Sport Mega-Event Hosting and Environmental Concern: From Sydney to Rio

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A U T H O R I N F O

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A B S T R A C T

This paper examines the extent to which the proclamation by the International Olympic Committee (IOC) that Olympic Games hosting can improve the environmental capacity of the host nation holds. It singles out the post-event environmental concern exhibited by the population of the host country as the most important indicator and proceeds towards examining how successive host nations have performed in relation to that. The intervening variable of the global environmental crisis is put under the microscope and as a result the general conclusion suggests that environmental concern is much more tied to the general socio-economic predicament that the host country finds itself to be in the post-event phase than the successful hosting of green Games.

K E Y W O R D S (in alphabetical order): *Capacity building; Ecological modernization; Environmental concern; Olympic games; Protest*

Introduction

Sport mega-events and the environment examined by a sociologist? Many may wonder, what can sociology possibly tell us about sport events and the environment problematic? The truth is that both the athletic and the environmental are two themes that only few sociologists are incorporating in the sociological sphere. This is an encapsulated by Bourdieu (1990:156) in his famous saying, 'the sociology of sport: it is disdained by sociologists, and despised by sportspeople'. One may add to this disdain is equally acute in relation to the environmental dimension.

Indeed, the truth is that any attempt to attribute sociological linkages to the environmental problematic still seems to puzzle some sociological sectors. That appears to still give support to an unjustifiable exclusion of the environmental from the discipline.

Notwithstanding that exclusionary tendency, only a few years ago, as climate change appeared to have become the most valence issue of our times and as the London Olympics were approaching, British sociologists undertook a critical and constructive outlook in relation to sport and the environment. Characteristically, that opening was confirmed by Anthony Giddens (2009) in his *The Politics of Climate Change*, as well as through a new chapter, Sociology, Sport and the Olympics, in his popular undergraduate textbook, *Sociology* (2008).

In this context, the conjunction of the sociological to certain sections of the natural sciences may become a self-evident and necessary development. At the same time, physical education studies can incorporate the environmental interest since an increasing number of sport events adopt Environmental Management Systems (EMAs) and pursue the measurement of their ecological footprint.

Olympic Games and the Environment

On a personal basis, my first engagement to this issue was in relation to mobilizations by environmental and local citizen groups against the construction of a High-Voltage Power Station (KYT) in two municipalities of the Greater Athens' area, Greece. In a context of continuous mobilizations, the government linked the construction of KYT to the Olympic projects. The article that I wrote on this issue (Karamichas 2005) was first presented in June 2004 at the Conference, *Nature, Science, and Social Movements*, Mytilene. In that article I also engaged with the environmental dimension of other Olympic editions and the International Olympic Committee's (IOC) position on environmental issues in general and the sustainability legacy imbued to the host country by staging the Games. Through that engagement the following were substantiated:

1. The Sydney Olympics have been heralded as the first green Olympic Games ever, with positive reviews by environmental organizations.

2. In 1994 (a year after the award of the Games to Sydney) the 'environment' was recognised as the third pillar of Olympism.

The following question was, then, immediately raised in relation to the fact that the aforementioned paper was very much stimulated by environmental protest mobilizations against projects linked to the 2004 Athens Games: To what extent the organization of successful 'Green Olympics' is an one-off event or a permanent platform for the transmission of green principles? The importance of that question was further accentuated with the highly critical reports produced by core ENGOs (Greenpeace and WWF) on the environmental record of the Athens Games (see Karamichas 2012a).

