



## Executive Summary

Beijing is a city of 16.33 million and China overall boasts 1.3 billion people – 20% of the world's population. As a rapidly developing nation with growing energy and resource needs, no nation has a more important role to play than China in making the urgent transition to sustainable development.



This report aims to provide an independent assessment of the environmental initiatives of Beijing's 2008 Olympic Games. In 2006 Beijing's population was 16.33 million and China overall boasts 1.3 billion people – 20% of the world's population. As a rapidly developing nation with growing energy and resource needs, fewer nations have a more important role to play than China in making the urgent transition to sustainable development.

The Olympics "Green" theme has been the force driving both short-term projects and long-term infrastructure initiatives in Beijing. Planning for this international mega event has presented unique environmental challenges and opportunities for Beijing as it has for all Olympic hosts.

### **Beijing's original bid and additional environmental commitments include the following:**

- While air quality during the period of the Games in 2008 will be of a high quality, and meet Chinese and World Health Organization (WHO) standards, Beijing municipal government is nonetheless committed to achieve a high standard for the whole year.
- Cleaner energy will be supplied to the urban area for domestic usage and natural gas consumption will be increased by a factor of five by 2007.
- By 2007 exhaust from new vehicles will be reduced by 60%.

A full list of commitments is provided throughout this report.<sup>1</sup>

### **Greenpeace's rating of Beijing should be taken in the context of a number of factors:**

- As a developing country, China faces serious environmental challenges associated with its rapid growth, population and limited experience in environmental solutions. Yet, the environmental Olympic initiatives and investment made by Beijing in some cases far exceed those of many developed and developing countries with vast experience in managing environmental issues such as Sydney and Athens.
- A number of Beijing's achievements represent the world's best environmental practice — a huge leap from the existing polluting or destructive technologies and systems currently in use throughout the developing world. In this, Beijing has been able to show that making the transition to more sustainable approaches is possible when a concerted effort is made.
- Despite Greenpeace's earlier on-going engagement with the Beijing Organizing Committee for the Games of the XXIX Olympiad (BOCOG) in the form of regular consultations, during the drafting of the report, Greenpeace did not have sufficient access to important information regarding Beijing's environmental progress. This has made it difficult for Greenpeace to accurately gauge how successful Beijing's environmental initiatives have been.

In our analysis from the information available, Greenpeace found that Beijing achieved and in some cases surpassed original environmental goals but also missed some opportunities that could have ensured a better short- and long-term environmental Olympic legacy for the city.

1. For a full list of Beijing's bid commitments, please see Beijing 2008 Olympic Games Bidding Committee (BOBICO) Candidacy File, "Section Four: Environmental Protection and Meteorology" <http://www.beijing2008.cn/spirit/beijing2008/candidacy/files> as well as Beijing's Green Olympics Action Plan, <http://www.beijing2008.cn/bocog/environment/guidelines/n214067229.shtml> (in Chinese)

## Beijing's key achievements include:

- The introduction of state-of-the-art energy saving technology in Olympic venues — for example the Olympic Village will showcase various technologies such as solar hot water, geothermal, and solar photovoltaic (PV) systems. These represent a welcome shift away from a reliance on polluting fossil fuels.
- Beijing has increased its new vehicle emissions standards to EURO IV ahead of schedule for the Games in an attempt to improve air quality. This is amongst the most stringent emissions standards in the world.
- Beijing has added four new rail lines for the city, as well as a direct line within the Olympic Green to encourage public transportation.
- 20% of the Olympic venue electricity used during the Games will be purchased from clean wind sources supplied by the Guanting wind power station, Beijing's first wind power generation station capable of generating 100 million kWh of electricity a year, which is enough to meet the demands of 100 000 families.
- Beijing has dramatically improved its sewage and wastewater treatment plants and water reuse systems.
- Along with other low energy vehicles, there will be a fleet of 3 759 buses running on Compressed Natural Gas at the time of the Games. This is one of the largest fleets of this kind operating in any city in the world.
- At the end of 2007, 16 000 boilers under 20 tonnes and 44 000 boilers under one tonne had been upgraded.
- By the end of 2007, 32 000 household heating systems had been converted from household coal heating to electricity.

- BOCOG's dialogue and consulting with NGOs during the Games represent a positive step towards the increased collaboration between government and civil society in China.
- Sponsors have delivered specific environmental commitments. 100% of Coca-Cola's 5 658 units of Olympic coolers and vending machines will feature HFC-free natural refrigerants. Haier will use solar powered HFC-free air-conditioners in the Olympic Village, tennis center and other venues. Samsung has committed to making one of the official Olympics consumer phones, SGH-F268, 100% polyvinylchloride (PVC) and brominated flame retardants (BFR) -free.

