Evaluating Olympic Sustainability through the Policy of Paris 2024

Summer I Research Report

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Abstract

The environment has emerged in recent decades as a key theme for the International Olympic Committee and, more recently, for the summer Olympic Games of Paris 2024. The present study seeks to understand the extent to which the Paris 2024 Organising Committee for the Olympic and Paralympic Games is pursuing formal commitments to environmental sustainability through their policies. The study employs a Modified Environmental Policy Integration Assessment Framework with six variables measuring the integration of environmental policy into the vision and plan of the upcoming Games. Based on a data analysis stemming from this framework, the author appraises the environmental commitments of Paris 2024 to be solid but insufficient, with key themes emerging in relation to a lack of consideration for climate change adaptation, interdisciplinarity of mixed effectiveness, and uncertain accountability to policy commitments. By understanding the policies pursued in the lead-up to Paris 2024 and the environmental impacts that will arise after-the-fact, the Olympic movement should be better positioned to adapt the environmental and climatic context under which the event will continue to take place.

Keywords: environmental sustainability, Olympic Games, environmental policy integration, Paris 2024

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Paris 2024

Since crystallizing into its modern form in 1896 (The Olympic Museum Educational and Cultural Services, 2013), the Olympic Games have grown into a biennial sporting and cultural event of the utmost international prominence. The Games attract a virtual and physical audience of billions—reaching new heights of 3.05 billion unique television viewers in 2021 (International Olympic Committee, 2023). The scale of the Games renders the Olympics a mega-event: a "large-scale cultural (including commercial and sporting) [event], which [has] a dramatic character, mass popular appeal and international significance" (Orr & Ross, 2021). Each Olympiad takes place in the larger context of the Olympic Movement. This movement is directed by the International Olympic Committee (IOC), but comprises other key players such as National Olympic Committees (NOCs), Organizing Committees for Olympic Games (OCOGs), International Federations (IFs), and National Federations (NFs)(Chatzigianni & Mallen, 2023).

Following unsuccessful bids for the 2008 and 2012 renditions (Jastrząbek, 2022), the City of Paris was awarded the rights to the 2024 Summer Olympic Games on September 13, 2017 with a planned budget of 6.8 billion euros (Grohmann, 2017). In the ensuing years, the Games have been conceptualized as the largest event to ever take place on French soil. The Games' immensity is evident in the anticipated 9.7 million spectators, 206 participant nations, 10,500 athletes, 31,500 volunteers, 41 competition sites, 28 sports, and 329 competitive events (Paris 2024 Olympic Organising Committee, n.d. b). The planning and execution of the event, taking place from July 26 to August 11, are facilitated through the Paris 2024 OCOG; this governing body is helmed by Tony Estanguet, the French National Olympic and Sports Committee

(CNOSF), and various members of relevant municipal, regional, and national governments (Paris 2024 Olympic Organising Committee, n.d. a).

Beyond sport, the IOC recognizes the Olympic Games as an event of significant social, environmental, urban, and economic consequences (IOC, 2012). This holistic understanding manifests in the rise of sustainability as an area of interest for the IOC and the Paris 2024 OCOG. For the purpose of this review, sustainability will be understood per the World Commission on Environment and Development definition: "the ability to meet the needs of the present without compromising the ability of future generations to meet their own needs" (Konstantaki, 2018). The bid for the Paris 20204 Games placed sustainability "at the core of [the] project," mentioning the concept 84 times, compared to 12 times and zero times for the 2008 and 2012 proposals, respectively. The Paris 2024 OCOG has taken strides towards sustainability via the acquisition of the ISO 20121 sustainable events certificate and the commitment to construct no more than two permanent venues, the Olympic Aquatics Centre and Porte de la Chapelle Arena (Jastrząbek, 2022). Yet, mega-events have been historically detrimental to biodiversity, ecosystems, and the climate (Fermeglia, 2017). The Olympics must consider, furthermore, the bi-directional relationship between sport and the environment, in which environmental factors also stand to affect the Games, notably through extreme weather (Orr & Ross, 2021). This study will seek to measure the presence of environmental sustainability in formal Paris 2024 policy commitments as a means of evaluating the sustainability of the approach to the forthcoming Olympic Games.

Environmental Sustainability at the Olympic Games

As one of the three pillars of the Olympic movement, sustainability has "been made a priority for all activities of the IOC" and the Olympics more broadly in recent decades (IOC,

2018). Nevertheless, of 19 studies examining the legacies of the Summer Olympic Games, 46.43% concluded net-negative environmental impacts (Cerezo-Esteve et al., 2022). A review of the literature reveals a complex and ever-evolving relationship between the Games and sustainability. Ross and Leopkey (2017) provide a useful framework through which Olympic history can be understood in three stages: i) Environment in the Games, ii) Sustainability in the Games, and iii) Zero Impact in the Games.

