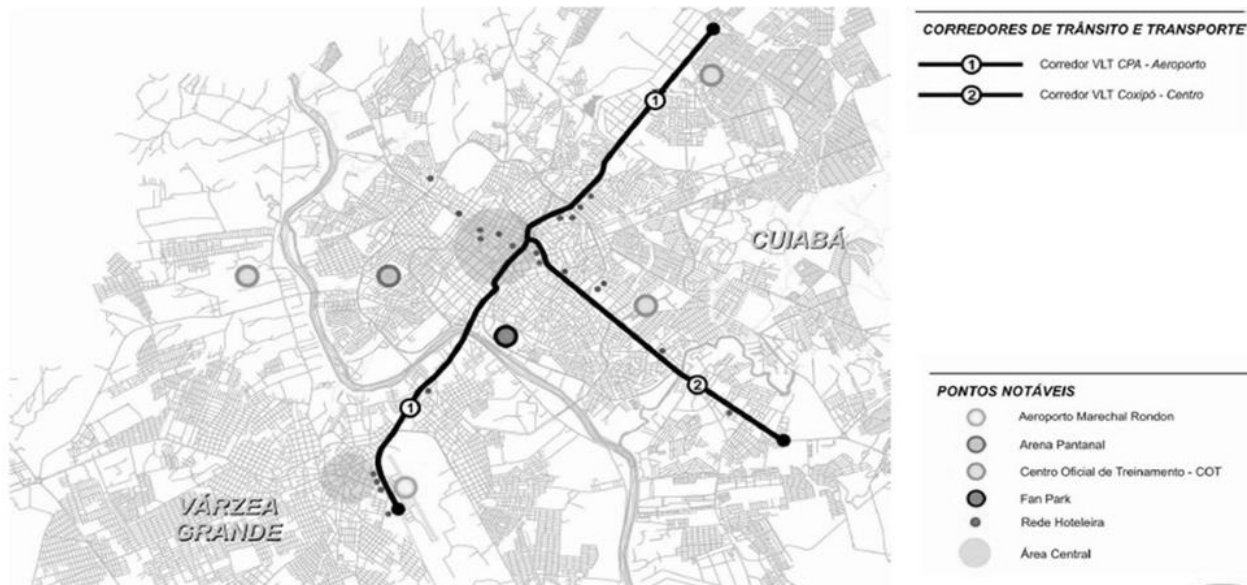


Figure 3. Map of Cuiabá showing the VLT linking the airport to central Cuiabá. The Arena Pantanal is indicated by the green dot (Mobilize, 2014).



Figure 4-1 and 4-2. The VLT railway in Cuiabá, an unfinished infrastructure programme associated with the 2014 World Cup (author's own photographs).

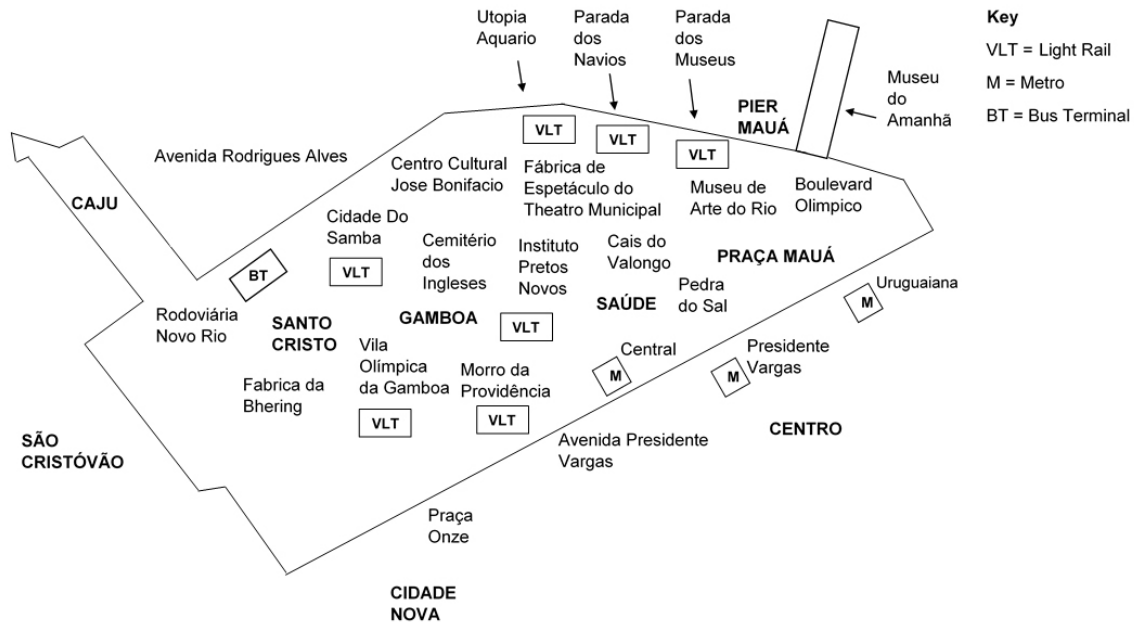


Figure 5. Overview of Porto Maravilha Districts and Urban Infrastructure Development Zones
(based on CDURP, 2016; RioOnWatch, 2016, and author's emphasis).



Figure 6-1 and 6-2. Gamboa Olympic Village (author's own photographs)



Figure 7. Empty Corporate Office Building (author's own photograph).