## Missed opportunities include:

- Limited transparency and a lack of independently verified data and certification of Olympic venues represented the biggest challenge to comprehensively evaluating Beijing's green efforts for the Games.
- Although BOCOG has introduced environmental guidelines for Olympic timber purchasing, they missed a chance to introduce an internationally recognizable timber procurement policy, such as Forest Stewardship Council (FSC) standards for construction material used during the Games.
- The development of more landfill and incineration to deal with waste represents a failure to use the Games as an opportunity to move towards a zero-waste policy for Beijing.
- Although Beijing adopted a number of long-term measures to improve air quality in the city, they nevertheless had to introduce temporary measures, such as drastically

Overall, Greenpeace believes that the environmental efforts of BOCOG and the Beijing municipal government have created a positive legacy for the city of Beijing. Beijing did more than Athens and should be commended for its efforts in using the Games as an opportunity to upgrade and improve city infrastructure as well as to integrate leading energy saving technologies in Games venues. Many of Beijing's environmental initiatives have set a good example for other Chinese cities to follow. However, in part due to inadequate transparency and engagement with third party stakeholders, Beijing's green Games efforts do not meet the comprehensive approach of the Sydney Government before and during the 2000 Games. In addition, the International Olympic Committee (IOC) has an important role to play in ensuring that all Olympic host cities meet some minimal environmental standards and should require the use of independent verifiers for large-scale Games venues to encourage the best environmental legacies for all Olympic Games.

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reducing vehicle numbers and shutting down industrial production in order to ensure that air quality meets standards during the Games. Beijing could have adopted clean production measures more widely across the municipality to speed up the improvement of air quality and to ensure that standards are met for the whole year.

- Although some water saving technologies were installed at the Shunyi Olympic Rowing and Canoeing Park, these technologies could have been more widely applied to all venues as well as across the rest of the city to alleviate the continued reliance of the Games on much needed water resources in Beijing.
- While the 2008 Games were in large part ozone-friendly, facilities nevertheless continue to rely on climate-damaging hydrofluorocarbons (HFC) technology, thereby missing an opportunity to leap directly from ozone-depleting to climate-friendly natural refrigeration.
- Although BOCOG has introduced a number of guidelines that include positive environmentally friendly policies for the Games in the areas of procurement and construction for example, the non-binding nature of these guidelines may have weakened their implementation.
- Refrigeration-using sponsors McDonald's and Yili, missed the opportunity to showcase significant numbers of climate-friendly refrigeration equipments free of HFCs. Electronic sponsors Lenovo and Panasonic missed the opportunity to provide electronic products free of toxic substances PVC and BFRs.

### Greenpeace and the Olympic Games

Greenpeace became actively involved in campaigning for the inclusion of environmental solutions through the Olympic Games in 1992 when the organization commissioned an architect to design a green Olympic Athlete's Village, which was submitted to an anonymous competition initiated by Sydney organizers. Greenpeace's design was one of the winners and the concept of a Green Olympics was hatched to extend to all of Sydney's Olympic development.

In 2000, Sydney, Australia hosted the very first Green Games, as defined by the city's pre-commitment to a set of far-thinking environmental guidelines across the spectrum of relevant issues. The Sydney bid stood out because of the decision by

the Sydney Organizing Committee to use the Olympics as a vehicle for best practice solutions to address the growing environmental challenges of climate change, ozone depletion, the production and disposal of toxic waste, and diminished natural resources. Greenpeace assisted in drafting these guidelines and joined Sydney in presenting them to the IOC as part of the city's bid. Greenpeace remained involved in both monitoring and working with Sydney to ensure the best environmental outcomes. In addition, the organization developed a relationship with the IOC and its Sport and Environment Committee to help ensure the environment continued to play a key role in the Olympic Games. The IOC released its own Agenda 21 to connect sustainable development goals to the Olympics in 1999.

Greenpeace produced its first complete Olympics environmental assessment report<sup>2</sup> on Sydney's efforts just before the Games in 2000 to provide an independent, third party assessment of how effective the city was in achieving its goals. After the Games, Greenpeace released a new set of guidelines — The Greenpeace Olympic Environmental Guidelines<sup>3</sup> — to assist the IOC, future Olympic host cities and the organizers of any large event to learn from and surpass Sydney's efforts. In 2004, a second assessment<sup>4</sup> by Greenpeace was carried out in Athens to test whether the lessons learnt at Sydney had been taken up to further fulfill the guidelines and commitments made in the name of a Green Olympics.

The Sydney Games were able to set an example in the areas of non-incineration remediation technology for toxic contamination on site and to introduce various energy saving and water saving technologies for Olympic facilities. More importantly, the Sydney Games were able to set an example of how sustainable technological solutions could be introduced into Olympics design and planning. The success stories in Athens, compared with Sydney, were mostly in the area of public transportation development — the extension of the metro and the construction of a new tramway and suburban rail — while fewer initiatives were taken by the Athens government and the Athens Olympics organizing committee for the Olympic Games itself.