Until the mid-late twentieth century, the environment was largely absent from the consideration of OCOGs. Where present, concern for the environment was relegated to concern for the weather, namely temperature and precipitation (Leopkey & Ross, 2017). The era of Environment in the Games began, arguably, with the first environmentally-conscious initiative of shrub-planting at the 1972 Munich Olympics (Konstantaki, 2018). Later, in 1986, the contemporary IOC President first entertained, though unofficially, the addition of the Environment as the third pillar of the Olympic movement. 1992 provided a jolt to the environmental ambitions of the Olympics, given the 1992 United Nations (UN) Earth Summit Conference on the Environment and Development, in which the UN *Agenda 21 for Sustainable Development* was established, and the massive backlash to the 1992 Albertville Olympics. The 1992 Games were heavily criticized and protested for their damage to local ecosystems, notably deforestation and habitat destruction in the Alps. In response, at the 1994 Centennial Olympic Congress in Paris, the IOC enshrined the Environment as the third pillar of the Olympic movement. That same year, the hosting of the Lillehammer 1994 Olympics marked the “first green Games.” Spurred on by local environmental apprehension, the Lillehammer OCOG collaborated with a contingent of environmental organizations on the issues of supplies and materials, energy use, recycling, and landscape preservation (Mohan & Weiler, 2010).

Environment remained top of mind for the IOC through the 1995 World Conference on Sport and the Environment and through the birth of the IOC Sport and Environment Commission in 1996. Shortly thereafter, the 1998 Nagano Olympics became the first Games to operate under an explicit, IOC-directed environmental policy (Konstantaki, 2018). The Environment in the Games chapter of Olympic history finds its close with the 1999 *Agenda 21 for the Olympic Movement*. The declaration "aims to encourage members of the [Olympic] Movement to play an active part in the sustainable development of our planet" and targets socio-economic progress, resource conservation, and inclusion (IOC, 2000).

The next evolution in the Olympic movement, Sustainability in the Games, took hold in the early 2000s. The 2004 Games marked the first rendition in which all bid cities incorporated the concept of sustainability, in addition to the environment. The 2006 Torino Games elevated this emphasis by enshrining sustainable development as a goal for the event (Leopkey & Ross, 2017). The Beijing 2008 Olympics, centred around urban and infrastructural expansion (Konstantaki, 2018), offered 20 bid commitments related to sustainability in pursuit of a "Green Olympics" (Mohan & Weiler, 2010). Beijing's efforts ultimately faltered in many respects; certain pollutant concentrations, for example, matched or exceeded their concentrations prior to the Games (Boykoff & Mascarenhas, 2016). The London 2012 Olympics epitomized the advent of sustainable sport with the proclamation that "sustainable development is integral to every aspect of London's 2012 vision for the Games" (Leopkey & Ross, 2017). London 2012 recycled 98% of demolition waste, restored 45 hectares of habitat, and planted 300,000 plants, though producing 3.4 million tons of CO_2 emissions (Konstantaki, 2018). The following two Olympiads, Sochi 2014 and Rio de Janeiro 2016, fell far short of their sustainability commitments. The Sochi 2014 Games engendered widespread deforestation in the Sochi National Park (Fermeglia, 2017).

The Rio de Janeiro 2016 OCOG failed to act upon several environmental promises—waterways contained "dangerously high levels of viruses and bacteria" and less than one quarter of a promised 34 million trees were planted—and provoked other sustainability issues—organizers constructed a third municipal golf courses along with for-profit luxury housing in the Marapendi Nature Reserve (Boykoff & Mascarenhas, 2016). In 2014, however, the IOC's *Olympic Agenda 2020* instilled a renewed commitment to sustainability in the Olympic movement. Recommendations 4 and 5 of the agenda called for various sustainability initiatives, including a formal IOC Sustainability Strategy, post-Games monitoring, and partnerships with the United Nations Environment Programme (IOC, 2017). In 2015, at the commencement of the 2024 Olympic bid process, the IOC mandated that all host cities prioritize sustainable development (Leopkey & Ross, 2017).

The third and most recent wave of environmental consciousness within the Olympic movement came in the form of Zero Impact in the Games. This era began with the 2012 Olympic host city process, in which the Paris 2012 bid advocated net-zero GHG emissions and, as the eventual host city, the London 2012 Games targeted a low-carbon and zero-waste event. The PyeongChang 2018 OCOG, meanwhile, called for zero emissions, zero waste, zero energy usage, and zero (wasteful) water usage (Leopkey & Ross, 2017). The IOC itself plays an important role in the monitoring of event impact. Through the Olympic Games Global Impact (OGGI) report, the IOC empowers independent representatives to assess the impact of a particular Olympics in terms of water, air, land, energy, and emissions over a twelve-year period. The IOC is, by means of the HCC, also positioned to legally enforce an event's environmental obligations. This litigious pathway has, however, not been pursued to date (Fermeglia, 2017). Finally, in 2021, the IOC released a follow-up to the *Olympic Agenda 2020* in the form of the *Olympic Agenda*

2020+5. The agenda outlines three sustainability recommendations: i) foster sustainable Olympic Games, ii) strengthen the role of sport as an important enabler for the UN Sustainable Development Goals, and iii) continue to lead by example in corporate citizenship. These recommendations comprise 17 specific objectives, five of which pertain to "the IOC as owner of the Olympic Games" (IOC, 2021).

Environmental Policy Integration

Environmental policy refers to "a set of principles and intentions used to guide decision making about human management of environmental capital and environmental services." As evidenced by the Olympic movement, it is an increasingly relevant concept to international sport governance (Chatzigianni & Mallen, 2023). Environmental Policy Integration (EPI), meanwhile, emerged in the 1990s as a measure of "the integration of environmental aspects and policy objectives into sector policies." EPI, thus, posits environmental protection and wellbeing as a policy objective of industries previously thought to exist independent of ecological concerns (Cury et al., 2023).

