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Environmental
Consciousness in the
Olympics

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College

Environmental Consciousness in the Olympics

Thousands of years ago when the last Ice Age came to an end, warm Gulf Stream waters cut through glaciers in the Arctic Circle and brought them crashing into the icy sea. As the glaciers disappeared, land rose to the surface. This solid land became Norway. Magnificent fjords created by glacial erosion that carve through towering rocky mountains characterize this land that lies mostly above the Arctic Circle. The colorful Northern Lights dance across the sky in the winter and in the summer the sun never sets, making Norway the Land of the Midnight sun. This place was once home to the legendary Vikings who mastered the harsh Norwegian terrain and expertly navigated the fjords with their distinctive longboats. They so fiercely explored and conquered other lands for hundreds of years, trading their artful crafts and telling stories of Norse mythology. The legend of Odin and Asgard served as the dominant religion until Christianity came into popularity around the year 1000. Today Norway embraces and proudly displays its rich past.

Given its Arctic climate that rarely reaches temperatures above 40 degrees Fahrenheit, Norway is a haven for winter sports. The origins of skiing as a sport are rooted here thanks to the widespread use of skis as a means of transportation. Twice this Arctic nation hosted the Olympic Winter Games. In 1952 Oslo served as the host city. Then in 1994 the Olympics went to Lillehammer – the single town worldwide with a skier on its coat of arms. The modern Olympic movement began in 1896 under the direction of Frenchman Pierre de Coubertin when, for the first time since 393 A.D., the Olympics returned to their ancient homeland in Greece. Originally the Olympic Games involved only the Summer Olympics every four years. Beginning in 1924 the Winter Olympics took place in the same year as the Summer Olympics. Then in 1994, for the Lillehammer games, the Winter Olympics moved to two years after their summer counterparts.ⁱ

The tiny town of Lillehammer, located in the heart of Norway at the north shore of Lake Mjøsa, hosted over two-thousand athletes from all over the world for sixteen days of competition in February 1994. The Lillehammer games differed from previous Olympics in one major way. The 1994 games focused on something no other games had: the environment. Dubbed the “Green Games,” these Olympics proved how this global sporting event could exist hand-in-hand with the environment. During the opening ceremony Thor Heyerdahl, famous Norwegian explorer, scientist, and environmentalist, told the crowd gathered at the ski jump arena that Norway hoped to see outstanding athletic achievements and a superb atmosphere of sportsmanship shown by the diverse athletes in an attempt to put aside political and religious differences “and thus help to build and protect a better planet Earth.” After the Parade of Nations, the president of the Lillehammer Olympic Organizing Committee, Gerhard Heiberg, spoke and said, “We have planned these games in three dimensions. The sports event will of course be the main activity, but we emphasize also very strongly the cultural dimension. What we have introduced as new is the environmental aspect. I hope you will see and feel the results of our efforts in this connection.” Lillehammer emphasized Norway’s ties to the land and made an effort to set an example for all Olympic Games to follow. In relation to the Olympics, environmental consciousness means being aware of the natural environment in which the games are held and taking steps to ensure as little damage as possible is done to the earth. The question that remains is: What impact did the 1994 Lillehammer Winter Olympic “Green” Games have on environmental consciousness at subsequent Olympics?ⁱⁱ

The bidding process for the 1994 Olympics began for Lillehammer in 1981. Norwegian Olympic Committee (NOC) Director Arne B. Mollén believed Lillehammer to be the only Nordic city with a chance of hosting the Winter Olympics, so the NOC prepared to make a bid.

During the process environmentalists in Lillehammer opposed the bid. They realized how much damage the Olympics caused to the environment and sought to prevent that damage from being inflicted upon their beloved city. After a seven year process, Norwegian Prime Minister Gro Harlem Brundtland presented Lillehammer's bid for the 1994 Winter Olympics to the International Olympic Committee (IOC) one last time at the September 15, 1988 session in conjunction with the summer games happening in Seoul, South Korea. Brundtland served as chairperson on the United Nations (UN) commission for the environment the year before she spoke to the IOC. The first official mention of environmental concerns in relation to the Olympics came in her Seoul speech. She called for "a new global ethic founded on responsibilities to nature and future generations." Later that same day, the IOC awarded Lillehammer with hosting privileges of the 1994 Winter Olympics.ⁱⁱⁱ

Once Lillehammer secured the 1994 Olympics, the Lillehammer Olympic Organizing Committee (LOOC) got to work putting the plan into place and preparing the city for a global sporting event. Environmental concerns had a place in every version of the Olympic Charter – the document that governs each Olympic Games and is updated as necessary – since June 1991, but the IOC never fulfilled its role to ensure "that the Olympic Games are held in conditions which demonstrate a responsible concern for environmental issues." The LOOC did not concern itself with environmental issues either until outside actors brought it to the forefront. Grassroots activists first called attention to the environmental issues. When the Lillehammer branch of the Norwegian Environmental Organization failed to stop the Olympics from occurring, they turned their efforts toward imposing a positive environmental profile on the games. This Project Environment-Friendly Olympics protected most of the local and regional environment. The Norwegian Ministry of the Environment believed the Olympics could showcase environmental

