

8-1-2016

Rio's 2016 Olympic Golf Course: City's Last Remaining Ecosystems Left "in the Rough"

Charles Vercillo

Follow this and additional works at: <http://repository.law.miami.edu/umialr>

 Part of the [Comparative and Foreign Law Commons](#), and the [Environmental Law Commons](#)

Recommended Citation

Charles Vercillo, *Rio's 2016 Olympic Golf Course: City's Last Remaining Ecosystems Left "in the Rough"*, 47 U. Miami Inter-Am. L. Rev. 221 ()

Available at: <http://repository.law.miami.edu/umialr/vol47/iss2/6>

This Student Note/Comment is brought to you for free and open access by Institutional Repository. It has been accepted for inclusion in University of Miami Inter-American Law Review by an authorized administrator of Institutional Repository. For more information, please contact library@law.miami.edu.

STUDENT NOTES/COMMENTS

Rio's 2016 Olympic Golf Course: City's Last Remaining Ecosystems Left "in the Rough"

Charles Vercillo*

The sport of golf returned as an official event at the 2016 Summer Olympics held in Rio de Janeiro following a prolonged absence from the Games. To accommodate golf's return, the city of Rio endorsed the construction of the Olympic golf course on land adjoining the Marapendi lagoon—land historically known to be ecologically valuable and environmentally protected. With the Games rapidly approaching, the city quickly passed Complementary Law 125, stripping this land of its environmental protection, and instead authorizing a golf course as a sustainable use of the land.

Local environmentalists have challenged the legislation and the city's decision, arguing that large-scale economic incentives associated with hosting the Games have shoved aside long-term environmental preservation measures. Many argue that the decision to construct the Olympic course is shortsighted given the sport's unpopularity in Brazil and the course's uncertain future beyond the Closing Ceremony.

This paper provides a holistic synopsis of the Olympic golf course as its construction has displaced much of the wildlife that once called the area home. While the immediate effects of Complementary Law 125 and the Olympic course construction are apparent, the long-term ones are more uncertain. As environmental goals yield to economic ones, dissension between city officials and environmentalists continues to grow. Only one thing is certain: the Olympic course

* J.D., *cum laude*, University of Miami School of Law, May 2016; B.S. Cornell University School of Hotel Administration, May 2011. I would like to thank my family for their continuous support throughout this endeavor and Professor Alyssa Dragnich for her guidance and feedback throughout the writing process.

will be used for those 16 days in August 2016, but what will become of it once the Olympic torch is extinguished—only time will tell.

I.	INTRODUCTION: PREPARING FOR THE OLYMPIC “PARTY”	224
II.	ENVIRONMENTAL ISSUES AS RIO PREPARES TO HOST 2016	
	SUMMER OLYMPICS	228
	A. <i>Recurring Environmental Problems</i>	228
	1. Water Pollution	228
	2. Deforestation	230
	3. Rio’s Efforts Regarding Environmental Problems	232
	B. <i>Newly Created Environmental Problems Regarding the Olympic Course</i>	233
	1. Olympic Course Details	233
	a. SITE DESCRIPTION	233
	b. DESIGN ELEMENTS, LAND DESIGNATION, AND CONTROVERSY	233
	2. Environmental Impacts Related to Golf Course Construction	235
	a. GENERAL ENVIRONMENTAL IMPACTS	235
	c. OLYMPIC GOLF COURSE’S ENVIRONMENTAL IMPACTS	238
III.	ENVIRONMENTAL LEGISLATION	239
	A. <i>Sources of Brazil’s Environmental Legislation</i>	239
	1. 1988 Brazilian Constitution	239
	a. CONSTITUTIONAL OBJECTIVES	239
	b. SUBSEQUENT LEGISLATION NEEDED	241
	2. Sistema Nacional de Unidades de Conservação (National System of Conservation Unites—”SNUC”)	241
	B. <i>Complementary Law 125</i>	243
	1. Definitional Technicality & Failed Quantitative Reasoning	243
	2. Golf Course Does Not Meet EPA’s Sustainable Use Requirements	245
	3. Suspect Timing of Law Frustrates Public Involvement	246
IV.	SOCIAL RESPONSE TO CITY’S OLYMPIC PREPARATIONS	248
	A. <i>Formation of Environmentalist Groups</i>	248

B. <i>Why Brazil Does Not Need Another Golf Course</i>	249
1. Other Golf Course Options.....	249
2. “Legally Complicated Land”.....	250
3. Creation of a Golf Legacy is Unlikely.....	251
4. The Olympic Course is Part of a Larger Ulterior Motive.....	253
C. <i>Authoritative Response to Occupy Golf</i>	254
V. THE “PARTY” IS OVER: WHAT NOW?	255

I. INTRODUCTION: PREPARING FOR THE OLYMPIC “PARTY”

It comes every four years—the Summer Olympics. Just as athletes from around the world compete to win that coveted gold medal, cities around the world compete to be the host of this Olympic “party.” And just like most parties require intense cleaning, decorating, and post-party cleanup—the Olympics are no different.¹ For years, host cities have prepared for their turn in the international spotlight by undergoing drastic political, economic, social, environmental, and infrastructural changes.² As a result, many host cities use the Olympics as a platform to reinvent themselves while the rest of the world watches them.³

In 2009, the International Olympic Committee (“IOC”) selected Rio de Janeiro as the host city for the 2016 summer Olympic Games.⁴ Following this announcement, the city’s building landscape has undergone drastic changes: new venues have been added while existing ones have been renovated to accommodate 28 different sporting events and the 480,000 anticipated spectators.⁵ Moreover, the city is attempting to make long-needed infrastructural

¹ See generally Steven Rosenblum, *The Impact of the Summer Olympics on its Host City: The Costs Outweigh the Tangible Benefits*, FINANCE AND FINANCIAL MANAGEMENT (Apr. 2009), http://digitalcommons.bryant.edu/cgi/viewcontent.cgi?article=1004&context=honors_history. (“Countries still continue to bid to host, and then host the Olympics despite the questionable benefits received from hosting the Olympics and the setbacks to each benefit a country receives from the opportunity.”)

² *Id.*

³ Chris Berg, *Politics, Not Sport is the Purpose of the Olympic Games*, INSTITUTE OF PUBLIC AFFAIRS (IPA) REVIEW (July 2008), https://ipa.org.au/library/publication/1213771802_document_60-3_berg.pdf (“But all this pageantry obscures the Olympics’ essential purpose—first and foremost, the Games are designed to shine glory upon the nations that hold them. *National politicians and government use the Olympics to achieve their national or individual goals.* Certainly, the politics behind each Olympics may often be diffuse, but it is overt. Sport may be the style of the Olympics, but nationalism and geopolitics are the content.”) (emphasis added).

⁴ Juliet Macur, *Rio Wins 2016 Olympics in a First for South America*, N.Y. TIMES, (Oct. 2, 2009), http://www.nytimes.com/2009/10/03/sports/03olympics.html?_r=0.

⁵ George Utley, *IOC Predicts 480,000 Tourists in Rio for 2016 Olympics*, THE RIO TIMES (July 15, 2014), <http://riotimesonline.com/brazil-news/rio-business/ioc-predicts-480000-tourists-in-rio-2016/>.

changes in order to accommodate this large influx of people and ensure that the Olympics run smoothly.⁶ For many host cities, implementing these infrastructural changes becomes a “race against the clock” and environmental commitments are often shoved aside; Rio has proven to be no different than other host cities in this respect.⁷

One noteworthy change to the Olympic sports lineup is the return of golf, a sport that has been conspicuously absent from the Games for 112 years.⁸ While many people are welcoming the sport's return, not everyone is excited for golf to make its comeback in Rio.⁹ In fact, the Olympic golf course has been an ongoing source of controversy, which has caused dissension between Rio city officials and

⁶ Mike Sheridan, *Racing to Get Ready: Rio 2016 Olympics*, <http://urbanland.uli.org/infrastructure-transit/racing-get-ready-rio-2016-olympics/> (last visited Jan. 18, 2016) (“According to Rio de Janeiro Mayor Eduardo Paes, the Games represent a unique opportunity to accelerate much needed infrastructure investment that, in the absence of the Olympics, would only be realized over a much longer term.”)

⁷ Alexandra L. Sobol, *Comment: No Medals for Sochi: Why the Environment Earned Last Place at the 2014 Winter Olympic Games, and how Host Cities can Score a “Green” Medal in the Future*, 26 VILL. ENVTL. L. J. 169, 190 (2015) (“An underdeveloped city tasked with hosting a mega-event like the Olympics will need to construct a plethora of venues, hotels, sewage facilities, and even entirely new transportation methods to accommodate the influx of people; doing so may place the environment on the backburner.”); see also Jason Plautz, *Brazil Made Big Environmental Promises for its Rio Olympics. Here's Why it Won't Keep Them.*, <https://www.nationaljournal.com/energy/2014/07/02/brazil-made-big-environmental-promises-its-rio-olympics-heres-why-wont-keep-them> (last visited February 15, 2016).

⁸ Roxanna Scott, *Olympic Golf Course Ready for the Sport's Return in Rio Games*, USA TODAY (Oct. 6, 2015), <http://www.usatoday.com/story/sports/olympics/2015/10/06/olympic-golf-course-ready-sports-return-rio-olympics/73488856/>.

⁹ Lourdes Garcia-Navarro, *Olympic Golf Course Turns Rio Greener But Turns Some Residents Red, Parallels*, <http://www.npr.org/sections/parallels/2015/02/08/384287877/will-the-summer-olympics-fix-rios-problems-or-make-them-worse> (last visited Oct. 22, 2015).

Rio residents.¹⁰ Some residents are outraged at the adverse environmental impacts stemming from the course's construction.¹¹ These environmentalists have banded together in a movement known as "Occupy Golf" or *Golfe Para Quem* ("Golf for Whom") and have actively protested at the site of the course throughout the construction process.¹²

The selection of the site for the Olympic golf course is at the epicenter of the controversy: it is situated on a piece of once environmentally protected "ecologically fragile marshland" adjoining the Marapendi lagoon ("Lagoa de Marapendi").¹³ The Marapendi lagoon and the surrounding area, which are part of the larger Mata Atlântica ("Atlantic Forest") biome, have the highest biodiversity index of any biome on Earth.¹⁴ The region is home to over 2,000 identified species, many of which are endangered.¹⁵

Due to "explosive development" in the neighboring Barra da Tijuca region (which also contains the "Olympic Village"), the land that has been allocated for the golf course was one of the area's last

¹⁰ Associated Press, *Judge Allows Construction to Continue at Olympic Golf Course*, USA TODAY (Mar. 24, 2015), <http://www.usatoday.com/story/sports/olympics/2015/03/24/judge-allows-construction-to-continue-at-olympic-golf-course/70407510/>.