Ecological Modernization – Environmental Sustainability and Olympic Games

The IOC was late in adjusting to the emergence and development of environmental concern during the 1970s in the Western world. Indeed, it was only in 1996, two decades after Denver declined to host the Winter Olympics, that the IOC made the environmental dimension an essential component in the bid to host the Games. Characteristically, the following paragraph was added to the Olympic Charter that defined the role of the IOC in relation to the environmental issue:

> *the IOC sees that the Olympic Games are held in conditions which demonstrate a responsible concern for environmental issues and encourages*

> *the Olympic Movement to demonstrate a responsible concern for environmental issues, takes measures to reflect such concern in its activities and educates all those connected with the Olympic Movement as to the importance of sustainable development (IOC 2007: x)*

By 2007, the IOC and its then president, Jacques Rogge, were honoured as champions of the Earth by the United Nations Environmental Programme (UNEP). In receiving the award Rogge made the following statement:

> *Since the early 90s the IOC and the Olympic Movement have progressively taken the environment and sustainability into account throughout the lifecycle of an Olympic Games project. The 'Green Games' concept is increasingly a reality. Today from the beginning of a city's desire to stage an Olympic Games through to the long-term impact of those Games, environmental protection and more importantly sustainability are prime elements of Games planning and operations. I am very proud of this and would like to thank the UNEP for recognising these efforts (Beijing 2008, 2007)*

This statement substantiates the long term impact of Games hosting envisaged by the IOC. As it becomes more apparent in the following paragraphs, IOC's vision corresponds well to the aspirations of the ecological modernization/ environmental sustainability mindset. Environmental sustainability is used as distinct from notions of sustainable development in the study of the environmental factor in the sport mega-event context (see Mol, 2010). Although sustainable development is usually linked to the environment, the fact is that is also intimately linked to the social. Some have made a distinction between weak and strong interpretations of ecological modernization and sustainable development (see Christoff 1996; Hayes & Horne 2011).

Engrenage

The preparation to host the Games demands the successful coordination of various state institutional bodies, collaboration with civil organizations and significant restructuring of the host cities' infrastructure. That is bound to have a significant impact on the polity, the decision-making process, organization, scientific consultation and use of new technologies. In an earlier work, Karamichas (2013a) has seen this long term impact as analogous to a process making an impact on a nation's capacity for Ecological Modernization (EM) (Weidner 2002).

That capacity for EM can be seen as something akin to Jean Monnet's Engrenage[1], 'in that the process of meeting the IOC's environmental standards could both drag with it the host nation's institutional framework and set

[1] 'Engrenage' can be seen as a gear stick whereby the selection of a particular gear sets in motion certain cogs that control the movement of the car. Similarly, the entry of a country in the European process sets in motion a number of institutional cogs that progressively influence the whole of the policy framework adopted by the country.

a precedent that other nations will strive to emulate' (Karamichas 2012a:156). In order to assess how this process evolves in the context of sport mega-event hosting, the analyst has to examine each of the phases in the hosting endeavour, namely the pre-event, event and post-event phases (see Hiller 2000).

Environmental concern from applying to host the Games to the post-event era

The pre-event phase includes the application made by prospective host nations. This application is very much guided by a Manual for Candidate Cities (MCC) that the IOC publishes eight years before an Olympiad in order to inform prospective candidates and guide their applications.

Among others, such as Environmental Impact Assessments (EIAs) and collaboration with Non-Governmental Organizations (NGOs), candidate cities must present plans to increase the environmental awareness of their population. The underlying assumption employed here is that the implementation of all these can become a substantial precedent for the transformation of the planning of the host country, not only to meet IOC's requirements but also to transform the institutional and policy framework of host countries along environmental modernization (EM) lines.

Working Hypotheses

In attempting to examine the post-Olympic EM capacity of successive Olympic host nations, I employed the following two contrasting hypotheses that I adapted from Andersen (2002):

1. in the wake of their respective Games (which were after all awarded to them, at least in part, on the basis of a range of green claims), 'one should be able to identify marked signs of environmental improvement' in the host nations (Karamichas 2012a:152; Karamichas 2013a:151).
2. to achieve environmental transformation, the effect of hosting the Olympic Games 'depends more on the supportiveness of domestic political processes'(ibid) .

As it is shown below, environmental concern exhibited by the host nation publics is the most important factor that can direct any prospects towards facilitating the EM capacity of the host nation.