politics and prove that Norway upheld the plan set forth by the UN report entitled Our Common Future. This report, released during Brundtland's time as chairperson of the UN commission for the environment, advocated for the need for sustainable development and set forth a plan for this development alongside the environment in Third World countries. On a larger scale, environmentalists possessed the ability to oppose the IOC with threats that the Olympics posed a danger to sustainable development. To prevent criticism from the public and increase their credibility, the IOC created a partnership with a trustworthy non-official environmental organization. The LOOC followed the IOC's lead and the media awarded the LOOC's environmental consciousness with positive framing. Despite this seemingly sincere commitment to the environment, the IOC did not make any official changes in its policy. John Helge Lesjo, sociology professor at Lillehammer College and Research Fellow at Eastern Norway Research Institute, claims that the IOC used environmentalism as a marketing ploy, one that did not satisfy the radical environmentalists and ecologists concerned about Lillehammer. Likewise, environmental concerns in Lillehammer did not arise until after the most crucial decisions regarding the local setting had been decided. The later accomplishments regarding the environment held more of a symbolic value than anything, Lesjo claims. Despite how the original intent of environmental consciousness at Lillehammer seemed to be for positive portrayal in the media, the IOC nonetheless now had to take environmental concerns seriously. The IOC wanted to be seen as environmentally conscious as a result of these Olympics. Lillehammer 1994 became known as the "Green Games" and Lesjo raised the question of whether or not the IOC could maintain long-term credibility with its "green" strategy in Lillehammer.^{iv}

Despite Lesjo's skeptical view, the small Norwegian town took many tangible steps to "green" the games. Various newspapers across the world reported on Lillehammer's progress in preparing for the Olympics, most of them sharing the same information on efforts the host city took. As the news stories say, the contractors and builders the LOOC hired to create the bobsled and luge track faced a \$7,000 fine for each tree they damaged. To avoid fines they took extra effort to design a track route that best fit with the contours of nature. The Project Environment-Friendly Olympics group oversaw the reclamation of topsoil at the ski jump and cross-country biathlon venues. This group also encouraged Coca-Cola to make its cups more biodegradable by reducing the plastic content. The various venues used plates and eating utensils made of potato and corn starch. These products could be ground into animal fodder or even eaten by spectators, although the manager of the Project Environment-Friendly Olympics, Olav Myrholt, admitted the plates tasted like Styrofoam. Several tons of garbage from the arenas decomposed into earth within three weeks. Advertisements, posters, and signs came from recycled cardboard and returned to recycled cardboard once more after the games. The entrance to the Hamar Olympic Hall skating arena moved 91 meters and rotated 90 degrees in order to prevent the 210 migratory bird species at the nearby sanctuary from being disturbed by the lights and noise of the arena. The LOOC created some of the Olympic housing to be temporary so that it could later be used as short-term refugee shelters. These newspaper stories sounded impressed by Lillehammer's accomplishments before and during the Winter Olympics.^v

The news stories also offered commentary, which can be used to gauge international perception of the 1994 Lillehammer's efforts. One article published by *The Gazette*, a newspaper in Montreal, Quebec, pointed out Norway's longstanding reputation for environmental enthusiasm and said the nation did all it could to minimize the harm that comes with hosting the

modern Olympics. However, all this came after intense pushes from environmental organizations caused Olympic authorities to decide “if you can't beat ‘em, join ‘em.” Even a month before the opening of the games, evidence of Norway’s success in setting an Olympic environmental movement into motion became tangible. The IOC decided to add environmental responsibility to the original two foundations of the Olympics: sport and culture. A spokesman for the LOOC expressed her belief in the ability of the Olympics to broadcast powerful messages – such as environmental consciousness – on an international level.^{vi}

Another article ran in the *Boston Globe* on February 11, the day before the Opening Ceremony of the Lillehammer Olympic Winter Games. It called Norwegians “proud people, but practical” and cited this as a reason for such careful planning of the venues. Building two ice hockey rinks in a nation that never saw success in that sport and destroying a primeval forest for bobsled and luge tracks made no sense to the LOOC, so Lillehammer sought to host games without ruining the landscape or bankrupting the nation. The organizers of the games wanted to leave a positive legacy for their grandchildren, not a mess to clean up. According to the article, “They succeeded utterly.”^{vii}

The *Austin American Statesman* published an article on February 12 – the day of the Lillehammer Opening Ceremony. He claimed Norway attempting to host the most environmentally friendly Olympics in history made perfect sense. Even before Lillehammer won the bid to host the games, the nation worried about foreign forces ruining their environment. Previous pollution from Russia’s Kola Peninsula caused acid rain that damaged Norway’s lakes and trees. The Chernobyl accident dumped enough cesium over Norway that the reindeer remained radioactive for years. The article contained a statement from Kare Olerud, member of the Norwegian Society for the Conservation of Nature. Olerud pointed out that no Olympics can

ever be good for the environment simply because of their massive scope, but since environmental groups failed to prevent the event from coming to the nation, they decided to cooperate with the LOOC in order to limit the damage. The LOOC promised these groups that the environment, sport, and culture had equal priority.^{viii}