¹¹ Jenny Barchfield, Associated Press, *Rio Mayor Unveils Controversial Golf Course*, WASHINGTON TIMES (Mar. 25, 2015), <http://www.washington-times.com/news/2015/mar/25/rio-mayor-unveils-controversial-olympic-golf-courses/?page=all> [hereinafter *Rio Mayor*].

¹² *Id.*

¹³ Elena Hodges, *Rio's Olympic Golf Course will Trample an Ecological Gem*, NEXT CITY (Aug. 18, 2014), <https://nextcity.org/daily/entry/rios-olympic-golf-course-will-wipe-out-a-protected-ecological-gem> [hereinafter *Golf Course will Trample*].

¹⁴ *Id.*

¹⁵ *Id.*; see also Juliana Barbassa, DANCING WITH THE DEVIL IN THE CITY OF GOD: RIO DE JANEIRO ON THE BRINK, 155 (Touchstone 2015) (describing the butterfly and iguana, two of the types of creatures that are currently threatened and would be displaced by the Olympic course construction.); see also The Nature Conservancy, *Brazil: Atlantic Forest*, <http://www.nature.org/ourinitiatives/regions/southamerica/brazil/placesweprotect/atlantic-forest.xml> (last visited October 22, 2015).

remaining undeveloped areas; therefore, it is known as an “ecological gem” with high biodiversity value.¹⁶

Until 2013, the area comprising the Olympic golf course was deemed “off limits” to future development.¹⁷ However, with the Olympic Games looming, the Rio de Janeiro City Council called an emergency session on December 20, 2012, to pass Complementary Law 125.¹⁸ This law, authorized by Rio mayor Eduardo Paes in January 2013, would transform this formerly protected land into a demolition zone.¹⁹ Three main provisions of the law are as follows:

1. “green-lighting” construction of the Olympic golf course within the Marapendi reserve as a sustainable use of the land;
2. redrawing the borders of the park by removing neighboring forest land and incorporating it into the new boundaries of the Olympic course; and
3. increasing the height of neighboring buildings from six stories to twenty-two stories.²⁰

Now that the course has been fully completed, it awaits the arrival of the Olympic golfers and spectators in August of 2016.²¹ However, what will become of the course after its mere 16-day Olympic run? At that point the Olympic “party” will have come to an end, and all the guests will have left. But unlike the remnants of a party that has ended—the deflated balloons behind the couch, the ripped

¹⁶ *Golf Course will Trample*, *supra* note 13; Matt Bonesteel, *Rio Olympic Village to Become Luxury Apartments After the Games, Despite City's Affordable-Housing Crisis*, WASHINGTON POST (Mar. 23, 2015), <https://www.washingtonpost.com/news/early-lead/wp/2015/03/23/rio-olympic-village-to-become-luxury-apartments-after-the-games-despite-citys-affordable-housing-crisis/>.

¹⁷ Elena Hodges, *The Social & Environmental Costs of Rio's Olympic Golf Course*, <http://www.rioonwatch.org/?p=17283> (last visited Jan. 18, 2015) [hereinafter *The Social & Environmental Costs*].

¹⁸ *Id.*; see also Barbassa, *supra* note 15 at 154-56.

¹⁹ See *The Social & Environmental Costs*, *supra* note 17.

²⁰ *Id.*; see also Barbassa, *supra* note 15 at 155.

²¹ Associated Press, *Rio Mayor Unveils Controversial Olympic Golf Course*, BOSTON HERALD (Mar. 25, 2015), http://www.bostonherald.com/sports/other/olympics/2015/03/rio_mayor_unveils_controversial_olympic_golf_course.

streamers along the bannister, or the used cups littered across the kitchen table, the Olympic course cannot simply be “thrown away.” The course is here to stay, as this developed land cannot be transformed back to its pristine, natural state. Will its lasting impacts alleviate the division between Rio officials and residents? Or conversely, will the course’s speculated long-term impacts continue to drive these two interest groups apart?

Part II of this note will provide an overview of some of Brazil’s environmental challenges regarding the upcoming Olympics with an in-depth focus on the Olympic golf course’s design-plan and environmental impacts. Part III will provide a synopsis of the scope of Brazil’s environmental legislation with respect to the Marapendi reserve and Complementary Law 125’s impact on environmental policy. Part IV will discuss the social impacts of the golf course’s construction and public sentiment as Rio prepares to host the Games. Finally, Part V will discuss future policy ramifications of the Olympic course in the aftermath of the 2016 Summer Olympic Games.

II. ENVIRONMENTAL ISSUES AS RIO PREPARES TO HOST 2016 SUMMER OLYMPICS

A. *Recurring Environmental Problems*

While Olympic preparations in Rio have undoubtedly created some new environmental problems, the city also used its hosting status to attempt to resolve some of its more pervasive environmental issues. These recurring environmental concerns are not strictly limited to the golf course, but have impacted other event venues as well.

1. Water Pollution

Water pollution is common in Brazil, especially in Rio de Janeiro, and sewage and trash disposal problems have been exacerbated within the last few decades as “the population exploded”:²² the city’s sanitation infrastructure has not been able to keep up with rapid population growth, so untreated human sewage and garbage

²² See Associated Press, *AP Investigation: Olympic Teams to Swim, Boat in Rio’s Filth*, CHICAGO TRIBUNE (Jul. 29, 2015), <http://www.chicagotribune.com/sports/international/ct-rio-olympics-water-20150729-story.html>.

have ultimately accumulated in bodies of water like the Marapendi lagoon and Guanabara Bay.²³ More alarmingly, Guanabara Bay is one of the waterways expected to host Olympic sailing and windsurfing events, but untreated sewage makes it a hotbed of activity for pathogens and disease-causing bacteria.²⁴ Other Olympic water-based venues have not fared any better: only one year before the Games, global water experts could not find a single scheduled water venue that was safe for swimming or boating.²⁵

Rio city officials viewed hosting the Olympics not only as an overdue opportunity to greatly improve its inadequate sanitation system, but also as a way to promote awareness of the environment.²⁶ The city pledged in its Olympic bid that it would “regenerate Rio’s magnificent waterways,” and it sought to accomplish this mission through a \$4 billion expansion of the city’s sanitation infrastructure.²⁷ However, little progress has been made in improving sanitation: only one sewage treatment facility out of the eight Brazil promised as part of its Olympic bid has been constructed.²⁸ Guanabara Bay remains heavily polluted and Rio Governor Luiz Fernando Pezao and Rio mayor Eduardo Paes agree that there is not enough time to clean the bay in time for the Olympics.²⁹ It would be a tough

²³ *Id.* (“Waste flows into more than fifty streams that empty into the once crystalline Guanabara Bay. An eye-watering stench emanates from much of the bay and its palm-lined beaches, which were popular swimming spots as late as the 1970s but are now perpetually off-limits for swimmers.”).

²⁴ Jenny Barchfield, Associated Press, *Rio’s Olympic Waterways Full of Trash, Sewage*, SAN-DIEGO UNION TRIBUNE (Nov. 19, 2013), <http://www.sandiegouniontribune.com/news/2013/nov/19/rios-olympic-waterways-full-of-trash-sewage/> [hereinafter *Rio’s Olympic Waterways*].

²⁵ *Id.*

²⁶ See Jenny Barchfield, Associated Press, *‘Medieval’: Brazil’s Sewage System is Comparable to London or Paris in the 14th Century*, BUSINESS INSIDER, <http://www.businessinsider.com/medieval-brazils-sewage-system-is-comparable-to-london-or-paris-in-the-14th-century-2015-9> (last visited Jan. 18, 2016) (“A radical cleanup of the city’s blighted waterways was meant to be one of the main legacies of the Olympics, used as a key selling point in the city’s official bid document.”).

²⁷ Associated Press, *AP Investigation*, *supra* note 22; *Rio’s Olympic Waterways*, *supra* note 24.

²⁸ Associated Press, *AP Investigation*, *supra* note 22.

²⁹ *Id.*

feat for Brazilian officials to convince athletes otherwise: some athletes that have already traveled to Rio for training have succumbed to gastrointestinal illnesses resulting from contact with contaminated water.³⁰

Untreated sewage has also devastated local ecosystems. The native caiman (member of the alligator family) population is one of the few species that has been able to adapt and survive in Rio's sewage-filled lagoons, but the population is likely to decrease "if things don't change drastically."³¹ There are two primary reasons for this hypothesis: first, the fish population, which is a natural food source for the caiman, cannot survive in these polluted waters.³² As a result, many caiman must increasingly rely on "handouts from humans."³³ Second, the organic matter in sewage has contributed to higher water temperatures, which is likely to result in a higher percentage of male offspring during incubation.³⁴ Ricardo Freitas, an ecology professor at the Instituto Jacaré (Caiman Institute) in Brazil, has found that approximately 85% of the 5,000 to 6,000 caiman in Western Rio's lagoons are male.³⁵ The extreme gender imbalance poses a challenge to the species' long-term population growth.³⁶

2. Deforestation

The Marapendi restinga is part of the larger highly diverse Mata Atlântica biome. Environmentalists describe restinga as a coastal tropical forest habitat, comprised of sandy dunes, beach strands, and a variety of herbaceous and arboreal vegetation.³⁷ However, due to

³⁰ *Id.*; see also Brad Brooks, *AP Test: Rio Olympic Water Badly Polluted, Even Far Offshore*, Associated Press, <http://bigstory.ap.org/article/cabd453515244bf2b1063e15f6b680c9/ap-test-rio-olympic-water-badly-polluted-even-far-offshore> (last visited Feb. 3, 2016).

³¹ Associated Press, *Rio's slithering creatures await 2016 Olympics visitors*, CBS NEWS (Oct. 17, 2013, 12:00 PM), <http://www.cbsnews.com/news/rios-slithering-creatures-await-2016-olympics-visitors/> [hereinafter *Rio's slithering creatures*].

³² *Id.*

³³ *Id.* (Some humans throw scraps like raw chicken and crackers to the caiman.); Barbassa, *supra* note 15, at 162.

³⁴ *Rio's slithering creatures*, *supra* note 31.