Indicators of post-Olympics capacity for EM

Through examination of key works on EM (see Buttel 2000a, 2000b, 2003; Mol and Sonnefeld 2000; Jänicke and Weidner 1997; Weidner 2002) and the green legacy aspirations of the IOC, six indicators were identified and put to the test in assessing the post-Olympics capacity in EM of successive Olympic host nations: (i) average annual level of CO_2 emissions; (ii) level of environmental consciousness; (iii) ratification of international agreements; (iv) designation of sites for protection; (v) implementation of Environmental Impact Assessment (EIA) procedures; (vi) Environmental Non-governmental Organizations

(ENGOs) participation in public decision-making processes (see Karamichas 2012a; 2013a). These indicators are interdependent and can be mapped in a network of multidirectional nodes where one indicator affects another and vice versa.

The focus here is on the 'level of environmental consciousnesses' as an indicator with an immense potential to impact upon the remaining five. For instance, increased levels of environmental concern exhibited by the general public are likely to lead the state government to adopt relevant policies, ratify relevant agreements (Kyoto protocol), and designate nature protection sites. In addition, it may lead to increased citizen support and participation in ENGOs that in turn can monitor more effectively, due to added support by the general public/voters, the environmental policy actions by the political administration. The following sections discuss the findings on this indicator in relation to successive Olympic Games. We start with Australia, host nation of the first 'green Olympics', Sydney 2000.

Environmental Concern in Australia

In the 2010 Australian General election, 88.3% of Australians claimed that the environmental issue was important (46.6%: 'quite important', 41.7%: 'extremely important') (ASSDA 2010). In order to appreciate that really high score, one has to go back to 2007. It was in that year that Kevin Ruud of the Australian Labour Party (ALP) campaigned with a promise to ratify the Kyoto protocol, something that the previous, conservative administration was vehemently refusing to do as it was perceived as detrimental to the Australian financial interests, such as the coal industry and use of dirty coal for cheap energy provisions. Disappointment in the failure by Ruud to materialise his ambitious plan led to his 2010 replacement by Gillard in the leadership of ALP and the collapse of the party's appeal. It's worth noting here that the Australian public had not lost its belief in the seriousness posed by climate change or that the proposed measures lacked support. Instead, it's far more logical to see that as a manifestation public frustration with the continuous deferment or postponement of the proposed measures (see Karamichas 2013a). Following the ousting of Gillard from the leadership of ALP, Rudd was reinstated as the leader of the party in June 2013.

A minority ALP government, supported by the Greens and three independent MPs stayed in office until September 2013, when ALP was defeated by Tony Abbott's Liberals. Tony Abbott had run a vehement campaign against the climate-change measures, such as the carbon pricing scheme, which were introduced by Gillard. The electoral result achieved by Abbott has been seen as 'a vote against the Greens-supported Labor government than an enthusiastic embrace of Abbott's alternative' (Rootes 2014: 167). Indeed, the 2013 research conducted by the Climate Institute revealed that a […]

> *[…] remarkably consistent two-thirds of Australians accept that climate change is real. It also reveals diminishing confusion and a growing understanding that climate impacts are occurring now, [they are] no longer threats for the future.*

Significantly, the research has found rebounding support for Australian leadership on climate solutions. That number climbed for the first time since 2007 (Climate Institute 2013:1).

This demonstrates that the 2012 suggestion that the 'electorate was largely fatigued with politics of climate change and scared about the risings cost of living' (op.cit.:2) and that way the 2012 findings can be seen as a temporal blip from the usually high scores on concern for climate change exhibited by the Australian public in relevant opinion polls. In relation to our research question we can claim that no causality can be identified between these high scores and hosting the Sydney Games. Small alterations on the expressed concern can be mostly attributed to prevailing socio-economic circumstances and how the climate change issue is framed in the polemics of inter-party competition.