In addition to outside sources reporting on the success of environmental endeavors at the Olympics, the LOOC published the *Official Report of the XVII Olympics Winter Games* in the year following the hosting of the games. This publication covered every aspect of the games, including the environmental challenge. The LOOC admitted that they originally had no intention of planning “environmental Games,” not even as a marketing strategy. Environmental concern became only one of several criteria for the success of the entire organization. They decided creating a credible environmental profile through planning documents and project descriptions did them no real good, so they became the first Olympic Organizing Committee to create concrete environmental goals. Lillehammer understood the far-reaching influence sports and the IOC have on the world and took the opportunity to use the Olympics to give environmental concern international significance. The following goals came into existence during the planning process in 1990:

- To create environmental awareness.
- To take regional considerations into account.
- To create sustainable development and business growth.
- To take environmental considerations into account in the construction of arenas.
- To uphold environmental standards at all stages of the event.

In order to achieve these goals the LOOC’s Board of Directors stayed regularly informed on environmental efforts, and each branch of the organization had one employee responsible for environmental issues. These employees made up an internal environmental committee. Scientists and other professionals from Norway’s environmental division made up external committees.

For years Lillehammer prepared for all eyes to be attuned to the sixteen days of the Olympics. Out of 2,000 international journalists who visited Lillehammer the year before the games, eight out of ten of them had their main interest in the environment. During the Olympics the environment became one of the most popular topics for the international press. Lillehammer's environmentally friendly efforts received almost entirely positive reviews. Throughout all of the planning and during the event, the LOOC wanted their environmental work to be expanded upon by the IOC and future Olympic organizers.^{ix}

The 1994 Lillehammer Olympic Winter Games certainly left a legacy of environmental consciousness. At the end of the Closing Ceremony of the Lillehammer Olympics, an Olympic-sanctioned International Environmental Expedition set off to carry a message to the next host city of the Winter Olympic Games. This six-person expedition used only natural power to take them from Lillehammer to Nagano, Japan. They went 2,300 miles through northern Norway, Sweden, Finland, and toward the Siberian coast. After spending the short summer on the Kola Peninsula, they went 5,000 more miles along the Russian tundra's northern rim. One sail-powered vessel took the expedition across the White Sea and another took them to Alaska and on to Japan. The crew carried much more than a symbolic message: they gathered samples of snow and ice to test for air-deposited contaminants; they tested new clothing, supplies, and nutrition in the extreme low temperatures; and they regularly took tests to gather data on how extreme cold affects physical and mental changes. Leader of the expedition, Geir Randby of Norway, hoped to shine new light on Russian industry's part in environmental degradation in some of the most remote areas of the world. The expedition intended to arrive in Japan about a year and a half after it left Lillehammer, bearing their symbolic environmental message to hand over to the Nagano Olympics organizers.^x

Lillehammer's influence reached far more than the following Winter Olympics. After Lillehammer the IOC officially made the environment the third pillar of Olympism, adding to Pierre de Coubertin's founding ideals of sport and culture. In the same year the Olympic Congress in Paris created a permanent Sport and Environment Commission. The organization of bi-annual conferences on sport and environment came with an agreement signed between the IOC and the United Nations Environment Program (UNEP). At the first of these conferences in 1995, UNEP and the Norwegian Minister for the Environment endorsed a brochure emphasizing the outcomes of the Lillehammer Olympics. UNEP continues to this day to be involved in Olympic environmental affairs. It only took a few years for the IOC to completely integrate environmental consciousness into its philosophy. Jean-Loup Chappelet, professor of public management at the Swiss Graduate School of Public Administration, argued that environmental consciousness became so prominent in the winter games that it is today applied also to the summer games. Because of its eventual wide reach, environmental protection became a lasting legacy of the Winter Olympic Games. Chappelet also agrees that the concept of "green" games originated at the 1994 Lillehammer Olympics. After Lillehammer, concern for the environment became part of the knowledge bank that passed down from one Olympiad to the next until it completely assimilated itself into Olympic tradition. The 1994 Lillehammer "Green Games" began an environmental movement that reinvented the foundation of an international sport organization and crossed political borders.^{xi}

In 1992 at the UN Conference on Environment and Development in Rio de Janeiro most nations of the world agreed to pursue economic development in a manner protective of the environment and non-renewable resources. This agreement became known as Agenda 21. The UN encouraged all local, regional, and international governmental and non-governmental

organizations to create their own Agenda 21 and the IOC acquiesced. In June 1999 at the Olympic session in Seoul the IOC adopted its own Agenda 21 and in October of the same year at the Third World Conference on Sport and the Environment in Rio de Janeiro the entire Olympic Movement endorsed this Agenda 21. The IOC published this document and Klaus Töpfer, Executive Director of UNEP at the time, wrote a foreword. He said that in order for athletes to train and compete at their peak level, they need a healthy environment. Because of this, governments, sports organizations, and athletes all share a common interest in air and water quality, food and nutrition standards, access to healthy food, and sufficient green areas and sport and recreation facilities. Töpfer believed the Olympic Movement succeeds in intertwining sport into all nations' social fabric. Sport transcends borders, he claims, just as the environment knows no boundaries. The first section of Agenda 21 defines one of its general principles:

The starting point of sustainable development is the idea that the long-term preservation of our environment, our habitat as well as its biodiversity and natural resources and the environment will only be possible if combined simultaneously with economic, social and political development particularly geared to the benefit of the poorest members of society. It finds expression in the integrated concept of environment and development.