Becken et al. (2020) created a framework for assessing Climate Policy Integration (CPI), an offshoot of EPI, in tourism policy. The authors employed four criteria to assess the level of integration. *Coverage* measures the prevalence of 'tourism' and 'climate change' in the language of policy documents. *Scope* refers to the climate change focus of a given policy in terms of mitigation or adaptation. *Materiality* measures the prevalence of the "climate change and tourism nexus" in a policy's "objective(s), action(s) and measure(s)." *Alignment* identifies other policies mentioned in the policy at-hand (Becken et al., 2020).

Cury et al. (2023) built upon the work of Becken et al. to develop a framework for assessing EPI in the policies of various Australian Olympic sport organizations. The authors

modified the EPI assessment criteria. *Signalling* quantifies the number of environmental policies released by an organization. *Coverage* refers to the "substantiality" of environmental policies from an organization. *Scope* catalogues the environmental focus of a given policy in terms of environmental impact mitigation or climate change adaptation. *Alignment* identifies other policies, namely international sport or global environmental frameworks, mentioned in the policy at-hand (Cury et al., 2023).

Method

Data Sample

In order to assess the formal commitments to environmental sustainability of the Paris 2024 Olympic Games, a collection of policy documents was amassed from the Olympic Public Archives via the online World Olympic Library (The Olympic Studies Centre, 2023). Sample documents followed four criteria of inclusion. First, they must be authored by the Paris 2024 Organizing Committee. Second, they must have been published between September 13, 2017 (the day on which Paris was granted Olympic hosting rights) and May 1, 2023 (the day on which sample collection began). Third, the language of authorship must be English or French. Fourth, the documents must result from the search terms "sustainability," "environment," "sustainable development," "legacy," or "climate," or the French equivalents "durabilité," "environnement," "développement durable," "héritage," or "climat." These criteria of inclusion produced 21 documents (n = 21) relevant to the study. Upon review, five of these documents met the criteria for exclusion. Four, despite responding to the search terms, were excluded due to their lack of relevance to environmental sustainability. One was excluded as it was a summary of two other documents included in the policy sample. In the end, 16 documents (n = 16) were collected for data analysis. A full list of policy documents in the sample can be found in Table 1.

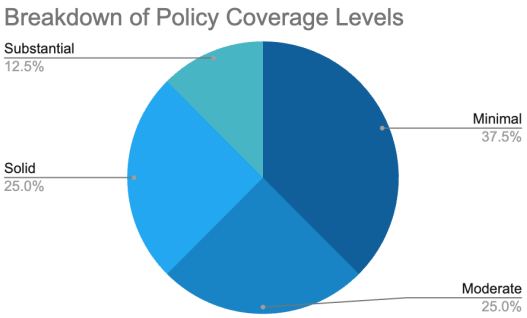
Data Analysis

The document sample was analyzed using a Modified Environmental Policy Integration Assessment Framework as adapted from Becken et al.'s Climate Policy Integration Framework (2020) and Cury et al.'s Adapted Environmental Policy Integration Assessment Framework (2023). The modified framework employs six variables that seek to evaluate the degree to which environmental objectives have been integrated into the sport policy of the 2024 Olympic Games: coverage, direction, focus, alignment, objective, and mobilization. Coverage, direction, and alignment have been adapted from the analyses of Becken et al. and Cury et al.

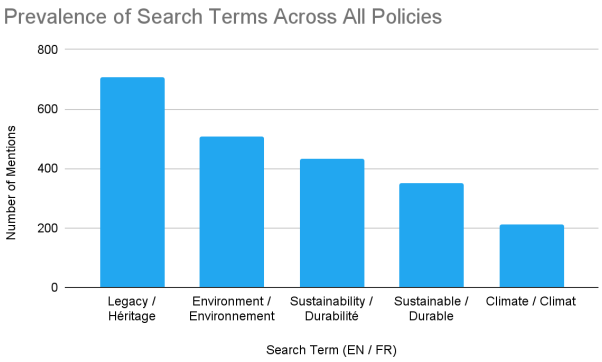
Coverage describes the extent to which environmental sustainability is addressed in a policy, measured using word count as minimal, moderate, solid, or substantial. *Direction* describes the policy's environmental approach, measured as environmental impact mitigation or climate change adaptation. *Focus* describes the alignment of the policy with the IOC's five Focus Areas, being Infrastructure and Natural Sites, Sourcing and Resource Management, Mobility, Workforce, or Climate (IOC, 2017). *Alignment* describes the references in the policy to external policies on sport or the environment, measured as international sport, global environment, or domestic environment. *Objective* describes the alignment of the policy with the IOC's 2021-2024 Objectives as Owner of the Olympic Games, being Objective 5 (Carbon Transition), Objective 6 (Site Protection), Objective 7 (Improvement Identification), Objective 8 (Sustainable Supply Chains), or Objective 9 (Responsible Consumption)(IOC, 2021). *Mobilization* describes the mechanism through which the policy seeks to enact change, measured as qualitative targets, quantitative targets, or explicit steps/measures. A full description of the variables and the metrics can be found in Table 2.