Environmental Concern in Greece

Climate change appeared to be the highest issue of concern for the Greek public in 2008 and 2009. More specifically 71% saw climate change as the 'most serious issue currently facing the world as a whole'. In an earlier discussion, I interpreted these results as follows:

There is good reason to believe that the Greek public's concern on climate change is much more sincere and better informed during the first decade of the 2000s than in the 1990s. It is likely that this can be attributed to international factors, such as the promotion of the role that human activity has on climate change since the 2007 Nobel peace prize was shared by the IPCC and former US vice-president Al Gore, and to national factors such as the extremely devastating forest fires of summer 2007, rather than the staging of the 2004 Olympics and the promotion of environmental awareness associated with them' (Karamichas 2012a:163).

This finding was based on the last relevant Eurobarometer coinciding with the onset of the 2008 global economic crisis and before the 'official' entry of Greece in that economic turmoil which resulted in severe austerity measures.

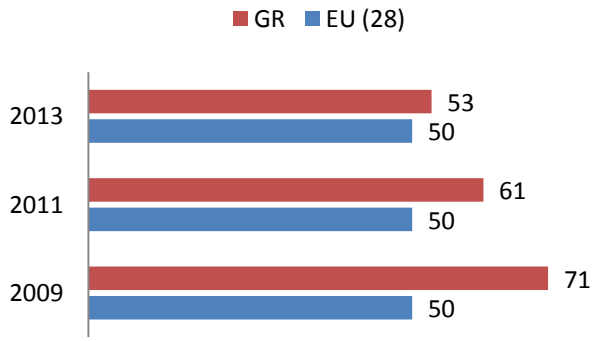

Figure 1: Expressed concern about climate change: EU and Greece (Source: European Commission 2014)

As we can see on Figure 1, although the European average remained stagnant at 50%, there was a 10% decrease of the expressed concern about climate change by the Greek public in 2011 (dropping to 61% yet still remaining significantly above the EU average). A further decline became apparent in 2013, when the expressed concern by the Greek public came very close to the EU average, at 53%.

In order to complement our understanding on the substantial decrease of expressed environmental concern in 2011, it's important to bring into the discussion the position advocated by Marquart-Pyatt (2007), that concern on environmental issues tend to decrease when it's counterposed against certain materialist issues, like prices and employment. Indeed, while we witness a 10% decrease of the professed environmental concern of the Greeks in 2011, at the same time we had an increase (reaching 80%) of those who saw 'poverty, hunger and lack of drinking water' as the 'most serious issue currently facing the world as a whole'. That indicator was further increased in the 2013 Eurobarometer to 91% whilst the environmental concern indicator went down to the European average (European Commission 2014). In relation to the research question that stimulated this research, namely the post-olympics EM capacity for the host nation where 'environmental consciousness' stands as the most important indicator, we can reach again the concluding remarks put forward in Karamichas (2013a:186):

> *[Evidently] concern about climate change decreases at a time when the Greek public faces an extreme deterioration of living standards. It is clear, then, that the professed concern about environmental issues in 2009 was very much conditioned by the aforementioned international and national factors rather than a rise in environmental awareness stimulated by the Olympics.*

Environmental Concern in China

China represents a very interesting case in that, as an authoritarian regime, we lack comparable data to the other Olympic editions under examination here. Nevertheless, the argument put forward in Karamichas (2013a) was that China scores well in the environmental concern idicator. That was based on secondary data that was gathered from a number of relevant publications. These were pointing out the following:

i. The environmental issue was ranked as the fourth highest concern.

ii. A good perecentage of respondents (61%) believe that the country should reduce emissions as much as other countries.

iii. According to the UNEP assessment of the environmental credentials of the Beijing Games, the intense media attention to the health and safety of the athletes due the high levels of environmental increased public awareness of environmental issues. Issues that is the past

were disregarded have become major concerns (see Karamichas 2013a:215-216).

That indicator in conjuction with the environmental asprirations of the 12h Five Year Plan (FYP) led Karamichas (2012a:226) to claim that China has a positive score in all six EM indicators.