The IOC believes its universality places upon it an extra responsibility to put into action this idea of sustainable development, so the main objective of Agenda 21 is to encourage all members of the Olympic Movement to participate in sustainably developing the world. Agenda 21 also outlines basic adaptable models necessary to meet this objective. Conservation and management of resources for sustainable development is one of three objectives for the program of action. Environmental concerns regarding the Olympics now focus on the preservation and management of resources and the environment as they relate to the advancement of socio-economic conditions. All that Agenda 21 sought to accomplish came as a result of the adoption of the environment as the third pillar of Olympism after the Lillehammer Winter Olympic Games

turned the focus to tangible environmental protection efforts. Lillehammer brought attention to what became a core part of the Olympic Movement.^{xii}

With a new emphasis on environmental consciousness the IOC made this a key part of their choice in host cities. In 2000 the IOC Evaluation Commission began assessing the five bids for the 2008 Summer Olympic Games: Osaka, Paris, Toronto, Istanbul, and Beijing. This specific Olympiad has more significance than any other after Lillehammer because of the widely acknowledged pollution problem Beijing suffers from. Juan Antonio Samaranch, in his final year as IOC president, wanted to see the games go to China, the most populous nation in the world. Seemingly inspired by Samaranch, the Commission believed Beijing might bring a distinctive legacy to China and sport. The Evaluation Commission compiled a report of the five cities in the running after making a visit to each. The report evaluated eighteen themes, one of them environmental protection. According to what the Committee learned on its visit to the city, Beijing had a Sustainable Development Plan involving twenty core projects meant to span from 1998 to 2007 priced at US\$ 12.2 billion. This plan also included anti-pollution steps to be taken such as the elimination or modification of factories, change from coal to gas power in businesses, and the extensive planting of trees. The Beijing bid committee also planned to allocate US\$ 18 million for specific Olympic environmental concerns and planned a widespread environmental education program. The Commission pointed out that many of the city's plans did not directly pertain to the Olympics, but acknowledged that hosting the games might serve as a catalyst for the timing of environmental efforts. Seemingly regardless of the Olympics, the Beijing Municipal Government sought to reduce pollution, increase protected areas, and improve treatment of sewage. The Commission explicitly pointed out the city's prominent air pollution problem, but confidently believed that with substantial work and financial commitment the bid

committee's ambitious plans to improve environmental conditions could be achieved. The Beijing bid committee believed its plans for the environment could leave "the greatest Olympic Games environmental legacy ever." The IOC Evaluation Commission certainly did not refute this. In the concluding remarks of the report, the Commission felt that any issues about Beijing's bid could be resolved by appropriate government actions and nothing about the bid posed a significant risk. Members of the Commission universally thought Beijing had the potential to host outstanding Olympic Games in 2008. This report portrayed Beijing in almost an entirely positive light. The small critiques necessitated only minor fixes. Beijing moved on to the next round of evaluation.^{xiii}

The Beijing Organizing Committee published an official report, just as the Lillehammer Olympic Organizing Committee did. From 2006 to 2007 officials assembled and translated volume one and published the first edition in May 2009 (followed by the English edition in October 2009). Volume one of the report, entitled "Bid Documents and Analysis: Passion behind the Bid," details the bid process. Three concepts drove this bid: Green Olympics, High-tech Olympics, and People's Olympics. The focus here will of course be the Green Olympics. This concept stemmed from China's ancient philosophy that acknowledged a link between human life and environmental sustainability. It went hand-in-hand with both the Olympic Movement's new direction and Beijing's modernizing attempt to increase protection on its environment. In order to accomplish the environmental goals, emphasis rested on making environmental protection a precondition in creating Olympic infrastructure and developing stringent standards to ensure enforcement. Making citizens aware of environmental concerns and encouraging them to participate in bettering the city's habitat also became part of the plan. The report goes into more detail on the twenty projects previously mentioned in the Evaluation Commission report: meet

the national standard for urban air quality by 2008; meet the World Health Organization's standards on drinking water quality; harmlessly dispose of ninety-eight percent of household waste; increase forest coverage to fifty-one percent; use water and energy saving methods and environmentally-friendly designs and materials in Olympic venues; and turn Beijing into a blue sky, clean water garden city. The Beijing bid committee also created a Green Olympics Action Plan for their Candidature File. This included:

- By 2007, Beijing would pump US\$ 12.2 billion into 20 major projects to improve its environment.
- By 2005, three "green ecological screens" were to take shape: forests covering 70 per cent of the mountain areas, some 23,000 hectares of trees and grasslands along the banks of the five rivers and the sides of the ten highways, and 12,000 hectares of green corridors in Beijing's urban areas.
- By 2008, 98 per cent of the city's solid wastes would be harmlessly treated.
- By 2008, more than 90 per cent of the city's sewage water would be treated and 40 to 50 per cent of it reused.
- By 2008, 90 per cent of the buses and 70 per cent of the taxis in Beijing would be powered by clean fuels.
- By 2008, 80 to 90 per cent of the street lamps around the Olympic venues would be solar-powered.
- By 2008, all major polluting factories would be removed from the urban areas.