Results

Coverage

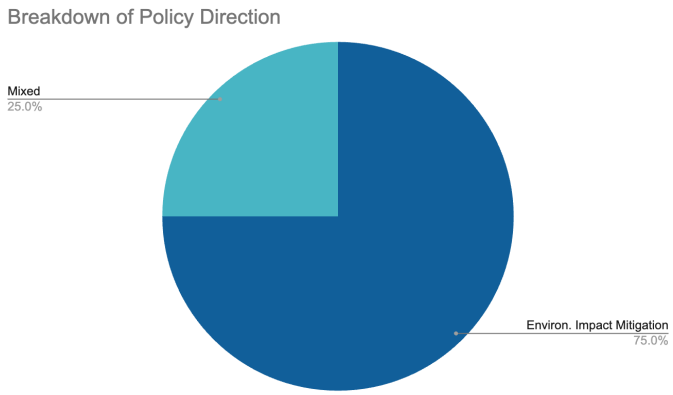


The 16 policy documents were evaluated for their coverage of environmental sustainability, measured as a function of the word count devoted to the five aforementioned search terms, in order to determine the extent to which a given policy delves into the environment. Of the 16 policies, six provided minimal coverage, four provided moderate coverage, four provided solid coverage, and two provided substantial coverage.



On average, 0.85% of a policy's word count was devoted to the study's search terms. Two policies ("Sustainability and Legacy Report : Paris 2024" and "The Legacy and Sustainability Plan for the Paris 2024 Olympic and Paralympic Games") far exceeded the coverage levels of their counterparts with 1.85% and 1.84% coverage, respectively. Conversely, three policies ("Mobilier en économie circulaire," "Gestion des déchets," and "Urbanisme transitoire") trailed quite significantly behind their counterparts with 0.27%, 0.28%, and 0.29% coverage, respectively. As for the content of the coverage itself, "legacy" ("héritage" in French) was the most common search term with 706 mentions, followed by "environment" ("environnement") with 508 mentions, "sustainability" ("durabilité") with 434 mentions, "sustainable" ("durable") with 351 mentions, and "climate" ("climat") with 211 mentions. The level of coverage did not display any significant relationship with the year of release.

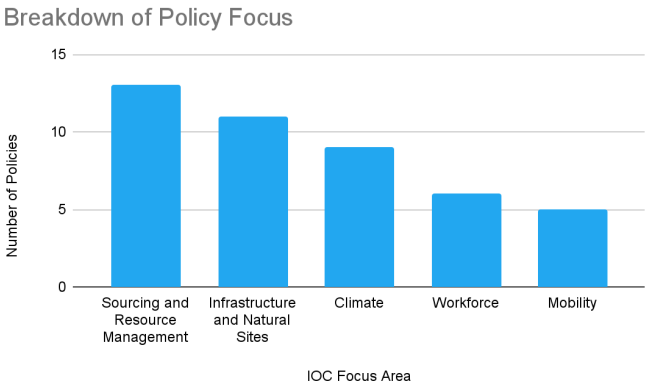
Direction



The direction of Paris 2024 policies was evaluated in order to determine the priority of the OCOG to minimize the Games's impact on the environment (environmental impact mitigation) or to minimize the climate's impact on the Games (climate change adaptation). Of the 16 policies in the sample, 12 were in the direction of environmental impact mitigation and four demonstrated a mixed direction. One policy, "Paris 2024 Report to the 136th IOC Session," exemplifies the sole direction of environmental impact mitigation in many policies. Said document cites only carbon neutrality, the sustainable sourcing strategy, and the WWF France partnership (all focused on reducing the effect of the Games on their surroundings). The four policies of mixed direction were the "Sustainability and Legacy Report : Paris 2024," "The Legacy and Sustainability Plan for the Paris 2024 Olympic and Paralympic Games," "Le guide de Paris 2024 pour des événements responsables," and "SOLIDEO : société de livraison des ouvrages Olympiques." No policy, meanwhile, was classified as solely targeting climate change adaptation.

Focus

An evaluation of a policy's focus reveals which of the IOC's five Focus Areas is targeted by the given policy. Each policy tackled an average of 2.75 focus areas—interdisciplinarity, in this sense, was a strength of the sample.

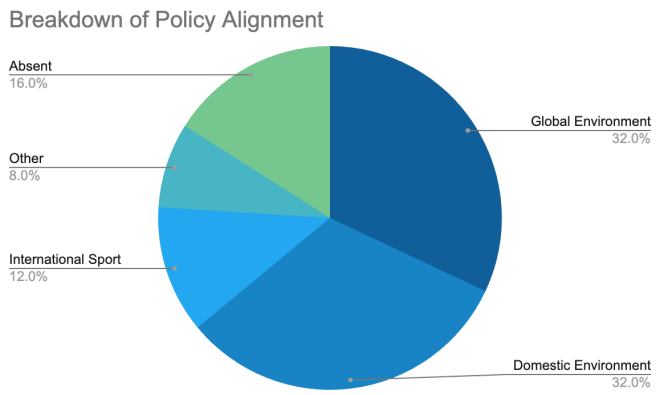


Sourcing and Resource Management was the most prevalent focus area with relevance to 13 policies, followed closely by Infrastructure and Natural Sites with relevance to 11 policies. Mobility was tackled most scarcely across the sample, with relevance to only 5 policies.

Sourcing and Resource Management and Infrastructure and Natural Sites were the only two focus areas to occur independently in a policy. Four policies, conversely, covered all five focus areas. The pairings with the highest crossover rates, wherein the second focus area was present 100% of the time where the first focus area was present, were Workforce-Sourcing and Resource Management, Mobility-Sourcing and Resource Management, Mobility-Infrastructure and Natural Sites, and Mobility-Climate. The pairing with the lowest crossover rate was Infrastructure and Natural Sites-Workforce at 36.34%.