The attempt to host a Green Games, for the fast developing city of Beijing, represented a much bigger opportunity. The Beijing municipal government and BOCOG have seized the opportunity both to experiment with state-of-the-art renewable energy

2. The report is available for download at: <http://www.greenpeace.org/australia/resources/reports/general/how-green-the-games-greenpea>

3. Please see <http://www.greenpeace.org/china/zh/press/reports/olympics>.

4. Please see <http://www.greenpeace.org/china/zh/press/reports/olympics>.

technology— such as wind, solar and geothermal energy — and to spur the development of city infrastructure — such as new subway lines and new wastewater treatment facilities. These achievements, if they are applied more widely throughout Beijing and other cities in China, could represent a huge leap in remedying the environmental problems caused by China's rapid development.

## Research Methodology

This report is based on the information currently available. While Greenpeace attempted to carry out some independent investigation and research, overall this report relies heavily on official data provided by the Beijing municipal government and United Nations Environmental Programme (UNEP). Greenpeace has used two major sources of information regarding Beijing's environmental Olympics deliverables — the UNEP “Beijing 2008 Olympic Games – An Environmental Review” report and BOCOG's information, particularly its “Beijing 2008: Environmental Protection, Innovation and Improvement 2001-2006 Update” report. In addition, Greenpeace met with officials from BOCOG and Beijing's Municipal Environmental Protection Bureau to verify information, facts and figures on Beijing Olympic venues and city initiatives.

In this evaluation, Greenpeace focuses on six key environmental areas that are of importance for the city of Beijing: air quality, energy use/climate change and refrigerants, transportation, water, forestry, and toxics and waste. We have used the city's initial bid commitments as stated in the official candidacy file<sup>5</sup> and Beijing's Green Olympics Action Plan<sup>6</sup> as well as Greenpeace's recommendations for Olympic host cities drafted in 2000 after the Sydney Games, to compare this to Beijing's achievements and missed opportunities delivered for the Games.<sup>7</sup> Greenpeace also includes some recommendations for the city of Beijing and the IOC that extend beyond the Games. Greenpeace believes that all future host cities should make efforts to deliver the best environmental solutions through the Games. This report also examines the role of the IOC, corporate sponsors and non-government organizations (NGOs) in improving the environment of the Olympic Games.

There were major challenges to Greenpeace's efforts to assess the environmental achievements of the Beijing Games. Greenpeace's ability to conduct its own comprehensive independent evaluation was constrained by limited access

to Olympic venues and comprehensive data. The limited number of comprehensive Olympic assessments from independent research agencies and think tanks from which Greenpeace could obtain assessment information also affected the range of information available on Beijing's environmental achievements.<sup>8</sup> Moreover, despite many requests, Greenpeace could mostly only obtain access to information that was already publicly available from BOCOG and relevant governmental departments. Therefore, some crucial data needed to comprehensively assess the Olympics were unavailable. For instance, Greenpeace has learned that the Olympic Village may be Leadership in Energy and Environmental Design (LEED) certified, but to date the results of this assessment has not been made publicly available. The combination of these factors proved to be a major challenge in verifying the official information provided.

The IOC should provide leadership in ensuring that future host cities are more forthcoming in offering relevant environmental information. All information related to the Olympics should be made publicly available to third party stakeholders. The IOC should also set a minimum benchmark from which the environmental achievements of cities could be measured and rendered comparable. Greenpeace also recommends that future Olympics adopt more internationally credited environmental certification systems, such as LEED and FSC, which require professional third party independent verification.

## Greenpeace recommendations - Beijing and Beyond

### Beijing beyond 2008

Beijing should continue to implement successful environmental policies, and to introduce projects and state-of-the-art technologies used for Games venues more broadly across the city.

#### The city should:

- Continue to tackle air pollution through strictly regulating vehicle emissions standards and to set an example for other Chinese cities.
- Continue to upgrade industrial technology and to push them towards clean production.
- Widely promote the use of renewable energy technology used at Games venues across the city, such as solar

5. Beijing 2008 Olympic Games Bidding Committee (BOBICO), “Section Four: Environmental Protection and Meteorology.”

6. Beijing's Green Olympic Action Plan was originally formulated in 2000. Please see the full list of commitments (in Chinese) <http://www.beijing2008.cn/bocog/environment/guidelines/n214067229.shtml>

7. Xinhua. “China to host an Olympics with its own characteristics.” [http://news.xinhuanet.com/english/2002-12/12/content\\_658154.htm](http://news.xinhuanet.com/english/2002-12/12/content_658154.htm).