Out of all these goals and plans Beijing knew it had the most significant problem with air pollution, but called it a "minor deficiency," citing the government's commitment to remedy the issue with its ambitious environmental policy. Many of Beijing's environmental plans went along with their general goals to be achieved by 2010, regardless of whether or not they were chosen as the 2008 Olympic host city. If chosen to host the games, the Municipal Government promised to speed up environmental protection plans in order to be prepared for the influx of the predicted half a million people bound to come along with the Olympics. Beijing set forth this ambitious plan in the hopes of winning over the IOC. Their plans proved to be acceptable and in 2001 the IOC awarded Beijing as the host city of the 2008 Summer Olympic Games.^{xiv}

After hearing of Beijing's winning bid, athletes and spectators across the world voiced skepticism of the quality of Beijing's environment. Athletes especially worried they might not perform their best while breathing the polluted air. Beijing's problems became the focus of much media attention. An article in *The Washington Post* ran in March 2007, a year and a half before the opening of the games on August 8, 2008. This article expressed uncertainty about Beijing's ability to follow through on its promises to clean up the environment, despite its best efforts. It reported that Beijing had trouble reversing the extensive environmental damage done fifty years previous when Mao Zedong – then-leader of the Communist Party of China – cleared trees to create space for steel plants and rerouted rivers to provide irrigation. Beijing certainly made progress in its cleanup efforts. Air pollution decreased in the early years of work. Ozone and other pollutant levels lined up with international averages. Soil was taken from the mountains to grow trees and greenery other places. Beijing planted walls of trees around the city to make the city more aesthetically pleasing and to push back against the desert that resulted from years of overgrazing and deforestation. After redirecting the river in a nearby province, it provided extra clean water to Beijing's supply. Nearly 200 industrial factories moved piece by piece away from the city. Almost 700 mines shut down. 34,000 high-emission buses and taxis retired. Even with all these measures taken, environmental experts felt mixed. At the time of this article, soot levels in the air failed to reach acceptable levels for the previous two years. Sun Shan, director of Conservation International in China, said that moving industrial factories away from Beijing did nothing to solve the much broader problems of China's environmental crisis. The IOC continually seemed to be impressed by Beijing's progress, except for urging the city to do more about air quality each time a member of the IOC visited to check on progress. Fu Lixing, director of the Air Pollution Research Institute at Tsinghua University and advisor to the Beijing

government, believed time ran out and said, “I don't think it's realistic for Beijing to meet international standards of air pollution. But people should know the whole city is supporting and trying their best.” Over a year before the Beijing Olympics the world looked at the city with skepticism, wondering if conditions could possibly improve enough to satisfy the IOC.^{xv}

The games drew closer and reports changed. Three weeks before the Opening Ceremony, *McClatchy – Tribune News Service*, published in Washington state, ran an article entitled “Beijing residents breathing easier ahead of Olympic Games.” The article described how the Beijing Coking and Chemical Plant shut down. Families living near the plant reported being able to hang their laundry outside without the fabrics turning black; gray pollution no longer covered up the green of the trees. One resident said the air before the closing of the plant choked anyone who breathed it. Residents thanked the Beijing Olympic Games for the clearer air. As the most polluted city to ever host the games, Beijing had numerous obstacles to overcome. As of one year before the games, particulates in the air still held at 200 percent above World Health Organization standards. In efforts to overcome the obstacles and clean the air for athletes as well as residents, the government moved about 200 state-owned businesses to another province in 2006 and forced the temporary closing of nineteen more in the weeks leading up to and during the games. Large construction sites also shut down in an attempt to keep more dust particulates from entering the air. Beijing even created a policy to limit the use of personal cars to every other day and reduced the 300,000 government vehicles on the road by seventy percent from July 20 to September 20. Considering all these actions, the environmental NGO Greenpeace felt China stayed on track to fulfill its Green Olympics goal. Greenpeace’s campaign director in Beijing, Lo Szeping, thought the media overlooked many of the city’s efforts, including:

- Changing Beijing's fleet of 3,795 buses to run on cleaner natural gas.
- Investing in public transportation by doubling the number of subway lines.

- Imposing stricter auto-emission standards.
- Converting 16,000 coal boilers to cleaner fuels.
- Developing alternative power sources such as wind energy.