This positive outcome could be attributed to incremental developments that were bound to take place in China after the 1978 modernising reforms initiated by Deng Xiaoping. Hosting 'Green' Olympics was an affirmation of this path.

That can also be explained by the fact the China followed the requirements of an Olympics Impact Study (OGI) without been required to do so, as the first OGI was to take place in relation to the London 2012 Olympics. The extent to which all these have led to a sustained increase of environmental concern with an corresponding performance in all other EM indicators is debatable. When thinking in terms of an environmental Kuznets curve, it can be argued that as a growing number of Chinese citizens improve their socio-economic status we are going to see increased demands over qualitative issues, like environmental protection, in a similar fashion that the emergence and rise of new demands evolved in the advanced Western democracies in the 1960s/70s. Although, this development is broadly acknowledged, there is still scepticism concerning the obstacles that this process is facing. A good, relevant example comes out of Moore's (2014) work on technocratic mega-projects in China. In his examination of the South-North Water Transfer Project (NSWTP) Moore puts forward the following:

> *Although the project was unfolded against a dramatic transformation of Chinese environmental politics and policymaking, it exemplifies a technocratic, authoritarian, and top-down response to environmental challenges.[…]. The case of NSWTP illustrates that a richer understansing is needed of how governments employ persuasive resourses, such as messaging and cooptation, to achieve strategic goals in both environmental and other policy areas. My account stresses how, even in a contested, pluralised and modernised political environment, an authoritarian government can mount large-scale, technocratic, and top-down solutions to environmental policy problems (ibid: 948).*

With that in mind, one may venture towards risking a prediction of intense social contestation in China in the near future similar to that witnessed in Brazil, one year before it was to host the FIFA world cup and three years before hosting the Rio Games. The Brazilian case is discussed further down. Before that we proceed to an appraisal of the London 2012 case.

Environmental Concern in the UK

As we can see in Figure 2, environmental concern in the UK has remained steady since 2009, below the EU average, at around 45%. It's interesting to contrast this score to the rather significantly higher score that has marked the Greek case. Indeed, considering that the UK has 'one of the most widely supported environmental movements in the world, with very good organisational and policy impact[…]. [We may assume that the concern exhibited by the British public is] accompanied by environmental knowledge, as distinct from the unqualified concern that has [been] demonstrated by some [nations, like Greece]…[In addition,] in the 2010 general elections that the Greens managed to send their first MP in the House of Commons, notwithstanding the continuing usage of the first-past-the-post electoral system, notoriously favourable to the two main political parties (Karamichas 2012b:388). It is interesting to note that leaders of three main competing parties in general and David Cameron (Conservatives) and Nick Glegg (Liberals) in particular spent a good part of the televised pre-election debate promoting their environmental credentials and concerns about climate change. In addition, the Conservative-Liberal coalition that was formed after the elections seemed to be willing to continue the good relationship between ENGOs and government bodies that had marked the preceding New Labour administration. Also, David Cameron's 'Big society' appeared at the initial stages to give added impetus to bringing in ENGO isights into the policy-making process. The following lines examine the post-Olympic state of environmental concern in the UK and offers commentary in relation to the aforementioned.

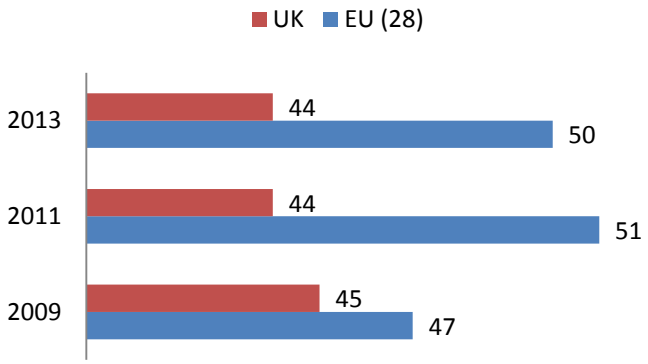

Figure 2: Expressed concern about climate change: EU and UK (Source: European Commission, 2014)