Alignment

The alignment variable sought to catalogue the influence of external (non-IOC or Paris 2024) policies on the 2024 Games' approach to environmental sustainability. Global Environment and Domestic Environment were, equally, the two most cited categories of external policy, with eight citations each. International Sport policies received three citations. Furthermore, two environmentally-relevant policies in the domains of domestic construction and domestic food were logged under Other.



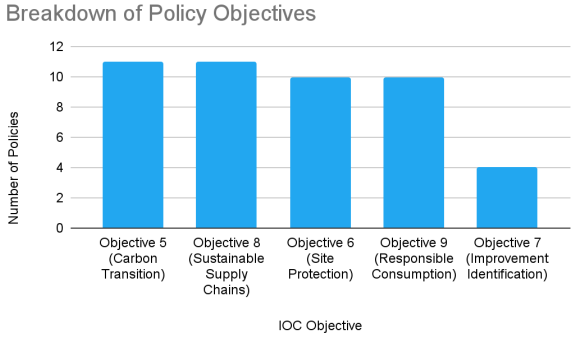
The 16 policies in the sample averaged 3.09 external alignments. "Le guide de Paris 2024 pour des événements responsables," "Sustainability and Legacy Report : Paris 2024," and "2024, révéler la France aux goûts du jour : la vision pour la restauration

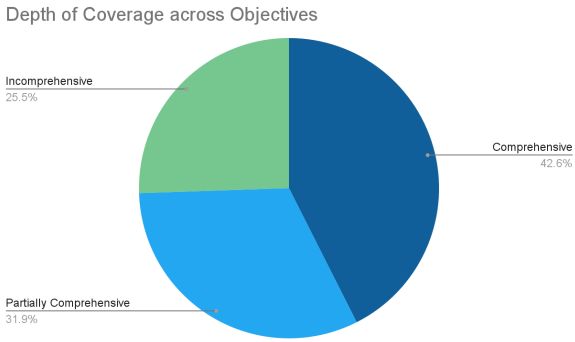
de Paris 2024" had the highest number of external policy alignments with eight, seven, and seven, respectively. Four sample policies contained zero external policy alignments.

In total, 32 external environmentally-relevant policies were referenced. Of the 32, seven were referenced in multiple sample policies. Four sample policies referenced each of the Paris Agreement, the United Nations Sustainable Development Goals, and "la Charte des 15 engagements écoresponsables." Three sample policies referenced the ISO20121 standard. Two sample policies referenced each of the UN Framework Convention on Climate Change's "Sports for Climate Action Initiative," the Olympic Agenda 2020+5, and the Olympic Agenda 2020.

Objective

Sample policies were further analyzed by their connection to the IOC's 2021-2024 Objectives as Owner of the Olympic Games. A given IOC objective applied to an average of 9.2 sample policies. Objective 5 (Carbon Transition) and Objective 8 (Sustainable Supply Chains) were relevant to the greatest number of sample policies, at 11 each. Objective 7 (Improvement Identification) was tackled least frequently, being relevant to 4 sample policies. Overall, Objective 5, Objective 8, Objective 6, and Objective 9 were all relatively widespread across the sample.



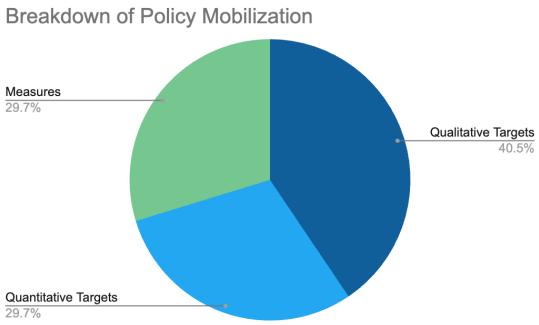


The five IOC objectives were addressed with varying degrees of depth by the policies in the sample. 20 implications of the objectives were classified as comprehensive, 15 implications

as partially comprehensive, and 12 implications as incomprehensive. A comprehensive implication of an objective involves more than one paragraph devoted to its subject, along with a qualitative or quantitative target and an explicit measure.

Mobilization

Mobilization, finally, encapsulates the approach of the policy to achieving environmental sustainability, through qualitative targets, quantitative targets, and/or explicit measures. 15 of the 16 sample policies included qualitative targets, 11 included quantitative targets, and another 11 included explicit steps or measures. Four policies excelled in mobilizing environmental sustainability via thorough and clear qualitative targets, quantitative targets, and measures: "Le guide de Paris 2024 pour des événements responsables," "2024, révéler la France aux goûts du jour : la vision pour la restauration de Paris 2024," "Sustainability and Legacy Report : Paris 2024," and "The Legacy and Sustainability Plan for the Paris 2024 Olympic and Paralympic Games." Two policies demonstrated weak mobilization by offering only one target or measure: "Impact 2024 : le sport au service de la société" and "Urbanisme transitoire."