Lo agreed these and other measures still fell short of where Beijing needed to be, but he wanted to be sure no one ignored the immense efforts the government took to better the air. Still, in March, eight months before the start of the games, the article said the IOC admitted that there could be risks for athletes competing in endurance events, especially those that consisted of non-stop physical effort for more than an hour. Competitions especially susceptible included marathon running, road cycling, triathlons, and race walking. Haile Gebrselassie, an Ethiopian marathon runner who held the world record at the time of the Beijing Olympics, decided not to compete in the Beijing marathon because of the poor air quality. His asthma contributed to his decision run only the 10,000 meters race. David Martin, USA Track and Field's advising exercise physiologist, believed those with asthma had the highest chance of being most affected by the particulate pollution. According to Martin, one in four athletes has asthma. Based on this article, Beijing's environment – especially the air – improved at least up to three weeks before the games began. Some still worried, but it looked as if the games could be a success.^{xvi}

The day of the Opening Ceremony, August 8, 2008, the *Xinhua News Agency*, a major state-run newspaper in China, published an article saying the air quality remained at a standard level on opening day. Du Shaozhong, deputy director of the Beijing Municipal Environmental Protection Bureau, assured a gathered crowd of journalists that air quality met the guideline safety levels. Chief medical official Arne Ljungqvist of the IOC also felt confident that air quality posed no threats to athletes or visitors in Beijing. Another article published on the same day in a St. Louis, Missouri newspaper disagreed. It told of a “wall of gray haze around the National Stadium and across the city” that restricted visibility to a mile. That haze proved to be a

concrete example of how difficult it was for Beijing to create clear skies. The article also cited the weather as a contributing factor to day-to-day pollution levels. On the eve of the Opening Ceremony, the air pollution index reached ninety-six on a scale where any number over 100 caused harm to groups such as the young and elderly. In mid-July of 2008 the Associated Press began collecting data on the worst pollutant in the city: small dust particles called particulate matter 10 (PM10). The AP data showed major increases and decreases, but concentrations of PM10 often remained above the World Health Organization's healthy levels. Despite the different claims of these two news articles, people around the world still felt unsure of the extent of Beijing's efforts, but acknowledged that pollution levels decreased from the beginning of the cleanup. Not everyone believed Beijing did enough, but it seems the city certainly put much effort into cleaning its environment.^{xvii}

The United Nations Environment Programme took much interest in Beijing during the planning stages, during the Olympics, and after the sixteen days of competition ended. The link between UNEP and the Beijing Organizing Committee of the Olympic Games (BOCOG) began with a Memorandum of Understanding signed in 2005. Part of this agreement involved UNEP publishing a review in October 2007 about the projects Beijing undertook to achieve its goal of hosting Green Games. Researchers conducted the study between February and July 2007 and used data gathered between March and May 2007. UNEP published the resulting report, *Beijing 2008 Olympic Games: An Environmental Review*, in October 2007. This review recounted Beijing's efforts since 2003 and concluded that Beijing stayed on track to fulfill its promised goals. Then in 2009 UNEP published another report: *Independent Environmental Assessment: Beijing 2008 Olympic Games*. This served as the follow-up to the 2007 review and contained updated information presented in an identical format. The 2009 assessment showed the actual

results of all the projects occurring before and after 2007. UNEP experts consulted non-governmental organizations (NGOs), the Beijing Municipal Government, the Beijing Environment Protection Bureau, and the BOCOG. In his foreword to the 2009 assessment UNEP Executive Director Achim Steiner stated that Beijing upheld and even exceeded many of the promises it made in the early stages of bidding process. Steiner believed Beijing left “a lasting environmental legacy.” He also expressed hope that the IOC and future organizers of the games might use the information in the Beijing assessment to set their goals even higher.^{xviii}

The assessment first focused on the greatest concern about Beijing from the initial decision to bid: air quality. Beijing used the Standard Ambient Air Quality Standards, involving limits on Sulphur dioxide (SO₂), Carbon Monoxide (CO), Particulate Matter with a diameter of 10 microns or less (PM₁₀), and nitrogen dioxide (NO₂). An air pollution index (API) also measured air quality day-to-day. A higher API meant worse pollution and more health risks. Days with an API of 100 or less became known as “Blue Sky Days.” During the Olympic Games PM₁₀ dominated the API. Those minute particulates came from vehicles, factories, construction sites, loose soil, wild fires, and waste burning. The assessment included a chart from the Beijing Environmental Protection Bureau on “Network-Average Annual Mean Concentration of the Main Pollutants in Beijing, 2000-2008.” This chart showed that in eight years the levels of CO, SO₂, and NO₂ decreased to levels below the air quality standard in 2008. From year to year levels of PM₁₀ increased or decreased in no particular pattern, and it remained considerably above the standard level. The trends in CO and SO₂ show that Beijing’s efforts to restructure the energy industry and move away from coal helped increase air quality. Changes in CO and NO₂ levels showed the positive results of transportation measures, especially considering the level of pollutants declined alongside the growing number of vehicles on the road. While the PM₁₀

number stayed well above the standard for years before the games, data provided by the Beijing Environmental Protection Bureau showed that PM10 levels did fall within the required limitations during the Olympic Games from August 8 to 24. One uncontrollable factor came into play during the games: weather. In addition to controllable methods, the weather directly affected pollution levels on any given day. Beijing experienced above average rainfall during the Olympics, which helped to remove particulates and gases like SO₂ from the air, efficiently lowering pollution levels. Adding advantageous weather conditions to pollution reducing measures allowed Beijing to enjoy higher air quality for at least the sixteen days of the games. The ambitious efforts put into cleaning the air raised public awareness and, as the assessment states, caused citizens to push for a continuation of Olympic air quality after the games ended. The UNEP assessment showed that Beijing did succeed in improving air quality, even if it sometimes still reached above the standard limits. Between the long-term and temporary measures taken – and the unexpected help of the weather – the city enjoyed cleaner air at least until the time of the 2009 assessment.^{xix}