Karamichas (2013a:264-265) identified the following in relation to the 2009 and 2011 special Eurobarometers (72.1 and 327) on European Attitudes towards Climate Change:

1. In 2009 45% of the British public considered climate change to be the 'most serious issue currently facing the world as a whole'. That was lower than those who considered poverty, lack of food, drinking water and international terrorism as the most serious problem (49%) and significantly lower than the majority who feared a 'a major global economic downturn' (55%).
2. There was overall increase of concern across EU27 in 2011 (51%).
3. UK respondents: 51% listed 'poverty, lack of food and drinking water'; 45%

'international terrorism' and 39% the 'economic situation' as the most serious issue (multiple answers allowed).

The fieldwork for the 2013 special Eurobarometer on Climate change (European Commission, 2014) was conducted from November to December 2013, a few months after the end of the London Games. As we will show later that was good time to observe the link between hosting the Games and the environmental factor in general and environmental concern in particular. Before we examine these in more detail, it is important to venture towards a brief examination of the environmental claims that were made, and actions taken, in the 'pre-event' and 'event' phases of the London Games.

The pre-event preparatory phase for hosting the Games in London was marked by a subscription to the notion of a global commitment to sustainability in both the social and environmental components inscribed in that concept. That was encapsulated in the five key themes of the London plan: climate change; waste; biodiversity; inclusion; and healthy living. These themes were systematically appraised since 2008. Yet, a year later some refinements were made on the overall strategy. Indeed, the new version replaced the mantra of 'reduce, replace and offset' with the 'four steps of "avoid/eliminate, reduce, substitute/replace, compensate". This change was more a recognition that a "carbon neutral" Games was an impossibility than it was a diversion from a full commitment "to deliver a truly sustainable Games' (Karamichas, 2013a:244-245). Hayes and Horne (2011:754-755) further comment that by suggesting that

> *London 2012 has not set a "carbon neutral" goal, has abandoned the highly contentious practice of offsetting, and has developed a carbon footprint methodology calculating emissions "when they happen", producing a reference footprint from the point of the bid win to the closing Games ceremony, assuming development as set out in the bid dossier […].*

Moreover, one of the last pre-game OGI reports that was published in October 2010 noted a 'below average performance in the environmental outcome indicators' but also suggested that these indicators 'may be expected to improve as the various environmentally oriented activities begin to yield results' (SRI 2010:25). Moreover, another crucial parameter of the OGI study on the London Games is the research component on the social dimensions of sustainability. The importance of the social dimension in relation to sports' mega-event hosting in general, and the London Games in particular, can be seen in relation to two points:

1. The London 2012 bid to host the Games gave emphasis on the rejuvenation of one of the most deprived parts of London, marked by specific demographics (persistent worklessness; educational under-achievement; low health status etc.). The underlying rationale was that the

Games will work towards regenerating that extremely disadvantaged community by providing better employment opportunities and housing for all.

2. The 2011 riots that took place in the above mentioned five Olympic boroughs. The rioters were seen by many as moral outliers but the most detailed analysis on their underlying causes points to the extreme levels of income inequality that exist in the UK. In these cases a spark, a police killing in that case, is enough to ignite the brewing discontent.

In a study on London 2012 by Karamichas (2013b), the assessment of the UK's post-event capacity for environmental sustainability had also to take into account the impact of the austerity cuts due to the economic crisis and the policies of David Cameron's 'Big Society' into consideration as an intervening variable. Through that, the following argument was put forward:

> *Although the UK had a much better ES [environmental sustainability] capacity than other Olympic hosts nations when it submitted its bid to the IOC, it appears that the initiation of austerity cuts and 'Big Society' policies have significantly downgraded this status. In particular, although the UK never received a positive score in all six indicators, with the advent of 'Big Society' four of the indicators were downgraded to ambiguous or negative status* (op.cit.:4).