³⁵ *Id.*; Barbassa, *supra* note 15, at 160-62.

³⁶ *Id.*

³⁷ CFD Rocha et al., *The Remnants of Restinga Habitats in the Brazilian Atlantic Forest of Rio de Janeiro State, Brazil: Habitat Loss and Destruction*, 67(2)

large-scale agriculture and production of goods like sugarcane, coffee, and beef, as well as the rapid growth of major metropolitan areas like Rio de Janeiro and Sao Paulo, very few undisturbed areas of the biome remain intact.³⁸ In fact, the greater Mata Atlântica biome originally encompassed a land area equal in size to twice the size of Texas, but has since been reduced to only 7% of its original land area.³⁹ In some Brazilian coastal areas, as little as 3% of the original biome remains undeveloped.⁴⁰

In particular, restinga vegetation within the Mata Atlântica is highly susceptible to destruction because it is generally lower to the ground and shorter than the vegetation found in other Brazilian biomes.⁴¹ These characteristics make it a “prized source of timber” for home construction and as firewood in residential areas.⁴² Unsurprisingly, this biome “has suffered so greatly as the result of 500 years of intense exploitation that it is often labeled *the most threatened tropical rainforest in the world*.”⁴³

Because much of the Mata Atlântica has been reduced to small isolated fragments, each remaining fragment is valuable and its preservation is critical. The biodiversity of each fragment (such as the fragment containing the Olympic golf course site) contains the highest biodiversity index of any of Earth’s biomes;⁴⁴ sixty percent

BRAZ. J. BIOL. 263, 263 (2007), available at <http://www.scielo.br/pdf/bjb/v67n2/10.pdf>; see also Lisa Flueckiger, *Controversy Over Olympic Golf Course Continues in Rio*, RIO TIMES (Mar. 26, 2015), <http://riotimesonline.com/brazil-news/rio-sports/controversy-over-olympic-golf-course-continues-in-rio/>.

³⁸ Jeremy Hance, *Brazil’s Atlantic Forest (Mata Atlântica)*, <http://rainforests.mongabay.com/mata-atlantica/mata-atlantica.html> (last visited Jan. 15, 2016); see also Colin Crawford & Guilherme Pignataro, *The Insistent (and Unrelenting) Challenges of Protecting Biodiversity in Brazil: Finding “The Law that Sticks,”* 39 U. MIAMI INTER-AM. L. REV. 1, 18 (2007).

³⁹ Crawford & Pignataro, *supra* note 38, at 10.

⁴⁰ Hance, *supra* note 38.

⁴¹ *Ecosystem Profile, Atlantic Forest Biodiversity Hotspot, Brazil*. CRITICAL ECOSYSTEM PARTNERSHIP FUND (Dec. 11, 2001), <http://www.cepf.net/Documents/final.atlanticforest.ep.pdf>.

⁴² *Id.*

⁴³ Hance, *supra* note 38 (emphasis added).

⁴⁴ *Golf Course will Trample, supra* note 13.

of Brazil's endangered species call the Mata Atlântica home, some of which inhabit the vicinity of the Olympic golf course.⁴⁵

3. Rio's Efforts Regarding Environmental Problems

For many city residents, environmental rehabilitation efforts seem bleak.⁴⁶ To make matters worse, many attempts at dredging Rio's polluted lagoons got caught up in "bureaucratic hurdles" and little has been accomplished.⁴⁷ For Brazilian biologist and conservationist Mario Moscatelli, the real issue comes from a lack of environmental awareness that stems from too few preventative environmental measures.⁴⁸ Waste needs to be prevented from even entering the waterways.⁴⁹ Moscatelli, who has monitored the pollution levels in Rio's waterways, remains skeptical of the city's efforts to improve Rio's water pollution problems;⁵⁰ he calls the authorities' empty environmental promises "nothing more than environmental fraud."⁵¹ A serious motivation to preserve the environment needs to be the driving force; "[t]here's no question. It's not about money, it's not about technology. It's about political will."⁵² This environmentalist sentiment is not unique to the city's existing pollution problems, but can be applied to new environmental challenges stemming from Rio's Olympic preparations.

⁴⁵ *Id.* ("The region surrounding the Marapendi lagoon . . . contains around 300 identified species, including endangered animals like the yellow-necked alligator, the beach lizard and the crested guan.").

⁴⁶ See Nick Kirkpatrick, *2016 Rio Olympics: Sailing with Sewage*, WASHINGTON POST (Mar. 19, 2015), <https://www.washingtonpost.com/news/morning-mix/wp/2015/03/19/the-bay-in-rio-where-2016-olympic-sailors-will-compete-is-a-disgusting-cesspool/>.

⁴⁷ See Associated Press, *AP Investigation*, *supra* note 22.

⁴⁸ See *id.*

⁴⁹ *Id.* ("We need to do something to stop the waste from being dumped by the people into the rivers," [Moscatelli] told the AP.").

⁵⁰ Taylor Barnes, *Rio Backpedals on Key Legacy Projects Before Olympics*, USA TODAY (Feb. 25, 2015), <http://www.usatoday.com/story/sports/olympics/2015/02/24/rio-de-janeiro-olympic-legacy-promises/23942105/>.

⁵¹ *Id.*

⁵² Kirkpatrick, *supra* note 46.

B. *Newly Created Environmental Problems Regarding the Olympic Course*

1. Olympic Course Details

a. SITE DESCRIPTION

The Olympic course is situated on a 240-acre parcel within the Reserva de Marapendi in the Rio neighborhood of Barra da Tijuca.⁵³ The site, known for its unique landscape, borders the nearby Marapendi lagoon.⁵⁴ The Marapendi restinga is a “fragile area” particularly due to the “intense degradation pressure of the surrounding area” associated with large-scale urban development.⁵⁵ Prior to the construction of the Olympic golf course, the undeveloped parcel had been known as an “ecological gem,” especially in the aftermath of heavy deforestation that has taken place in the local area as well as in Brazil generally.⁵⁶

b. DESIGN ELEMENTS, LAND DESIGNATION, AND CONTROVERSY

In October 2011, the Rio 2016 Organizing Committee announced an international contest for golf course architects to submit Olympic course design proposals.⁵⁷ In March 2012, the Committee selected American architect, Gil Hanse, to design the Olympic

⁵³ Bradley S. Klein, *Work Finally Starts on Rio 2016 Course*, GOLFWEEK, <https://golfweek.com/news/2013/mar/19/work-finally-starts-rio-2016-course/?print> (last visited Jan. 15, 2016); *Rio 2016 to Launch Golf Course Design Contest*, RIO2016, <http://www.rio2016.com/en/news/rio-2016-to-launch-golf-course-design-contest> (last visited Jan. 15, 2016).

⁵⁴ Klein, *supra* note 53; *see Golf Course will Trample, supra* note 13.

⁵⁵ *See* Rocha, *supra* note 37, at 268.

⁵⁶ *See Golf Course will Trample, supra* note 13; *see also* Jonathan Watts, *Rio 2016: 'The Olympics has Destroyed my Home,'* THE GUARDIAN (Jul. 19, 2015), <http://www.theguardian.com/world/2015/jul/19/2016-olympics-rio-de-janeiro-brazil-destruction> (“One Rio de Janeiro environmentalist, Marcello Mello, describes golf course development in such an ecologically fragile area as an “environmental crime” and that the Olympics is “destroying the Atlantic Forest, which is part of our national heritage.”).

⁵⁷ *Rio 2016 to Launch Golf Course Design Contest, supra* note 53.

course.⁵⁸ At the time that Hanse was announced the winner, President of Rio 2016, Carlos Nuzman stated that “this course represents the beginning of a new chapter in the history of the sport. It will enable Rio to host important events in the international calendar and it will be *an example of sustainability and preservation of an environmentally protected area*.”⁵⁹

The environmental protection area (“EPA”) or área de preservação ambiental, (“APA”) that Nuzman referenced is known as the Reserva de Marapendi (APA of Marapendi); the area encompasses 1,180,000 square meters that the Rio legislature formally recognized via Decree 10,368 in August 1991.⁶⁰ Under this decree, the APA of Marapendi encompasses the Permanent Protection Areas of the Marapendi Lagoon and Zoo-Botanical Park of Marapendi.⁶¹ In March 1993, the Rio legislature passed Decree 11,990, which regulated the APA of Marapendi by defining zoning rules pertaining to its land uses.⁶² Some of the subzones—collectively referred to as the “Zones of Wildlife Conservation (“ZCVS”) encompass the layout of the Olympic golf course.⁶³ The ZCVS shall be the “object of an

⁵⁸ *Clearing Work Underway at Rio 2016 Golf Course Site*, INTERNATIONAL GOLF FEDERATION, <http://www.igfgolf.org/clearing-work-underway-at-rio-2016-golf-course-site/> (last visited Jan. 14, 2016).

⁵⁹ *Hanse Golf Course Design Selected by Rio 2016 to Design Golf Venue for the Olympic Games*, <http://www.rio2016.com/en/news/hanse-golf-course-design-selected-by-rio-2016-to-design-golf-venue-for-the-olympic-games> (last visited Jan. 22, 2016) (emphasis added).

⁶⁰ Decreto No. 10.368, de 15 de Agosto de 1991, DIÁRIO OFICIAL DO RIO DE JANEIRO [D.O.E.R.J.] de 16.08.1991 (Braz.); Christopher Gaffney, *Between Discourse and Reality: The Un-Sustainability of Mega Event Planning*, 5 SUSTAINABILITY 9 3926, 3933 (2013), available at <http://www.mdpi.com/2071-1050/5/9/3926>; THE PROTECTED LANDSCAPE APPROACH LINKING NATURE, CULTURE AND COMMUNITY, 163 (Jessica Brown, Nora Mitchell, & Michael Beresford, eds. IUCN, 2005) [hereinafter *The Protected Landscape Approach*].

⁶¹ *Rio 2016 Olympics: the Exclusion Games*, Mega-Events and Human Rights in Rio de Janeiro Dossier, at 60, https://br.boell.org/sites/default/files/dos-siecomiterio2015_-_english_1.pdf [hereinafter *the Exclusion Games*].

⁶² *Id.*; Decreto No. 11.990, de 24 de marco de 1993, DIÁRIO OFICIAL DO RIO DE JANEIRO [D.O.E.R.J.] de 25.03.1993 (Braz.).

⁶³ *Rio 2016 Olympics: the Exclusion Games*, *supra* note 61, at 86.