Discussion

Policy Commitments of Paris 2024

The environmental sustainability policy of the Paris 2024 Games is distributed across a set of documents comprising the Legacy and Sustainability Plan, Legacy and Sustainability Report, a collection of "cahiers d'impact" ("impact briefs"), and supplemental policy briefs. Generally, the Paris 2024 policies seek to build the "City of Tomorrow" in light of "humanity's

biggest challenge," climate change, through the transformation of the sport and Olympic landscape (Paris 2024 Olympic Organising Committee, 2020). To this end, the OCOG's primary focus is environmental impact mitigation. Such a focus is evident in the commitments to 100% renewable energy use and to a carbon-neutral Games, to be achieved with a true carbon budget of 1.5 million tonnes of CO_2. Furthermore, the Games will take place on 95% existing or temporary infrastructure, eliminate single-use plastics, showcase local biodiversity, and guarantee social and environmental responsibility across a multitude of supply chains (Responsible Procurement Strategy)(Paris 2024 Olympic Organising Committee, 2021). The expansive list of policies noted in the present review also includes the reuse of all equipment and furniture materials after the Games, the incorporation of Legacy into all public works, the local (French) production of 80% of food, the use of sustainable transportation for 90% of travel, and the creation of 26 hectares of Green space. As will be explored below, the analysis of the present policies reveals a solid but insufficient pursuit of environmental sustainability, a lack of consideration for climate change adaptation, an interdisciplinarity of mixed efficacy, and faltering policy commitment.

Solid but Insufficient Pursuit of Environmental Sustainability

Across all variables, Paris 2024 has demonstrated a solid but insufficient commitment to environmental sustainability. While the coverage analysis solidified a strong presence of the concept of Olympic legacy, it also revealed minimal discussion of climate change or climatic factors surrounding the Games. Further, despite being policies dedicated to sustainability, 37.5% of policies provided minimal coverage. The focus analysis uncovered a lack of attention paid to Workforce and Mobility as IOC focus areas, tackled in only 6 and 5 policies, respectively. The Workforce focus area (referring to "working conditions and opportunities offered to employees, volunteers, and contractors of the Olympic movement")(IOC, 2017) may be more absent from

the policy sample as it ties less directly into environmental sustainability. The Mobility focus area (referring to "mobility of people and goods associated with the Olympic movement's activities, at the local and global scale")(IOC, 2017) is demonstrably entangled with the concept of sustainability as "the backbone of the twentieth century's economic and social progress" but also "a major contributor to environmental degradation" (Gudmundsson et al., 2015). The *solid but insufficient* paradigm can be further applied to the results of the objective analysis, wherein four objectives received substantial consideration while Objective 7 (Improvement Identification) appears across only 4 policies. In corporate literature, improvement identification is regarded as a crucial step in the pursuit of sustainability, for example in Material, Energy, and Waste flows (Ball & Smith, 2012). The same paradigm finds itself within the mobilization analysis where, despite all policies containing some form of target or measure, 35% of target or measure mentions were weak or incomprehensive (e.g. policy made reference to only one qualitative target). Nevertheless, by some scholarly accounts, even the act of setting targets judged weak or incomprehensive may elicit positive policy action (Hák et al., 2012).

Lack of Consideration for Climate Change Adaptation

The document analyses exposed a dearth of attention and resources devoted to climate change, and climate change adaptation, that could undermine the efforts of Paris 2024 to achieve environmental sustainability. Of the methodological search terms, "climate" was employed least frequently with only 211 mentions, equivalent to 9.5% of total search term mentions. This coverage analysis points to a general lack of conversation around climate change adaptation across the literature. Moreover, zero documents were identified as containing a sole climate change adaptation direction, compared to 12 documents with a sole environmental impact mitigation direction, and only four documents displayed a mixed directionality. This level of

analysis confirms that, by and large, policy commitments failed to adopt climate change adaptation as a priority or address the topic outside of the context of other environmental mitigation efforts.

The lack of climate change policy in the Paris 2024 ecosystem arrives amid increasing consensus around the inevitable impact of the climate crisis on the Olympic Games. The concept of sport ecology advances that, as much as sport and sporting events affect the environment and climate, the environment and climate affect sport. Sporting events will, thus, come face to face with climatic changes linked to extreme temperature, natural disasters, and ecosystem destabilization. The 2024 Games, in particular, are already forecasted to experience the consequences of climate change. Between 1990 and 2020, more than half of the days in July and August during which the Games will take place saw temperatures above the limit safe for avoiding heat sickness among athletes (Ross & Orr, 2021). Climate change-sport interactions will only increase in severity in the coming decades. In 2085, only 1.5% of economically and infrastructurally viable summer Olympic host cities outside Western Europe will be at low-risk to unsuitable temperatures for Olympic sport (the rest being considered high-risk to such temperatures)(Balmes et al., 2016). The IOC has taken stock of this reality, instituting more stringent climate change considerations beginning with the 2024 Olympic bid process. All candidate host cities, for example, were instructed to implement a Carbon Management Strategy into their proposals (Fermeglia, 2017). Despite this climate consciousness, the coverage and direction analyses point to insufficient action on the part of the Paris OCOG to adapt to the effects of the climate crisis.

Interdisciplinarity of Mixed Effectiveness

A second major theme arising out of the document analyses is that of interdisciplinarity, which shines at times and falters at others. The policy focuses are markedly plural. Only three policies contain a sole focus, two for Sourcing and Resource Management and one for Infrastructure and Natural Sites. Policies otherwise contain an average of 2.75 focuses, more than half of the available 5 IOC focus areas. The overlap of focuses ranges from 36.34% (Infrastructure and Natural Sites-Workforce) to 100% (occuring in four instances). Interdisciplinarity is, per most literature, a crucial and productive component of environmental initiatives. The Organisation for Economic Cooperation and Development (OECD) and the European Environment Agency, for instance, both favour interdisciplinary environmental policy approaches with their Pressures-State-Responses framework and Drivers-Pressures-State-Impact-Response framework, respectively (Tapio & Willamo, 2008). The field of education tips interdisciplinarity as essential to tackling environmental challenges that unidisciplinary and multidisciplinary strategies are ill-equipped to manage (Abramson & Focht, 2009).