The UNEP *Independent Environmental Assessment* also looked closely at energy use in Beijing. Another chief goal of BOCOG concerned the use of coal – a major source of the city's pollution. Much of the city depended on coal up until the preparations for the Olympics. These preparations involved two plans to reduce coal emissions: converting small-scale plants to clean energy and renovating large-scale plants entirely. Many private establishments also had to convert their coal stoves to electricity. Between 2003 and 2006 over 6,000 restaurants and 11,000 households made the switch from coal to electric. Then another 90,000 households converted by 2008. According to a chart from a Beijing Energy Department Development Report, renewable energy replaced 892,000 tons of standard coal in 2006. Over sixty percent of

this energy came from solar power while the remainder came from geothermal energy, biomass, and hydro-electric power. The UNEP assessment thanked the Olympics for Beijing's sudden increased use of efficient energy technology. The new energy efficient venues served as an example for future Olympic organizers. The positive assessment of Beijing's energy sector ended there. The city still heavily depended on coal and, aside from 2006, total use actually increased. At the time of the assessment coal accounted for forty percent of the city's total energy consumption, a number that posed threats such as local air pollution and the release of toxic substances like mercury. UNEP proposed an increase of renewable energy; the promotion of higher energy efficiency in industry; low-carbon emission plans; incentives to low-carbon emitting industries; and increased public awareness. The energy problem directly affected the air quality problem. Decreasing the use of coal decreased the amount of air pollution. With the Olympics as a catalyst, Beijing took acceptable measures to initially reduce the impact of coal. While those measures did not seem to stick for the long-term, the city acknowledged and made an effort to uphold the environmental consciousness that comes with hosting the Olympic Games.^{xx}

Beijing's bid for the 2008 Olympics included goals for green coverage and protected areas. The projects involved with these goals meant to leave long-term impacts on quality of life and the aesthetics of the city. Projects focused on creating three ecological belts: mountains, plains, and urban areas. In urban areas extensive tree planting and landscaping took place. The central area incorporated green belts into landscaping. Planting happened in 700 old residential neighborhoods and on one million square meters of rooftops all across the city. Thirty-six percent of Beijing's urban districts had green coverage in 2000. The Olympic bid set the goal at forty percent and by the end of 2008 forty-three percent had green coverage. Mountains made up

sixty-two percent of Beijing's area. The city focused on increasing the area covered by forests and saw the percentage rise from fifty-seven percent in 2000 to seventy percent in 2008. The plains of Beijing included suburban areas, five rivers, and ten main roads. The project for this area involved creating green belts along the rivers and roads. In 2007 the total area of the green belts reached over 25,000 hectares. The planting of trees in the plains areas helped reduce soil erosion and sandstorms. Sandstorms afflicted Beijing more and more frequently as deforestation and overgrazing damaged the soil, but the greening plans sought to remedy that problem. In 2008 the total green area of urban, mountain, and plain regions equaled fifty-one percent. Planners and citizens alike felt that the greening of the city enhanced their quality of life. Like energy consumption, some problems remained after the Olympics ended. Greenpeace acknowledged Beijing's immense reforestation efforts, but warned that those actions "cannot be substituted for policies that conserve ancient forests and complex ecological systems." Future efforts of this nature, according to Greenpeace, needed to be rooted in more than one-time efforts; major policy changes must occur to ensure future environmental consciousness. Despite questionable post-Olympic plans for the environment, the 2008 host city upheld its goals for the games. Ambitious efforts to increase green coverage leading up to the Olympic Games certainly paid off and Beijing sustained the IOC's commitment to the environment.^{xxi}

One of Lillehammer's main focuses regarding the environment pertained to the placement and construction of Olympic venues. Beijing also created a plan in regards to venues, but the UNEP assessment did not mention any strict guidelines like Lillehammer put in place to ensure construction did as little damage as possible. The assessment commended Beijing for its noteworthy results regarding the incorporation of environmental elements in planning, construction, and management, but admitted there was no concrete system with which to

measure the benefits of environmental measures during or after the games. In terms of energy at the venues, all the new buildings met the newest Chinese and Beijing standards for energy efficiency in place since early 2008. Residential buildings reached a reduction rate of sixty-five percent and public buildings reached fifty percent. Efforts to increase efficient water use at the venues did not succeed as planned. Water reuse technology did not in the end guarantee minimum effect on Beijing's precious water supply. One of the water sports venues continued drawing an immense amount of water from the Miyun reservoir despite its water saving features. UNEP even pointed out how that flawed venue might bring about water shortages in other regions. The final aspect of venues UNEP examined was the use of environmentally-friendly materials. UNEP found no evidence of guidelines for purchasing timber and expressed disappointment that Beijing missed an opportunity to show a commitment to sustainable forestry. The IOC even had guidelines for purchasing materials available, but Beijing seemed to overlook that aspect of constructing sustainable venues. Based on UNEP's assessment, Beijing's efforts in venue construction fell short of expectations. The BOCOG had the plans in place, but did not carry them out to the end. In this aspect of hosting Green Olympics, Beijing came up short.^{xxii}