Environmental Management Plan” and prohibits activities that “prevent or make difficult the natural regeneration of the native vegetation.”⁶⁴

In spite of the course developer’s sustainability intentions, the course has been wrapped up in several lawsuits regarding its layout and its potential environmental impacts.⁶⁵ Public prosecutors sought an injunction to halt construction, reasoning that the endangered wildlife in the area was threatened by the design of some holes, particularly those located near the Marapendi lagoon.⁶⁶ While Brazilian Judge Eduardo Klausner did not order that construction be stopped, he acknowledged the countervailing interests between the Rio Olympic Committee and environmentalists:⁶⁷ “[i]t is in society’s interests that the Olympics takes place and it’s also in society’s interests that the environment be preserved. What has to be observed is legality, and within legality is respect for the environment.”⁶⁸

2. Environmental Impacts Related to Golf Course Construction

a. GENERAL ENVIRONMENTAL IMPACTS

The development of the Olympic golf course has angered both environmentalists and local residents in a way that differs from the extensive venue development that took place in Rio in anticipation of the 2014 World Cup. The reason is because while golf courses undoubtedly alter the natural landscape throughout the construction

⁶⁴ Decreto No. 11.990 art. 10, de 24 de março de 1993, DIÁRIO OFICIAL DO RIO DE JANEIRO [D.O.E.R.J.] de 25.03.1993 (Braz.).

⁶⁵ See *Layout Ruling Threatens Olympic Golf Course*, ESPN (Sept. 4, 2014), <http://en.espn.co.uk/olympic-sports/sport/story/340631.html> [hereinafter *Layout Ruling Threatens*].

⁶⁶ Tariq Panja & Yasmine Batista, *Judge Rejects Appeal to Halt Work on Rio Olympic Golf Course*, BLOOMBERG BUSINESS (Nov. 27, 2014, 10:46 AM), <http://www.bloomberg.com/news/articles/2014-11-27/judge-rejects-appeal-to-halt-work-on-rio-olympic-golf-course> (last visited Feb. 16, 2016).

⁶⁷ See *Layout Ruling Threatens*, *supra* note 65.

⁶⁸ *Id.*

process, their negative environmental impact does not necessarily end once initial construction is completed.⁶⁹

First, the use of pesticides, fertilizers, and other chemicals to maintain optimal golfing conditions can contaminate groundwater sources and neighboring bodies of water.⁷⁰ In addition, pesticides and other chemical agents used in course maintenance can have impacts on “non-target” wildlife.⁷¹ “Regulation” of specific plants and animals through an artificial manner such as pesticide use also disrupts the natural ecosystem balance.⁷² For example, pesticides can greatly reduce a species’ population that is integral to the local ecosystem’s food chains.⁷³ Pesticides can also eradicate species that are natural-cross pollinators, such as honeybees and butterflies, which foster the growth of native vegetation.⁷⁴

Second, golf course irrigation systems often divert water resources away from more practical and sustainable uses.⁷⁵ Water supply and shortage problems are exacerbated in areas that are susceptible to drought.⁷⁶ Beginning in January 2015, much of Brazil suffered its worst drought since the 1930s.⁷⁷ Despite widespread water

⁶⁹ See *Golf and the Environment*, Audobon International, <https://www.audoboninternational.org/Resources/Documents/Fact%20Sheets/Golf%20and%20the%20Environment.pdf> (last visited Jan. 15, 2016).

⁷⁰ *Id.*

⁷¹ *Id.*

⁷² See James Tano Zacharia, *Ecological Effects of Pesticides*, PESTICIDES IN THE MODERN WORLD-RISKS AND BENEFITS 129, 131-32 (Dr. Margarita Stoytcheva ed., 2011).

⁷³ *Id.*

⁷⁴ *Id.*; see also Bruce Douglas, *Rio 2016: Occupy Takes Swing at Olympic Golf Course*, GUARDIAN (Feb. 25, 2015, 13:00 EST), <http://www.theguardian.com/world/2015/feb/25/rio-2016-occupy-takes-swing-at-olympic-golf-course#comments> (last visited Jan. 16 2016) (the Fluminense Swallowtail butterfly species is one inhabitant of the Marapendi reserve that is currently endangered).

⁷⁵ See *Golf and the Environment*, *supra* note 69.

⁷⁶ Garcia-Navarro, *supra* note 9 (“[G]olf courses *drink huge amounts of water daily . . .*”) (emphasis added).

⁷⁷ Tariq Panja, *Rio Students Ask Olympic Chief to Justify Golf Amid Water Crisis*, BLOOMBERG (Feb. 25, 2015, 1:25 PM), <http://www.bloomberg.com/news/articles/2015-02-25/rio-students-ask-olympic-chief-to-justify-golf-amid-water-crisis>; see also Lourdes Garcia-Navarro, *As Brazil’s Largest City Struggles with Drought, Residents are Leaving*, NPR (Nov. 22, 2015, 6:20 AM),

shortages, 5 million liters of water were used to irrigate the Olympic course daily.⁷⁸ Unsurprisingly, residents became irritated at the “liberal use of water” for irrigation when many households lacked water for basic necessities like bathing and cooking.⁷⁹ In fact, some scientists have suggested that Brazil’s water shortages in recent years is likely linked to prolonged periods of deforestation: the presence of vegetation (or lack of vegetation) potentially impacts the hydrological cycle in specific regions.⁸⁰

Third, because much of the land allocated for golf courses is used for fairways, putting greens, tee boxes, water hazards, and sand traps, much of the remaining undisturbed land is reduced to small isolated fragments.⁸¹ “By its very design, a golf course is fragmented and the patches of habitat are either on the boundary of the course or exist as linear fragments alongside the fairways.”⁸² Environmental disruption via fragmentation is problematic because fragmentation often results in the creation of metapopulations, which are smaller collections of species populations.⁸³ Depending on the size, quality, and proximity of these fragments, some populations may become too isolated from other populations.⁸⁴ Isolation reduces breeding and reproductive opportunities, threatening the collective species’ population growth and overall sustainability.⁸⁵

<http://www.npr.org/sections/parallels/2015/11/22/455751848/as-brazils-largest-city-struggles-with-drought-residents-are-leaving> (last visited Jan. 16, 2016).

⁷⁸ Douglas, *supra* note 74.

⁷⁹ *Id.*

⁸⁰ See generally Luiz E. O. C. Aragão, *The Rainforest’s Water Pump*, 489 NATURE 217, 217-18 (2012), available at <http://www.nature.com/nature/journal/v489/n7415/pdf/nature11485.pdf>.

⁸¹ See Alan C. Gange et al., *The Ecology of Golf Courses*, 50(2) BIOLOGIST 63, 65 (2003), available at http://ecosistema-sol.com/The_egology_of_golf_courses.pdf.

⁸² *Id.*

⁸³ *Id.*

⁸⁴ *Id.*

⁸⁵ *Id.* (“Metapopulation dynamics state that a species is more likely to persist in an environment if the patches of habitat it can potentially occupy are sufficiently close together for movement between patches to occur.”); see also Robert Edsforth, *Golf Course Property Restoration* 145 (Summer 2013) (unpublished thesis, University of Washington) (on file with the University of Washington), available at http://depts.washington.edu/uwbjg/research/theses/Robert_Edsforth_2013.pdf (“Linking fragments of habitat preserves genetic diversity among populations . . .”).

c. OLYMPIC GOLF COURSE'S ENVIRONMENTAL IMPACTS

Human encroachment via Olympic course development on native wildlife habitats has already shown to be problematic.⁸⁶ For example, beginning in 2013, there were concerns about the safety of golfers and spectators after increased caiman sightings on the links-style Olympic course in Rio.⁸⁷ The Executive Director of the International Golf Federation attempted to allay concerns stating, “[w]e’ll have a strategy in place that will minimize any possibility of a player or spectator coming across [the caiman].” Some caiman have migrated into the course’s ponds, as their natural Marapendi lagoon habitat has become increasingly polluted from untreated sewage originating from neighboring condominiums and “sprawling shantytowns” in Barra da Tijuca.⁸⁸

While the artificial lakes on the Olympic course may provide a better alternative to the current state of their natural lagoon habitat, this new home is likely not sustainable. Caimans still face the risk of exposure to artificial chemicals and fertilizers associated with golf course maintenance.⁸⁹ The fairways, roughs, and tee-boxes on the Olympic course are grassed with a non-native grass known as Zeon Zoysia.⁹⁰ Despite the fact that the grass used is one of the more “environmentally friendly” options for golf course development, the

⁸⁶ Tariq Panja, *Rio 2016 Olympic Golf Course Planners Say Alligators Won't Bite*, BLOOMBERG BUSINESS, <http://www.bloomberg.com/news/articles/2013-10-17/rio-2016-olympic-golf-course-planners-say-alligators-won-t-bite> (last visited Jan. 16, 2016).

⁸⁷ *Id.*; see also Rick Maese & Dom Phillips, *In Rio, Olympic Ambitions, but a Bottom-Line Conscience*, WASHINGTON POST (Oct. 12, 2015), https://www.washingtonpost.com/sports/olympics/in-rio-olympic-ambitions-but-a-bottom-line-conscience/2015/10/12/430e99de-70e3-11e5-ba14-318f8e87a2fc_story.html

⁸⁸ Barchfield, *Rio's Olympic Waterways*, *supra* note 24.

⁸⁹ David B. Dornak, *A New Generation is Teeing Off: Is Tiger Woods Making Divots on Environmentally Sound Golf Courses?*, 23 COLUM. J. ENVTL. L. 299, 311 (1998).

⁹⁰ *Secret Weapon for Olympic Golf Course: Zeon Zoysia Turf Grass*, <http://www.pgatour.com/news/2013/12/19/secret-weapon-for-olympic-course--zeon-zoysia.html> (last visited Jan. 18, 2016); see also *Rio Mayor*, *supra* note 11 (“But non-native grass is just not the same thing as native ecosystem.”).

course will still require nitrogen fertilizer as part of its routine upkeep.⁹¹ In fact, “[t]he greatest adverse impacts on wildlife located on and near golf courses come from the use of pesticides and other chemicals” Moreover, biologist Marcello Mello states that this grass that has been planted will cause more damage because it is “out of place” with the existing terrain in the area.⁹² In particular, a white sand lizard and a species of cactus that have inhabited the parcel’s natural sandy dune habitat are more threatened now that developers have cleared these dunes for Olympic course construction.⁹³

III. ENVIRONMENTAL LEGISLATION

A. *Sources of Brazil’s Environmental Legislation*

Brazil’s environment was largely unregulated until the early 1950s, and most regulations before this period were not aimed at preserving the environment, but rather at “safeguarding human health” or “ensuring the survival of valuable natural resources.”⁹⁴

1. 1988 Brazilian Constitution

a. CONSTITUTIONAL OBJECTIVES

The 1988 Brazilian Constitution acknowledges the necessity of preserving the environment and codified this sentiment in Article 225.⁹⁵ The Constitution states that “all have the *right to an ecologically balanced environment*” and that

⁹¹ *Secret Weapon*, *supra* note 90.