The strength of policy interdisciplinarity wanes outside the scope of the IOC focus areas. This weakness in the Paris 2024 policies is evident in their external policy alignment. Despite the 16 sample policies counting hundreds of thousands of words, only 32 external policies of significance to environmental sustainability were noted. Put simply, the lack of external policy referenced represents a lack of interconnection between the policies of Paris 2024 and existing policies in sport and environmental governance. Even the most prevalent external policies—such as the Paris Agreement, the Sustainable Development Goals, and the Sport for Climate Action framework—were elicited with little to no explanation of how their component parts apply to the commitments of Paris 2024. Problems of external policy integration are visible across the sport sector where sustainability frameworks, if at all present, are weakly integrated (Book &

Carlsson, 2011). In the opinion of the author, the alignment analysis prompts an interrogation of whether sport organizations are failing to adequately invest in the implementation of the specific mechanisms and objectives of external environmental frameworks, or if these frameworks are failing to provide applicable mechanisms and objectives.

When it comes to interdisciplinarity between the social, economic, and environmental aspects of sustainability, the policies of Paris 2024 tend to excel. The concept of "legacy" (or "héritage") exemplifies this success. Legacy, in the words of the Paris 2024 OCOG, refers to "an opportunity for the economy, environment and society, and is designed to benefit society as a whole" (Paris 2024 Olympic Organising Committee, 2021). It appears as the top search term in the coverage analysis and is showcased in the titles of the two leading sustainability documents in the sample ("Sustainability and Legacy Report : Paris 2024" and "The Legacy and Sustainability Plan for the Paris 2024 Olympic and Paralympic Games"). This interdisciplinarity is further evidenced by the six tenets of the Games' sustainability and legacy strategy:

1. Eco-responsible Games that convey sustainable solutions;
2. Games that boost regional growth and appeal;
3. Games that open up opportunities for everyone;
4. Sport to improve health, education and civic engagement;
5. Sport to improve inclusion, equality and solidarity;
6. Sport to drive the environmental transformation (Paris 2024 Olympic Organising Committee, 2021).

Uncertain Accountability to Policy Commitments

A final theme arising from the analysis of the sample policies is the accountability to policy commitments: do policy commitments guarantee sustainable change? One set of

documents analyzed in the sample, the "cahiers d'impact," were largely populated with recommendations from external stakeholders and consultants, rather than steadfast policy priorities. The nature of the policy objectives in the cahiers d'impact absolves the Paris 2024 OCOG of much accountability should they fail to take form. Even commitments made as solid policy priorities by the OCOG are not certain to materialize. EPI, for example, was assigned constitutional status by the Norwegian government but was still largely unsuccessful due to lack of enforcement (Jordan & Lenschow, 2010). In general, the more central an environmental commitment is to an organizing body's policy ecosystem, the more likely it is to be put into action (Cury et al., 2022). In the case of the cahiers d'impact, the Paris 2024 OCOG would do well to incorporate the constituent policy ideas into their central legacy and sustainability policy directive, thus endorsing and taking responsibility for said policies.

The issue of follow-through with environmental policy commitments has historically plagued the Olympic movement. The IOC and OCOGs have been accused of greenwashing on multiple occasions (Boykoff & Mascarenhas, 2016; Boykoff & Gaffney, 2020). Boykoff (2021) explains greenwashing as "the duplicitous practice of parading concern for the environment and claiming credit for providing sustainable solutions while in reality doing the bare minimum, if anything, to achieve long-term, material improvements in the ecological sphere." Lenskyj (2016) offers an understanding of Olympic actions as "light green" (managing the environment for economic gains) or "dark green" (managing and preserving the environment for its inherent value). Ultimately, an assessment of policy follow-through and the presence of greenwashing in the policies of Paris 2024 will need to take place after the event and, as a result, does not fall within the purview of the present study.

Conclusion

In this study, a Modified Environmental Policy Integration Assessment Framework was applied in order to measure the extent to which the Paris 2024 Olympic and Paralympic Organising Committee is pursuing formal commitments to environmental sustainability in the lead-up to the Paris Olympics in July and August 2024. The methodological framework comprised six variables (Coverage, Direction, Focus, Alignment, Objective, Mobilization), each of which sought to assess the integration of environmental concerns into the policies of Paris 2024 through quantitative and qualitative metrics. The framework proved an effective apparatus for organizing policy insights and operationalizing variables of measurement. Importantly, the framework provides great freedom for the introduction (or modification) of new variables and parameters in future research. The author would encourage its continued use for the exploration of environmental or climate policy integration. In the end, the analysis concluded a solid but insufficient pursuit of environmental sustainability within the policies of Paris 2024. The policy sample marked an emblem of progress for the Olympic movement and the culmination of decades of increasing concern for matters of legacy and sustainability. However, the sample faltered with its weak orientation towards climate change adaptation, incomplete interdisciplinarity, and lack of complete accountability to policy and initiatives.

What will be the lasting impact of a largely sustainable but imperfect Paris 2024 Games? The measurement of legacy has been noted as a complex practice in mega-event literature. Preuss (2010) outlines three obstacles to this measurement. There is the matter of “net” legacy, which juxtaposes “gross” legacy: would the City of Paris and France as a whole create a more sustainable impact if the investments into the upcoming Games were made elsewhere? There is the matter of determining the positive or negative value of an event’s legacy: if the creation of environmental benefit causes social harm, do the Games leave a positive or negative footprint?