In relation to the immediate post-events phase, such as 'a cabinet reshuffle [appointed] a climate change sceptic as Secretary of State for the Environment…and announcement for plans to relax environmental restrictions in order to stimulate growth by mega-projects' were also put forward (ibid). Moreover, the fact that the OGI study can conclude in 2015 and that the 2011 riots started in the socially disadvantaged Olympic Boroughs means that both the environmental and social sustainability legacy of the London Games has to be examined into the foreseeable future.

The next section deals with the Brazilian case, host of the 2024 FIFA World Cup and the 2016 Olympic Games. In that case we also had rioting, one year before the start of a sport mega-event. This time, though, protest events were not stimulated by the most disaffected echelons of society.

Prospects for Rio 2016

When Brazil was awarded the hosting of two sport mega-events (2014 FIFA World Cup and 2016 Olympics), 'the economy was booming, poverty falling, the destruction of the Amazon was falling and [the then president] Lula [da Silva] was one of the most popular presidents in the world' (Watts 2014:15). However, since 2011 'the economy has slowed dramatically. Environmental concerns have been put on the back burner. Dam and mining megaprojects are eating into land owned by indigenous tribes. Conservationist appear increasingly sidelined

and Amazon clearance has suffered its sharpest uptick in a decade' (ibid). How have these developments impacted on the general level of environmental concern of the Brazilian public? Surveys conducted from 2003 to 2013 were indicating that Brazilians were leading in concern about environmental issues 'with over 90% perceiving air pollution, climate change, biodiversity loss or water availability as very serious problems – at least 30 percentage points more than the international average' (Echegaray 2013). Moreover, a majority

> *puts a premium upon environmental protection over economic growth and enthusiasm to engage in domestic recycling if given the chance […and] a record level of interest in corporate sustainability, well over 70% since […in] 2002, […] one in two adults willing to pay more for an ethical product* (ibid).

Similarly high results were exhibited by the Greeks in the late 1990s but serious concerns were also expressed on their seriousness and validity (see Karamichas 2007).

Before we offer a critical look on the these data through our own exploration, it is of great importance to highlight the fact that Brazil in general and Rio de Janeiro in particular are intimately associated with Sustainable Development (SD). Lest we forget that the core challenges that environmental protection combined with the developmental process at the global level was facing came out in a heavily loaded sentence by the Brazilian delegate at the 1972 UN Conference on the Human Environment in Stockholm: the said delegate claimed that 'pollution is a sign of progress and that environmentalism was a luxury only developed countries could afford' (Hogan 2000:2) and continued by saying that he 'prayed for the day when they would share in the developed world's industrial pollution and would welcome multinational investors, willing to help them pollute' (Leonard 1988:69). That statement played a pivotal role in generating the SD perspective during the early 1990s at the 1992 Rio Conference and was preceded by the publication of *Our Common Future* by the World Committee for Environment and Development (WCED 1987) under the direction of Gro Harlem Brundtland. In response to concerns expressed by developing nations, the book was marked by a systematic attempt to bring under a single discourse the economy, the development and the environment. That is encapsulated in the well-known definition of SD, 'sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs'.

Moreover, although the IOC's concern with the environmental issue can be traced back to Samaranch's 1986 declaration that the environment was the third pillar of Olympism, it was the Rio Summit and the support for SD that made that ambition possible. The Local Agenda 21 (LA21), drafted by UNEP for the Summit,

was adopted by 182 governments and offered a manual for developing an LA21 that was specific to individual country or community requirements. In 1994 the IOC, in collaboration with UNEP, began to make its third pillar ambition more of a reality, and by 1995 the IOC had its own Sport and Environment Commission.

As it has already been argued, a crucial development in relation to the SD promise of the Games was the agreement for a compulsory application of an OGI study in 2001 with London been mandated to be the first summer Games to carry out the study. Following these requirements, the Organizing Committee for the Olympic and Paralympic Games Rio 2016 signed a contract with COPPE/UFRJ (Post-grad Institute, Federal University) for an OGI study.