⁹² Dom Phillips, *In Brazil, Unrest is Simmering Again over Bus Fares, Olympic Golf, and Nazi Cops*, WASHINGTON POST (Jan. 12, 2015), https://www.washingtonpost.com/world/the_americas/in-brazil-unrest-is-simmering-again-over-bus-fares-olympic-golf-and-nazi-cops/2015/01/11/2c7518a0-968d-11e4-8385-866293322c2f_story.html.

⁹³ *Id.*; *see also* Watts, *supra* note 56 (“They’ve already cleared the natural dunes.”).

⁹⁴ Antonio de Aguiar Patriota, *An Introduction to Brazilian Environmental Law*, 40 GEO. WASH. INT’L L. REV. 611, 611-12 (2009).

⁹⁵ *See id.*; *see also* Nicholas S. Bryner, *Brazil’s Green Court: Environmental Law in the Superior Tribunal de Justiça (High Court of Brazil)*, 29 PACE ENVTL L. REV. 470, 481 (2012) (“The ‘greening’ of Brazil’s Constitution certainly prioritizes and raises awareness of environmental issues in the country and provides a

“[b]oth the Government and the community shall *have the duty* to defend and preserve it for present and future generations.”⁹⁶ Article 225 identifies some processes to be used in accomplishing this “right,” such as defining areas worthy of heightened environmental protection, conducting environmental impact studies to be made available to the public, and promoting environmental education at all school levels.⁹⁷

The codification of Brazil’s intent to acknowledge environmental preservation measures is significant as the Constitution specifies the geographic areas most susceptible to destruction.⁹⁸ More specifically, one of these areas is the Mata Atlântica.⁹⁹ Therefore, the Constitution at least recognizes that the biome in which the Olympic course is situated has some degree of environmental and ecological value that is worth preserving.¹⁰⁰

framework under which effective environmental conservation and natural resource management can take place . . .”).

⁹⁶ CONSTITUIÇÃO FEDERAL [CF] [CONSTITUTION] 1988 (rev. 2014), art. 225 (Braz.) (emphasis added), *available at* https://www.constituteproject.org/constitution/Brazil_2014.pdf [English translation].

⁹⁷ *Id.* (“Paragraph 1—In order to ensure the effectiveness of this right, it is incumbent upon the Government to:

I. preserve and restore the essential ecological processes and provide for the ecological treatment of species and ecosystems;

III. define, in all units of the Federation, territorial spaces and their components which are to receive special protection, any alterations and suppressions being allowed only by means of law, and any use which may harm the integrity of the attributes which justify their protection being forbidden;

IV. demand, in the manner prescribed by law, for the installation of works and activities which may potentially cause significant degradation of the environment, a prior environmental impact study, which shall be made public;

VI. promote environmental education in all school levels and public awareness of the need to preserve the environment;

VII. protect the fauna and the flora, with prohibition, in the manner prescribed by law, of all practices which represent a risk to their ecological function, cause the extinction of species or subject animals to cruelty.”).

⁹⁸ *Id.*

⁹⁹ *Id.*

¹⁰⁰ *Id.* (“Paragraph 4. The Brazilian Amazonian Forest, the Atlantic Forest . . . and the coastal zone are part of the national patrimony, and they shall be used, as provided by law, under conditions which ensure the preservation of the environment . . .”).

b. SUBSEQUENT LEGISLATION NEEDED

While the Constitution is noteworthy for its ambitious environmental objectives, its historical lack of concrete enforcement mechanisms has resulted in flawed and piecemeal implementation.¹⁰¹ One reason is because many constitutional provisions are “not self-executing,” and thus require supplemental legislation for them to have any effect.¹⁰² For example, the 1988 Constitution required 285 ordinary statutes and 41 complementary laws to be produced as part of its original enactment.¹⁰³

As a result, this Constitution leaves the door wide open for other legislatures, such as the Rio de Janeiro legislature, to enact supplementary legislation that fills in any of the Constitution's gaps.¹⁰⁴ In fact, Article 24 of the Constitution grants legislatures “concurrent power to legislate on . . . forests, hunting, fishing, fauna, preservation of nature, defense of the soil and natural resources, protection of the environment and pollution control.”¹⁰⁵ While local legislatures have wide freedom to draft and enact subsequent legislation—that freedom does come with one great limitation: any state law that contradicts federal law will be preempted.¹⁰⁶

2. Sistema Nacional de Unidades de Conservação (National System of Conservation Unites—“SNUC”)

In July 2000, the Brazilian legislature passed a law instituting the Sistema Nacional de Unidades de Conservação (“SNUC”) system, and this law regulates specific provisions within Article 225, Section 1 of the 1988 Constitution.¹⁰⁷ SNUC outlines some of its overarching goals in Article 4 such as “to help preserve and restore

¹⁰¹ Keith S. Rosenn, *Judicial Review in Brazil: Developments Under the 1988 Constitution*, 7 SW. J. L. & TRADE AM. 291, 292-93 (2000).

¹⁰² *Id.*

¹⁰³ Augusto Zimmerman, *Chapter 8 Constitutions Without Constitutionalism: The Failure of Constitutionalism in Brazil*, 3 IUS GENTIUM 101, 139 (2010).

¹⁰⁴ Rosenn, *supra* note 101, at 292-93.

¹⁰⁵ CONSTITUIÇÃO FEDERAL [CF] [CONSTITUTION] 1988 (rev. 2014), art. 24, VI (Braz.).

¹⁰⁶ CONSTITUIÇÃO FEDERAL [CF] [CONSTITUTION] 1988 (rev. 2014), art. 24, §4 (Braz.).

¹⁰⁷ Lei No. 9.985, de 18 de Julho de 2000, DIÁRIO OFICIAL DA UNIÃO [D.O.U.] de 19.7.2000 (Braz.), available at http://www.rbma.org.br/rbma/pdf/Caderno_18_2ed.pdf.

the diversity of natural ecosystems,” “to protect natural and little altered landscapes of notable scenic beauty,” and “to recover or restore degraded ecosystems.”¹⁰⁸

SNUC provides clarity to Brazil’s national system of protected areas by defining and allocating smaller conservation units (“UC”) into two main categories—integral protection and sustainable use.¹⁰⁹ Under this law, UC is defined as “a territorial space and its environmental resources, including jurisdictional waters, with significant natural characteristics, legally instituted by Government, with defined purposes for conservation and limits as well, under a special regimen for its administration, on which *appropriate warranties of protection are applied*.”¹¹⁰

The main differences between integral protection UCs and sustainable use UCs are the scope of environmental protection afforded to the UC and the permitted uses within the UC’s boundaries.¹¹¹ Integral protection UCs are completely off limits to all kinds of development: “any endeavor involving the ‘consumption, collection of material, damage or destruction’ within the UC is banned.”¹¹² One integral protection UC that the Rio legislature has defined is “Parks,” which means “Integral Protection Units for the preservation of natural ecosystems of large ecological relevance. *Constructions shall not be allowed*.”¹¹³ Conversely, when compared to integral use environmental requirements, sustainable use requirements are more relaxed.¹¹⁴ Yet despite granting more environmental leniency, sustainable use UCs are still aimed at “assuring the continued vitality of biodiversity in the UC.”¹¹⁵

¹⁰⁸ *Id.* at art. 4.

¹⁰⁹ The Protected Landscape Approach, *supra* note 60, at 165.

¹¹⁰ *Id.* at 166 (emphasis added); Lei No. 9.985 at art. 2(1).

¹¹¹ Crawford & Pignataro, *supra* note 38, at 35.

¹¹² *Id.* at 37-38.

¹¹³ See Explicando o Campo de Golfe Olímpico, [Explaining the Olympic Golf Course], Rio Prefeitura, at 7, <https://drive.google.com/file/d/0BwMjq4G-w-9eMEo1cHF6TFhwREE/view?pref=2&pli=1> (last visited Jan. 20, 2016) [hereinafter *Explaining Course*] (emphasis added).

¹¹⁴ Crawford & Pignataro, *supra* note 38, at 40.

¹¹⁵ *Id.*; see also *Rio 2016 Olympics: the Exclusion Games*, *supra* note 61, at 87.

Sustainable use UCs allow for more public involvement regarding environmental management plans, and in an EPA a “public participation component is key.”¹¹⁶ Under Article 15 of SNUC, “the APA will have a Council presided by the institution responsible for its administration and composed by representatives of public entities, civil society organisations and residing population.”¹¹⁷

B. *Complementary Law 125*

For the Rio city legislature to successfully construct the Olympic course, it needed to “legally access” the parcel in a manner that would “green-light” construction: hence Complementary Law 125 was born.¹¹⁸ Rio mayor Eduardo Paes faced heavy criticism over signing Complementary Law 125, stemming from the decision to construct the Olympic course on such environmentally controversial land.¹¹⁹ In spite of his 330-page report detailing the city’s rationale on why construction was both legal and justified, Paes’ arguments hold little merit from a legal standpoint.¹²⁰

1. Definitional Technicality & Failed Quantitative Reasoning

58,000 square meters of the Olympic course parcel are situated within a ZCVS zone in the Municipal Natural Park of Marapendi, while the remaining land is located within the APA of Marapendi; in theory, the park designation makes these 58,000 meters “untouchable.”¹²¹ On page 7 of this report, the definitions of “Parks” and “Reserves” clearly prohibit constructions of any kind.¹²²

Ironically, on that exact page, there is a footnote with the language, “Important: the piece of land where the Golf Course will be

¹¹⁶ Crawford & Pignataro, *supra* note 38, at 42.

¹¹⁷ *Rio 2016 Olympics: the Exclusion Games*, *supra* note 61, at 87; Lei No. 9.985 at art. 14 §5.

¹¹⁸ *Golf Course will Trample*, *supra* note 13.