Beijing put a great deal of time and effort into upholding its goal to host Green Olympics. Global reports showed that the city succeeded in improving environmental quality, but how did residents react? A joint team of researchers from the University of Florida, Tsinghua University (Beijing), and Shanghai University of Sport completed a study on residents' perceptions of environmental measures taken during the Beijing Olympics. Their findings supported the notions that the Olympics possessed the ability to: leave positive impacts on the environment; encourage the potential of the host city to engage in environmentally conscious practices; encourage the conservation and proper management of resources; and assist society's development. The

researchers found that residents' perceptions of environmental consciousness influenced their attitude toward the games and the greening, which then influenced their desire to support Beijing's greening measures and even future Olympic events. Beijing's efforts to host Green Olympics received positive feedback from residents of the city. The 2008 Summer Olympic Games left a lasting legacy not only for the Olympic Movement, but also for residents of Beijing who sought continued environmental protection measures.^{xxiii}

Many of Beijing's plans and actions did not specifically pertain to the Olympics, but to the city's and the nation's overall development goals. According to Wendy Stubbs and Shalini Samuel from Monash University in Australia, not everyone believed Beijing showed a genuine commitment to environmental consciousness. The researchers credited a corporate sponsor with believing Beijing's slogans reflected a nation committed to the idea of sustainability rather than the authenticity of BOCOG's intentions. The Olympics seemingly showcased the nation's avowed commitments more than Beijing's actual efforts. John Lesjo made a similar critique of Lillehammer. Stubbs and Shalini's research also indicated that organizations mimic other organizations when the latter participated in a practice that came to have some significant value instead of actually examining the value of the practice itself. The research also showed that some actions seek only to obtain a competitive advantage. In this case, Beijing mimicked previous bids and previous actions taken by past host cities instead of embracing the environmental pillar of Olympism for its true purpose. When it lost the original bid for the 2000 Olympics to Sydney because of the Australian city's focus on sustainability, Beijing used that strategy to create an ambitious plan for environmental consciousness in its bid for 2008. The Chinese city won the bid, and whatever its true motives were, it succeeded in implementing short and long-term measures that positively affected the quality of the environment during the Olympic Games.^{xxiv}

The 1994 Lillehammer Winter Olympic Games first took concrete steps to act consciously towards the environment. Between integrating environmental consciousness with the administration of the organizing committee and designing venues to exist in harmony with nature, Lillehammer successfully hosted the first Green Olympic Games. Because of the tiny Norwegian town, the environment officially became a core pillar of the Olympic Movement and the willingness to integrate sustainability into future bids came to be a key deciding factor in the choosing of future host cities. When the IOC awarded Beijing with the 2008 Summer Olympic Games, skeptics all over the world thought the polluted city stood no chance of fulfilling its promises. Lillehammer primarily focused on preserving the existing environment, but Beijing placed priority on reversing damage already done and preventing even more damage from being done. The Chinese city showed the world that even a city as polluted as Beijing, in the spirit of Olympism, found the ability to create and implement ambitious plans to clean up the environment not only for the benefit of visiting athletes and spectators, but also for its citizens. While debate exists on Beijing's true motives – genuine concern for the environment or a political move – it cannot be denied that the city achieved and exceeded its goals to clean the air and green the entire area. While environmental concerns found a place in every Olympic Charter since 1991, the 1994 Lillehammer Winter Olympic Games first took noticeable action to address the concerns, and after examining the 2008 Beijing Summer Olympic Games, it is evident that the Olympic Movement succeeded in establishing environmental consciousness as a foundation of all Olympic activities. Between Lillehammer and Beijing – two vastly different cities – the Olympic Movement succeeded in planning and carrying out global sporting events in environmentally conscious ways. The 1994 Lillehammer Olympics set a concrete example for subsequent Olympics to follow and Beijing added to the legacy of the original Green Games.

The Olympic Games create an opportunity for the entire world to come together and experience sixteen brilliant days of competition between the world's best athletes. Each Olympiad brings new world records, touching stories of athletes' journeys to the games, and epic battles for the gold medal. Dreams come true. Hopes shatter. Through it all, athletes compete for themselves, their nations, and the world. The Olympic Movement holds a prominent position in the world, one that gives it the opportunity to set an example for every nation. Placing the environment at an even level with sport and culture makes a bold statement. Just like the IOC adopted environmental consciousness after Lillehammer took the lead, the IOC now takes the lead on influencing others to also take concern with the environment. The Olympic motto "Citius, Altius, Fortius," or "Faster, Higher, Stronger," inspires athletes to put all they have into reaching their full potential. It also inspires citizens of the world to make this earth a better, healthier, and cleaner place so Olympians can continue bringing all global citizens together as they compete for the gold medal each and every one of them worked their entire lives for.

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