Finally, there is the matter of measuring legacy over time: can positive changes taking place decades down the line be attributed to policies implemented today? The challenges of measuring legacy encapsulate the difficulties of appraising the Olympic Games' pursuit of environmental sustainability today. Regardless, Paris 2024 will take place in a year's time, producing both positive and negative consequences across the social, economic, and environmental spectra of sustainability. It is imperative that the Olympic movement take stock of this intricate legacy and the policies that created it (namely, those sampled in the present study) in order to continue to evolve to fit the needs of a changing, warming world.

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Appendix

Table 1

Policy Documents Comprising Sample in Present Study

Title	Year of Publication	Language
Sustainability and Legacy Report : Paris 2024	2021	English
The Legacy and Sustainability Plan for the Paris 2024 Olympic and Paralympic Games	2021	English
Our Commitment for Paris 2024 : A New Model for Organising the Olympic and Paralympic Games to Contribute to Ecological Transformation	2020	English
Gestion des déchets de chantier : des solutions innovantes pour des jeux inclusifs et solidaires en 2024 : cahier impact 2024	2019	French
Agriculture de proximité : des solutions innovantes pour des jeux inclusifs et solidaires en 2024 : cahier impact 2024	2020	French
Gestion des déchets : des solutions innovantes pour des jeux inclusifs et solidaires en 2024 : cahier impact 2024	2021	French
Impact 2024 : le sport au service de la société	2022	French
Urbanisme transitoire : des solutions innovantes pour des jeux inclusifs et solidaires en 2024 : cahier impact 2024	2019	French
Restauration durable : des solutions innovantes pour des jeux inclusifs et solidaires en 2024 : cahier impact 2024	2020	French
Mobilier en économie circulaire : des solutions innovantes pour des jeux inclusifs et solidaires en 2024 : cahier impact 2024	2021	French
2024, révéler la France aux goûts du jour : la vision pour la restauration de Paris 2024	2022	French
Le guide de Paris 2024 pour des événements responsables	2021	French
Génération 2024 : des jeux pour durer	2019	French
Le village des médias	2019	French
Paris 2024 Report to the 136th IOC Session : 17 July 2020	2020	English
SOLIDEO : société de livraison des ouvrages Olympiques	2019	French

Table 2

Variables in the Modified Environmental Policy Integration Assessment Framework

Variable	Description	Metrics
Coverage	Extent to which environmental sustainability is addressed in a policy	Minimal: search terms make up less than 0.5% of word count Moderate: search terms make up between 0.5% and 1.0% of word count

		Solid: search terms make up between 1.0% and 1.5% of word count Substantial: search terms make up more than 1.5% of word count
Direction	Policy's environmental approach	Environmental impact mitigation: information, initiatives, goals and/or strategies to minimise impact on the environment and adopt practices that use natural resources sustainably Climate change adaptation: information, initiatives, goals and/or strategies to minimise the adverse effects of climate change and help communities cope with remaining effects
Focus	Alignment of the policy with the IOC's five focus areas	Infrastructure and Natural Sites: development and operation of indoor and outdoor sites wherever sports activities take place, including support and administrative infrastructure such as non-competition venues at the Olympic Games and offices of the Olympic Movement's organisations Sourcing and Resource Management: sourcing of products and services by organisations within the Olympic Movement, and management of material resources over their lifecycle Mobility: mobility of people and goods associated with the Olympic Movement's activities, at the local and global scale Workforce: working conditions and opportunities offered to employees, volunteers and contractors of the Olympic Movement Climate: management of direct and indirect greenhouse gas emissions associated with the Olympic Movement's activities, and adaptation to the consequences of climate change
Alignment	Reference in the policy to external policies on sport or environment	International Sport: references a policy or other material from an international sports governing body Global Environment: references a policy or other material from an international body on the topic of environment, sustainability, or climate change Domestic Environment: references a policy or other material from a French body on the topic of environment, sustainability, or climate change
Objective	Alignment of the policy with the IOC's 2021-2024 Objectives as Owner of the Olympic Games	Objective 5 (Carbon Transition): assist and accelerate the transition to climate positive Olympic Games through the development of guidance and expertise for Interested Parties, Preferred Hosts and OCOGs, and the revision of relevant existing operational requirements Objective 6 (Site Protection): require that no permanent Olympic construction occurs in statutory nature and cultural protected areas and UNESCO World Heritage Sites and that the IOC, OCOGs and IFs work together to protect and enhance biodiversity within the host city/region and/or Games venues Objective 7 (Improvement Identification): conduct a gap analysis across all the IOC's Olympic Games and Youth Olympic Games functional areas – and all Olympic Games phases – to identify areas where sustainability needs to be reinforced and formalised Objective 8 (Sustainable Supply Chains): support OCOGs and

		their partners in developing monitoring oversight of Olympic Games supply chains and construction workers' rights as part of their human rights approach Objective 9 (Responsible Consumption): work with OCOGs and partners to promote sustainable tourism and responsible consumption for Olympic Games participants, spectators and visitors to educate, create awareness and incite action on the ground
Mobilization	Mechanism through which the policy seeks to enact change	Qualitative targets: goals are descriptive and non-numerical Quantitative targets: goals are numerical Explicit steps/measures: steps toward achieving goals are clearly outlined