¹¹⁹ Jonathan Watts, *The Rio Property Developer Hoping for a \$1Bn Olympic Legacy of his Own*, THE GUARDIAN (Aug. 4, 2015), <http://www.theguardian.com/sport/2015/aug/04/rio-olympic-games-2016-property-developer-carlos-carvalho-barra>.

¹²⁰ *Id.*

¹²¹ *Rio 2016 Olympics: the Exclusion Games*, *supra* note 61, at 88; *see also* Watts, *supra* note 56.

¹²² *Explaining Course*, *supra* note 113, at 7.

built is *almost all*, part of EPA and not of Parks and Reserve. Therefore it should be allowed to reconcile it with environmental preservation.”¹²³ This footnote clearly contradicts the meaning and intent of integral use UCs as defined in SNUC, which states that “any change, activity, or modality of use in disagreement with the conservation unit objectives, its Management Plan and its regulations is prohibited.”¹²⁴

Here, the city’s justification to build the Olympic course on land that is designated primarily EPA and not entirely EPA is problematic: first, because these 58,000 square meters of the Olympic parcel are designated Park land, they are off limits to construction.¹²⁵ Next, the obligatory “construction *shall not* be allowed” language contained within the Park definition does not provide any exception to the construction prohibition.¹²⁶ Based on these definitions, it logically follows that construction of any manner on these 58,000 square meters of Park land is prohibited (and this is based on the definitions the city provided).

Next, on page 11 of the report, Paes relies on quantitative reasoning to justify annexing a portion of the neighboring Park land for the Olympic course.¹²⁷ He reasoned that this newly acquired land only comprises 6% of the total parcel’s area and 3.5% of the Parque Marapendi Area.¹²⁸ While these are relatively small percentages, this unique land cannot be evaluated based merely on land area statistics; instead, the land needs to be evaluated based on its biodiversity level.¹²⁹ The Mata Atlântica biome boasts the highest biodiversity index on Earth and its restinga remnants are continuing to disappear at an alarming rate.¹³⁰ Here, the biodiversity level adds eco-

¹²³ *Id.* (emphasis added).

¹²⁴ *Explaining Course*, *supra* note 113, at 173; Lei No. 9.985 art. 28.

¹²⁵ *Explaining Course*, *supra* note 113, at 7.

¹²⁶ *Id.* (emphasis added).

¹²⁷ *See Explaining Course*, *supra* note 113, at 11.

¹²⁸ *Id.*

¹²⁹ *Golf Course will Trample*, *supra* note 13.

¹³⁰ *Id.*; Rocha, *supra* note 37, at 264.

logical value in a way that land area statistics simply cannot address.¹³¹ As deforestation increases, preserving each remaining undeveloped fragment is essential.¹³²

2. Golf Course Does Not Meet EPA's Sustainable Use Requirements

Paes likely realized that the 58,000 square meters of the Municipal Natural Park of Marapendi would be off limits for construction as long as they were designated Park. Therefore, Complementary Law 125 was a clever scheme to convert this land into the sustainable use EPA so the city could benefit from its more relaxed construction restrictions.¹³³ However, even with the EPA designation, golf course development is at odds with the concept of sustainable use.¹³⁴ The EPA has the basic objectives of “protecting biological diversity, controlling the process of occupation, [and] ensuring the sustainability of the use of natural resources.”¹³⁵

Some of the direct effects of golf course construction—artificial chemicals introduced into ecosystems, liberal use of water for irrigation, and the creation of metapopulations due to ecosystem fragmentation—all contravene the concept of sustainable use.¹³⁶ By creating this course, nothing ecological is actually being *sustained*, but instead the ecological value is being eroded.¹³⁷ For example, one habitat that has been greatly disrupted is the natural dune habitat, as the dunes were bulldozed prior to the start of construction.¹³⁸

¹³¹ *Golf Course will Trample*, *supra* note 13.

¹³² *See id.*; see Edward B. Barbier, *CAPITALIZING ON NATURE: ECOSYSTEMS AS NATURAL ASSETS*, 200 (Cambridge University Press 2011).

¹³³ Lei Complementar No. 125/2013, de 14 de Janeiro de 2013, [DOU] de 17 de Janeiro de 2013.

¹³⁴ *See generally* Shannon Carroll, *Golfing on Green Acres: is the Acquisition of Golf Courses an Appropriate Means of Preserving Open Space in New Jersey?*, 32 SETON HALL LEGIS. J. 211, (2007).

¹³⁵ *Environmental Protection Area*, <http://uc.socioambiental.org/en/uso-sustentavel/environmental-protection-area> (last visited Feb. 19, 2016).

¹³⁶ *See Golf and the Environment*, *supra* note 69; Gange, *supra* note 81, at 65; *Rio 2016 Olympics: the Exclusion Games*, *supra* note 61, at 171 (“The construction of a golf course in an environmental protection area is unsustainable.”).

¹³⁷ *Golf Course will Trample*, *supra* note 13.

¹³⁸ Watts, *supra* note 56.

The fact that Rio specifically defined golf course construction within the ambit of “sustainable use” via Complementary Law 125 is very telling of Rio officials’ true Olympic intentions.¹³⁹ This type of definition adjustment is unprecedented, thus indicating how short-term Olympic goals have displaced long-term environmental sustainability initiatives: “[o]ne of the few remaining areas of environmental protection in the Barra de Tijuca region has been appropriated by the government, opened up for toxic land use patterns and handed over to a private development firm for recreational and real-estate purposes.”¹⁴⁰

The city’s objectives do not focus on sustainable design, but they instead ignore any references to sustainability: in the city’s report on page 66, sustainability is not even listed as a “main component[] to be taken into consideration by the architect” for incorporation into the final course design.¹⁴¹ The list emphasizes variations in course design, efficient flow of spectators, and green and tee positioning to promote “golf in its highest level.”¹⁴²

3. Suspect Timing of Law Frustrates Public Involvement

Rio’s City Council called an emergency session in December 2012, and it passed Complementary Law 125 shortly before the commencement of the holiday recess.¹⁴³ Rio mayor, Eduardo Paes, signed the law in January 2013.¹⁴⁴ The suspect timing, passing, and enactment of the law precluded any public involvement, which is required under SNUC’s EPA designation.¹⁴⁵ Furthermore, the 1988 Constitution requires that “it is the responsibility of the Government to require, as provided by law, a prior environmental impact study, which shall be made public, for installation of works or activities

¹³⁹ See Gaffney, *supra* note 60, at 3933; *Rio 2016 Olympics: the Exclusion Games*, *supra* note 61, at 171.

¹⁴⁰ *Id.*

¹⁴¹ *Explaining Course*, *supra* note 113, at 66.

¹⁴² *Id.*

¹⁴³ *The Social & Environmental Costs*, *supra* note 17.

¹⁴⁴ *Id.*; Lei Complementar No. 125/2013.

¹⁴⁵ Lei No. 9.985 Art. 14 §5; Crawford & Pignataro, *supra* note 38, at 42.

that may cause significant degradation of the environment.”¹⁴⁶ Golf courses undoubtedly can lead to degradation of the environment.¹⁴⁷

Despite these well-intentioned environmental efforts at the federal level via the Constitution and SNUC, the local Rio municipality has failed to put the APA of Marapendi's conservation efforts into effect.¹⁴⁸ In the years that followed the APA of Marapendi's establishment, “there were no proposals for the integrated management of the area, and the Management Plan—technical document that guides the implementation, management, and use of the conservation unit—was not produced.”¹⁴⁹ As a result, formal public involvement regarding environmental matters has been near nonexistent.¹⁵⁰

State prosecutor Marcus Leal suggests that the legislature has become too invested in the Olympic golf course project as all of the necessary work is licensed and carried out by either the city or the state; according to Leal, “[w]hat level of independence does the issuer of the license have when he is an employee of the state?”¹⁵¹

This “conflict of interest” hinders the ability for the necessary environmental impact studies to be conducted in an objective manner.¹⁵² As required by the Constitution's Article 225 and SNUC's Article 15, the public needs to reclaim its role in overseeing municipal construction: Leal suggested that a committee of experts, public prosecutors, and Rio citizens would suffice.¹⁵³

¹⁴⁶ [C.F.] Art. 225 §1(IV); Abby Rubinson, *Regional Projects Require Regional Planning: Human Rights Impacts Arising from Infrastructure Projects*, 28 MICH. J. INT'L L. 175, 186-87 (2007).

¹⁴⁷ See generally Carroll, *supra* note 134.

¹⁴⁸ *Rio 2016 Olympics: the Exclusion Games*, *supra* note 61, at 87.

¹⁴⁹ *Id.*

¹⁵⁰ See *id.*

¹⁵¹ Panja & Batista, *supra* note 66.

¹⁵² *Id.*

¹⁵³ *Id.*

IV. SOCIAL RESPONSE TO CITY'S OLYMPIC PREPARATIONS

A. *Formation of Environmentalist Groups*

For some residents, the Olympics may serve as a new source of frustration: the Olympic course dislodged one of few remaining ecosystems in Barra da Tijuca.¹⁵⁴ For others, the Olympics may serve as a reminder of the city's longstanding neglect of basic infrastructural essentials—the prolonged accumulation of untreated sewage and trash that has devastatingly impacted local aquatic habitats.¹⁵⁵ The Olympics has provided residents and environmentalists alike with a platform to raise awareness of pressing environmental issues. One group, known as Occupy Marina da Glória, has actively protested regarding the status of Guanabara Bay, while its counterpart, Occupy Golf, has “set up camp” on a highway median outside the site of the Olympic course.¹⁵⁶

The main point of the Occupy Golf protestors is clear: if the golf course will be used for such a short period of time for the Olympics, why not use an existing golf course in Rio?¹⁵⁷ The group's mission is not to protest Rio's hosting of the Olympics or the fact that golf is now returning as an official event.¹⁵⁸ Instead, its sole focus is on the site selection for the course stemming from the IOC and city's decision to construct a new course from scratch.¹⁵⁹

¹⁵⁴ *Id.*; see also *The Social & Environmental Costs*, *supra* note 17 (“The Olympic golf course is the perfect microcosm through which to identify much of what is wrong with the approach to Olympic infrastructure development in Rio. It is emblematic of the ways in which Rio's preparations for the 2016 Games are deeply problematic.”) (emphasis added).