The examination of Rio's bid to host the Games demonstrates, like London, an SD perspective that manages to take into consideration both social and environmental parameters. This is clear in the following sustainability claims made in Rio's candidature file:

> *Rio 2016 will deliver flawless Games, powered by Rio's energy and underpinned by technical excellence, so that every moment is enjoyed, and Rio and its people benefit from long-term and sustainable improvements to the city.*
>
> *These include improvements in housing, improvements in security and enhanced transport with the completion of a new high performance transport ring. The historic Port will be transformed for the Games and become a new focus for business, entertainment and tourism (Rio 2016:2009).*

Nevertheless, in preparing to host these two sport mega-events a good number of environmental and human rights violations have become apparent. On the environmental front, the National Coalition of Local Committees for a People's World Cup and Olympics (2012:26) notes that,

> *The 2014 World Cup and 2016 Olympic Games are being used to evade legal procedures designed to protect the natural environment and guarantee the environmental rights of the population.*

In a similar fashion to other sport mega-events, the limitations that can be identified by EIAs in the relevant projects have been cast aside. The same is also the case as far as social parameters are concerned. Gaffney (2013:3931) suggests the following in relation to Rio 2016:

> *The improvised revision of the city's master plan has been accompanied by an extensive list of executive decrees that have "flexibilized" urban space in order for Olympic related projects to occur. These measures have undermined Rio's fledging democratic institutions and reduced public participation in urban planning processes.*

Sport mega-event hosting is always a point of contestation by different social actors that varies in intensity across the different phases of games

hosting (see Hiller 2000:192). Similarly to London, Brazil also experienced intense protest and rioting a year before hosting the FIFA World Cup, in June 2013. In contrast to the London case, and although there was a clear focus on the costs of the mega-events and the impact that this has on health and education budgets, this civil contestation can be mostly seen as the result of the above disappointment felt by the rising echelons in Brazilian society rather than by the persistently impoverished sections of society. We may even claim that participants in these protest events are not a representative sample of Brazilian society but committed activists of the anti-globalization and the more recent Indignants/occupy protest milieu (see also Singer 2014; Spyer N/A).

It is interesting to note how that social contestation was acknowledged in the subsequent electoral contests that followed. In the elections of October 2014, the incumbent Dilma Rousseff was re-elected and that way continued the PT's (Labour Party) 12 year run in the country's highest office. An important fact in relation to that outcome is that the current administration has been criticized for disregarding the environmental aspect of economic development or in other words sustainable development (see Moreira Salles 2014).

That result can be mostly attributed to the exigencies of political competition in Brazil and in no way can be perceived as an acceptance of the environmentally dismal approach followed by the administration. In order to assess the environmental concern in Brazil and the extent to which this can be linked to sport mega-event hosting, we would need to examine of the available data and follow the reviews of the OGI studies on Rio de Janeiro 2016.

Concluding remarks

Although the identification of increase in the environmental awareness of the Australian and Greek publics in the immediate post Olympics period was the issue that allowed for comparison between two radically different cases, a green Olympics success (Sydney 2000) and a green Olympics failure (Athens 2004), no causality has been substantiated between hosting the Games and expressed concern about environmental issues, like climate change. Instead whatever rise or decline in that concern was identified had more to do with changes in the socio-economic conditions than hosting the Games.

The rest of the identified EM indicators have been also largely conditioned by that factor. There is a great diversion from this norm in the Chinese case where the Games constitute part of an initiation in the modernization process. The increase number of people entering the middle-class strata in China is very much likely to increase the level of expressed environmental concern in this country.

In the London case, we have the remarkable phenomenon where a country with strong EM credentials has been moving to the opposite direction since hosting the Games.

The Chinese experience is likely to be the case in the other BRICS with Brazil clearly standing out as a country where changes in public attitudes as a result of changes in the economic status of many have been already manifested.

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