¹⁵⁵ See Associated Press, *Olympic Lake in Brazil has a Dead Fish Problem*, <http://www.cbsnews.com/news/olympic-lake-in-brazil-has-a-dead-fish-problem/> (last visited Jan. 19, 2016) (“Fish die-offs are a frequent occurrence in Rio's waterways, which are choked with raw sewage and garbage.”).

¹⁵⁶ Phillips, *In Brazil*, *supra* note 92.

¹⁵⁷ See *Rio Mayor*, *supra* note 11.

¹⁵⁸ Associated Press, *Environmental Activists Disrupt Meeting by Olympic Officials*, CHICAGO TRIBUNE (Feb. 28, 2015), <http://www.chicagotribune.com/sports/international/chi-environmental-activists-disrupt-meeting-by-olympic-officials-rio-20150228-story.html> (“We are not against the Olympics, but we are against the corruption that is being arranged by the mayor (Rio Mayor Eduardo Paes).”).

¹⁵⁹ *Id.* (“This is about the golf course. We have two golf courses. We don't need a third.”).

B. *Why Brazil Does Not Need Another Golf Course*¹⁶⁰

Given the short time-span of the Games and the potentially long-term negative impacts stemming from golf course construction, there are no sound policy bases that support constructing the Olympic course from scratch.

1. Other Golf Course Options

First, there are two other courses in Rio that arguably could have served as the Olympic course—the Gávea Golf Club and the Itanhangá Golf Club.¹⁶¹ In fact, both courses vied for the opportunity to be the official Olympic course by submitting bids, yet the Rio 2016 Committee and the city passed on both.¹⁶² In a technical report issued on May 27, 2011, Gávea was quickly eliminated because it was declared “unfeasible due to size,” there was “no operational technical solution possible,” and there was “no expansion possibility.”¹⁶³

Conversely, Itanhangá was a serious contender in the Olympic course decision.¹⁶⁴ However, the IOC informed Itanhangá management that it wanted “significant remodeling” of the course and that it did not want to inconvenience the course by closing it for extensive renovation.¹⁶⁵ Course management rejected the IOC’s reasoning, stating that the decision to build a new course was “just politics” and that Itanhangá had been fully prepared to undergo remodeling as part of its Olympic bid request.¹⁶⁶ The “extensive remodeling” request is surprising given that Itanhangá had previously been ranked by *GolfDigest* as one of the “100 Best Courses Outside the

¹⁶⁰ Stephen Wade, *Rio Olympic Golf Course Handed Over to Games Organizers*, Associated Press, <http://bigstory.ap.org/article/1420ceedb2f1410a9f0478a4cb184476/rio-olympic-golf-course-handed-over-games-organizers> (last visited Jan. 20, 2016) (“Rio de Janeiro’s Olympic golf course—slowed by environmental lawsuits, land ownership disputes and doubts it even needed to be built—was handed over Sunday to organizer’s of next year’s games.”).

¹⁶¹ *Rio 2016 Olympics: the Exclusion Games*, *supra* note 61, at 86.

¹⁶² Rob Sawers, *Playing Golf in Rio de Janeiro*, *RIO TIMES* (Jun. 14, 2011), <http://riotimesonline.com/brazil-news/rio-travel/playing-golf-in-rio-de-janeiro/>.

¹⁶³ *See Explaining Course*, *supra* note 113, at 3.

¹⁶⁴ *Id.*

¹⁶⁵ Sawers, *supra* note 162.

¹⁶⁶ *Id.*

U.S.”¹⁶⁷ Alberto Murray Neto, former member of the Brazilian Olympic Committee, implied that Itanhangá could have been re-modeled at a lower cost than constructing a new course from scratch: based on pure construction costs, it is unclear from an economic perspective why the Rio 2016 Committee and the city pursued the latter option.¹⁶⁸ This indicates that other factors were more heavily weighed in the IOC and city’s decision.

2. “Legally Complicated Land”¹⁶⁹

Even before the borders of the parcel were changed via Complementary Law 125, the true ownership of the land has not always been entirely clear. The clouded title of the parcel with its premier location in the heavily coveted Barra da Tijuca neighborhood has been the subject of several lawsuits within the last few years.¹⁷⁰ The Olympic course is situated on land that is “some of the most expensive land in the western Rio suburb.”¹⁷¹ But because the land in the Barra da Tijuca neighborhood is so valuable, there are often several ownership disputes: however, a small percentage of these disputes are resolved quickly.¹⁷² With the looming pressure of the Olympic deadline combined with managing a construction deadline, why would the city choose land in an area that is highly prone to land-ownership disputes?¹⁷³

¹⁶⁷ *Golf Course will Trample*, *supra* note 13; *see also 100 Best Courses Outside the U.S.*, GOLFDIGEST, <http://www.golfdigest.com/story/100greatestinternational> (last visited Jan. 20, 2016).

¹⁶⁸ Wade, *supra* note 160.

¹⁶⁹ (The environmental concerns are not the only issues associated with the Olympic parcel. Complicated ownership disputes involving allegations of deed falsifications have exacerbated the legal problems related to the parcel’s construction); *See Douglas*, *supra* note 74; Associated Press, *Rio Fails to Show Olympic Golf Course Contracts*, <http://www.golf.com/tour-and-news/rio-fails-show-olympic-golf-course-contracts> (last visited Jan. 20, 2016).

¹⁷⁰ *See* Associated Press, *Land Dispute Threatens Construction of Olympic Course*, USA TODAY (Apr. 20, 2012), <http://usatoday30.usatoday.com/sports/olympics/story/2012-04-20/golf-land-dispute-2016-olympics/54442008/1>.

¹⁷¹ Wade, *supra* note 160.

¹⁷² *See Land Dispute*, *supra* note 170.

¹⁷³ *See Rio Mayor*, *supra* note 11 (“Even if they had to build a new course, they could have picked any other terrain—one not in a protected nature reserve—

3. Creation of a Golf Legacy is Unlikely

Occupy Golf has also scoffed at the idea that any sort of golf-driven legacy will revolve around this newly built golf course given the sport's unpopularity in Brazil.¹⁷⁴

Surprisingly, Rio mayor Eduardo Paes, who has strongly supported the course's construction, echoed this sentiment when he officially "handed over the course" to the Games' organizers in November 2015.¹⁷⁵ During his fifteen-minute speech defending the course's construction, Paes stated, "I don't think there's much legacy for a golf course. I've always said that. I don't think this is something Brazil is famous for, delivering courses. It's not a popular sport in Brazil. But there are some things you need to do when you deliver the Olympics."¹⁷⁶

Within minutes, Carlos Nuzman, head of the Rio de Janeiro Olympics, contradicted him by stating, "It's a big legacy. It's a public golf course. There are a lot of young kids—boys and girls—who want to participate to develop golf. It's a chance for golf in a new region of the world to be developed."¹⁷⁷ Based on the current popularity of golf in Brazil and the environmental issues related to golf course construction and maintenance, Nuzman's optimism falls short of reality for a few reasons.

First, there are very few opportunities for the general public to play, especially in Rio de Janeiro; the two existing courses "exclusively serve the rich."¹⁷⁸ For golf to gain acceptance of the widespread Brazilian population, the nature of the sport's accessibility

or also one where the ownership is clear,' Murray said. 'The whole thing is just a pretext for land speculation.'").

¹⁷⁴ Wade, *supra* note 160 ("Few people play golf in Brazil, and Paes has acknowledged the game probably has little future in the South American country. Some have compared building a golf course in Brazil to setting up a bullring in Finland.").

¹⁷⁵ *Id.*

¹⁷⁶ *Id.*

¹⁷⁷ *Id.*

¹⁷⁸ See Robbie Blakeley, *Olympic Golf Could See Popularity Soar in Brazil*, RIO TIMES (Aug. 12, 2014), <http://riotimesonline.com/brazil-news/rio-sports/olympic-golf-could-see-popularity-soar-in-brazil/>; see also Associated Press, *Golf Makes Pan Am Games Debut Ahead of Olympic Return*, http://espn.go.com/extra/panamgames/story/_/id/13270973/2015-pan-american-games-golf-makes-debut-rio-olympics-next (last visited Jan. 20, 2016) ("Golf has

and costs would have to change.¹⁷⁹ The current number of golf courses is not adequate to sustain a large golf-playing population in Brazil while taking into account sustainable environmental initiatives.¹⁸⁰ Even if the Olympic course becomes available to the public after the Games end, more golf courses would need to be built to supply an increase in golf demand among the public.¹⁸¹ Moreover, the construction of additional courses would be disastrous from an environmental standpoint given the backlash related to the Olympic course: if environmentalists and residents did not approve of a course constructed to serve as a venue for one of the largest sporting events throughout the world, then how will they get on board to build more courses for recreational use at the cost of harming the environment?¹⁸²

Currently the cost to play golf is too high for many Brazilian citizens.¹⁸³ When Brazil was selected to host the Olympics in 2009, the Brazilian economy was “booming.”¹⁸⁴ However, the country’s economy has fallen into a downward spiral and a large scandal involving the state-run oil company, Petrobras, is at the forefront.¹⁸⁵ Within the last year, the country has slumped into the worst recession since the 1930s.¹⁸⁶ Inflation rose to 10% while unemployment “soared” to 8%.¹⁸⁷ Brazilian President, Dilma Rousseff, now faces

almost no profile in Brazil, a game for the rich that lacks the mass appeal of soccer or volleyball.”).

¹⁷⁹ *Id.*

¹⁸⁰ *See id.*

¹⁸¹ *Id.*

¹⁸² *Top Ten Sporting Events*, <http://travel.nationalgeographic.com/travel/top-10/sporting-events/> (last visited Jan. 20, 2016).

¹⁸³ *See Raiesa Ali, Income Inequality and Poverty: A Comparison of Brazil and Honduras*, Council on Hemispheric Affairs, <http://www.coha.org/income-inequality-and-poverty-a-comparison-of-brazil-and-honduras/> (last visited Jan. 21, 2016) (“The growing socio-economic gap in Brazil is already apparent, yet there is no strong vocalization about this ever-widening financial disparity.”).

¹⁸⁴ Stephen Wilson, *IOC VP: Brazil Economic Crisis will Inevitably Affect Games*, ASSOCIATED PRESS, <http://bigstory.ap.org/article/dcc2f1b252a3449983e30624231c336e/ioc-vp-brazil-economic-crisis-will-inevitably-affect-games> (last visited Jan. 21, 2016).

¹⁸⁵ *Id.*

¹⁸⁶ *Id.*

¹⁸⁷ *Id.*

impeachment proceedings based on allegations of “fiscal irregularities by her government” as her approval ratings sink to an all-time low of 10% approval.¹⁸⁸

These economic hardships leave golf “in the rough.” At such an economically dire time, golf is likely off the citizens’ radar as they will not have the disposable income to fund recreational activities like golf.¹⁸⁹ Any advancement in mainstreaming golf will likely be delayed until the economy improves to a point in which Brazil has a healthy financial and investment climate.¹⁹⁰ It also does not help matters that golf equipment costs two to three times more in Brazil than in countries like the United States.¹⁹¹ Brazil has historically suffered from high consumer prices resulting from high inflation, protectionist economic policies, a dysfunctional tax system, and high costs of transportation of goods.¹⁹²

4. The Olympic Course is Part of a Larger Ulterior Motive

‘The golf course has to be seen in a wider perspective’, Fernando Walcacer, a professor of environmental law at Rio’s PUC university, said. ‘*Property developers have always had huge political influence in Rio.* The developers have been looking at this space for years and now the Olympics have given them their chance.’¹⁹³

¹⁸⁸ *Id.*

¹⁸⁹ *The Crash of a Titan*, THE ECONOMIST (Feb. 28, 2015), <http://www.economist.com/news/finance-and-economics/21645248-brazils-fiscal-and-monetary-levers-are-jammed-result-it-risks-getting-stuck> (“With inflation about 7%, shoppers’ purchasing power is being eroded.”).

¹⁹⁰ See Patrick Gillespie, *Brazil’s Bust is Worse than we Thought*, <http://money.cnn.com/2016/01/19/news/economy/imf-brazil-recession-worsens/index.html> (last visited Jan. 21, 2016) (“Foreign investors have fled Brazil as the corruption case has expanded.”).

¹⁹¹ Blakeley, *supra* note 178.

¹⁹² Simon Romero, *Prices Fuel Outrage in Brazil, Home of the \$30 Cheese Pizza*, N.Y. TIMES (Jul. 22, 2013), <http://www.nytimes.com/2013/07/23/world/americas/prices-fuel-outrage-in-brazil-home-of-the-30-cheese-pizza.html>; see also Michael B. Kelly, *Everything is Insanely Expensive in Brazil*, BUSINESS INSIDER (Jul. 23, 2013), <http://www.businessinsider.com/things-are-expensive-in-brazil-2013-7>.

¹⁹³ Douglas, *supra* note 74 (emphasis added).

Paes' historically strong relationship with large-scale real-estate developers like Pasquale Mauro prior to the Olympic course's construction strongly confirms this statement. The state prosecutor had instituted an earlier action against Paes regarding the alleged deal that Paes had entered into with Mauro about the golf course.¹⁹⁴ As part of the deal, Fiori Empreendimentos, the company providing the course's financing, would foot the 60 million reais bill (approximately \$16.2 US million) to construct the course in exchange for the right to build 23 buildings of 22 floors each on land surrounding the course (part of the Complementary Law 125 legislation).¹⁹⁵ The least expensive apartment in these luxurious high-rises sells for \$2 million.¹⁹⁶ If all goes as planned, developers like Mauro can largely profit from the Olympics; the 60 million reais cost of the course is quickly swallowed up by the millions he will make in real estate sales of the luxurious apartment units that surround the course.¹⁹⁷

C. *Authoritative Response to Occupy Golf*

While Occupy Golf's arguments hold validity, not everyone is ready to jump on Occupy Golf bandwagon. Few additional supporters have joined the original group of protestors, but the lack of increased membership may be attributed to the stigma of being an environmentalist in Brazil rather than the citizenry's lack of interest in this environmental issue.¹⁹⁸

Outward support of environmental issues has shown to be problematic in Brazil.¹⁹⁹ In fact, activism in Brazil is incredibly dangerous, and more environmental campaigners are killed there than in

¹⁹⁴ Blakeley, *supra* note 178.

¹⁹⁵ Flueckiger, *supra* note 37; Wade, *supra* note 160.

¹⁹⁶ *Golf Makes Pan Am Games Debut*, *supra* note 178.

¹⁹⁷ See Wade, *supra* note 160 ("The sure winner is probably the developer Mauro, who is building the course with private money. It follows the pattern of other Olympic projects in Rio, where large real estate investments have moved in. Another is the nearby Athletes Village—3,600 high-end apartment units—that will be sold off after the games."); see also Watts, *supra* note 56 ("Without a doubt, the Olympics are a giant real estate scam.").

¹⁹⁸ Watts, *supra* note 56, Phillips, *In Brazil*, *supra* note 92.

¹⁹⁹ Watts, *supra* note 56, Phillips, *In Brazil*, *supra* note 92.

any other country.²⁰⁰ In early January 2015, a group of Rio Municipal Guards ransacked Occupy Golf's camp and one protestor "was forced into a police car where he was repeatedly hit in the face with a baton by a female guard, who broke his tooth."²⁰¹ In another incident, a Municipal Guard officer was filmed on video punching a handcuffed Occupy Golf demonstrator.²⁰² That video, which was uploaded and shared via social media, has heightened awareness of some of the abuse that these environmentalists have suffered at the hands of Rio authorities.²⁰³

Since the video's release, the Municipal Guard has instead utilized a more tactful approach to quash the attention that Occupy Golf is receiving: they have turned off the streetlights illuminating the Occupy Golf camp at night so that "it is completely dark" and several guards will get out of their cars and surround the camp.²⁰⁴ As one environmentalist noted, "[t]hey're trying to intimidate us."²⁰⁵ However, for some environmentalists, the fight for ecological preservation of one of the last remaining Marapendi restinga areas is not one they will give up lightly. As environmentalist Marcello Melo stated, "[i]t is dangerous to campaign for the environment in Brazil. But I love nature and somebody has to do this job. If I die for [Occupy Golf's] cause, it will be worth it."²⁰⁶

V. THE "PARTY" IS OVER: WHAT NOW?

After August 21, 2016, the Olympic "party" will come to an end and the city will enter its "clean up" phase. In light of the contro-

²⁰⁰ Watts, *supra* note 56; see also Michael E. Miller, *Why are Brazil's Environmentalists Being Murdered?*, WASHINGTON POST (Aug. 27, 2015), <https://www.washingtonpost.com/news/morning-mix/wp/2015/08/27/why-are-brazils-environmentalists-being-murdered/> (Within the past 25 years, over 1,500 Brazilians who have fought deforestation have been killed. 448 environmentalists were killed in Brazil between 2002 and 2013, which equates to "half of all of the environmentalists murdered worldwide during that period.") (emphasis added).

²⁰¹ Phillips, *In Brazil*, *supra* note 92.

²⁰² Douglas, *supra* note 74.

²⁰³ *Id.*

²⁰⁴ *Id.*

²⁰⁵ *Id.*

²⁰⁶ Watts, *supra* note 56.

versy surrounding the Olympic course's construction and the pollution accumulating in Guanabara Bay, Rio can benefit from time out of the spotlight and remove the blinders from its focus on Olympic preparations. This is when the city can implement environmental initiatives that may have taken a backseat to the Games.

While Rio cannot un-ring that bell (or reverse that bulldozer) with respect to the Olympic course's construction, many sustainable environmental opportunities exist with regard to the course's current and future management. "Golf courses have long suffered from a reputation of being harmful to the environment."²⁰⁷ However, golf course construction and environmental preservation are not necessarily mutually exclusive concepts;²⁰⁸ the construction of the Olympic course does not deprive the Marapendi restinga of its total ecological value, nor does it foreclose Rio from endorsing the biodiversity level that still exists within this now developed parcel (although it is arguably lower than if the course had never been constructed initially).

The Audobon Cooperative Sanctuary Program for Golf Courses (ACSP) is "an award winning education and certification program that helps golf courses protect our environment and preserve the natural heritage of the game of golf."²⁰⁹ The ACSP aims to guide "golf courses in their efforts to blend environmentally responsible maintenance practices into day-to-day course operations."²¹⁰ While many of the ACSP's objectives are tailored towards initial course development, the ACSP program is also applicable to already existing

²⁰⁷ *Golf and the Environment*, *supra* note 69; *see also* Carroll, *supra* note 134, at 224. ("When it comes to the environment, golf courses create a toxic playground.").

²⁰⁸ *See Golf and the Environment*, *supra* note 69.

²⁰⁹ Audobon International, <https://www.auduboninternational.org/acspgolf> (last visited Jan. 21, 2016); *see also* Dornak, *supra* note 89, at 308 (The six categories in which golf courses can work to obtain certification are (1) environmental planning, (2) public/member involvement, (3) wildlife and habitat management, (4) integrated pest management, (5) water conservation, and (6) water quality management.).

²¹⁰ *Environmental Management Practices for Golf Courses*, Audobon International, <https://www.auduboninternational.org/Resources/Documents/Environmental%20Management%20Guidelines%20for%20Golf.pdf> (last visited Jan. 21, 2016).

golf courses, like the Olympic course, that should seek to enact ascertainable environmental standards.²¹¹ Even though the Olympic course is already constructed, it should be managed in compliance with ongoing biodiversity protection, habitat management, water conservation, chemical use, and outreach and education checkpoints.²¹²

If Rio strives to make this course about “legacy,” this is an optimal opportunity. The Olympic course would be the first course in Brazil to be registered under this program with the potential of earning sustainable accreditation.²¹³ While most participants are affiliated with American golf courses, the ACSP is gaining popularity among international golf courses: Australia, Canada, China, the United Kingdom, Spain, Germany, Costa Rica, and South Africa all contain courses that have achieved success under the ACSP.²¹⁴ Moreover, enrolling in this program may help restore faith in some of the citizens and environmentalists who speculated that this construction was more about big-time Olympic economic and real estate goals at the expense of the environment.²¹⁵ While “that ship has sailed,” the course is here to stay—the city should at least strive to protect the remaining biodiversity in the area.

²¹¹ *Id.*

²¹² *Id.*

²¹³ *Recognized Properties*, Audobon International, <https://www.auduboninternational.org/Resources/Documents/Recognized%20Properties%20list.pdf> (last visited Jan. 22, 2016).

²¹⁴ *Id.*; see also Crawford & Pignataro, *supra* note 38, at 6 (“Because of its geographic reach and the considerable biological resources contained within its extensive national borders, Brazil has, in recent years, become the international poster child for the pressing need for biodiversity protection.”).

²¹⁵ See Douglas, *supra* note 74.