8. There were a number of environmental impact assessments that have been conducted by various major Chinese universities on behalf of BOCOG. For a complete list of these studies please see BOCOG “Beijing 2008: Environmental Protection, Innovation and Improvement” p.101.

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lighting, geothermal heating, and solar PV systems.

- Devise building standards to require new buildings to use smart design and energy efficient technologies.
- Continue to move away from coal as the dominant energy source and to promote the development of renewable energy such as wind power.
- Widely implement water reuse and rainwater collection features across the city to maximize water efficiency.
- Re-evaluate the long-term water strategies in the region to ensure that attempts to supply China's urban centers, such as through long-distance water diversion projects, will not affect access to water for rural areas, agricultural water, water safety, and security for future generations.
- Move towards reducing waste production, to promote zero-waste policies, and to move away from a reliance on incineration and landfills as common methods of waste treatment.

### China beyond 2008

Successful environmental achievements of the Olympic Games should continue to be extended not only in Beijing but throughout China after the Games. Although Beijing's current efforts to develop mass transportation and to implement various environmental regulations and policies are encouraging signs that environmental understanding is growing within government, it is imperative that other Chinese cities which will undergo similar types of transformation as Beijing over the next twenty years learn from Beijing's achievements and mistakes. Greenpeace urges that all Chinese cities consider environmental protection when devising economic development policies. Given the serious environmental challenges China faces as one of the fastest growing economies in the world, the environmental achievements of the Beijing Games, especially long-term infrastructural improvements, need to be broadly applied to other cities in China beyond 2008.

### Other Chinese cities need to:

- Learn from Beijing and to avoid the development model of "xianwuran, houzhili" which prioritizes development goals ahead of environmental considerations.
- Widely apply the methods that have been successful in

Beijing to their own development models as listed above.

### Future Olympic Games - Recommendations to the IOC

Greenpeace urges that future host cities and organizers of major sporting events take on board the lessons learned during the 2008 Games.

#### Specifically, the IOC should:

- Make a number of specific base-line environmental commitments mandatory for host cities and devise and set up a comparable set of environmental evaluation criteria so that green achievements are more easily evaluated and measured.
- Ensure that all public environmental data is made available for public scrutiny.
- Ensure that future Olympics adopt more internationally recognized environmental certification systems, such as LEED and FSC, which are not only credible but also require independent verification.



## Lessons learnt in Sydney and reality check for Beijing

Below are some lessons that Greenpeace took away from the Sydney Games and the realities for the Beijing Games. Greenpeace believes that these lessons should be incorporated into the planning of every major sporting event in order to ensure sustainable outcomes.

Table 1

LESSONS LEARNT IN SYDNEY	REALITY CHECK FOR BEIJING
<p><b>1</b> Make specific environmental commitments as part of your development plans well before design plans are finalized and construction begins. Make these commitments public.</p>	<p>Beijing issued environmental commitments in its candidacy file as well as a list of major environmental initiatives. These documents are publicly listed on the BOCOG website.<sup>9</sup></p>
<p><b>2</b> Environmental guidelines must be clear with specific benchmarks that are non-negotiable, measurable and backed up by law. These benchmarks must be included in all of the tenders offered for Olympic developments and made public.</p>	<p>As for all host cities, Beijing's environmental commitments, although an important part of their bidding process, were not binding.</p>
<p><b>3</b> Olympic organizers and developers must be required to collect and report information on all environmental aspects of their project and make this information publicly available.</p>	<p>Although BOCOG has issued a set of guidelines about purchasing, these guidelines were not made mandatory. Due to a lack of transparency, it has been hard to verify whether these guidelines have been honored.</p>
<p><b>4</b> Independent auditing of all environmental information is essential to ensure credibility.</p>	<p>Various Chinese universities have undertaken environmental assessments of specific venues. In 2007 the UNEP released its own environmental review of the Beijing 2008 Olympic Games, which relied on site visits and government figures. To date, this is the only comprehensive, publicly accessible assessment of the Beijing Games.</p>
<p><b>5</b> No matter how Olympic construction is managed –with one project manager or as independent projects and contracts- Olympic organizers must ensure that the best and most cost-effective environmental systems and materials are used project-wide.</p>	<p>Although the Beijing organizing committee has issued a set of guidelines about purchasing, they were however not mandatory. Due to a lack of transparency, it has been hard to verify whether these guidelines have been honored.</p>
<p><b>6</b> Great enthusiasm for and expertise in environmental building and event management exists at all levels internationally. Seek out and engage those innovative and creative experts and companies interested in the environmental success of your event.</p>	<p>Beijing has partnered with various international governmental institutions such as the Italian Cooperation Program for Environmental Protection and various leading international companies in Olympic venue design.</p>
<p><b>7</b> High-level and consistent consultation with the community, environmental and social groups is essential and must be part of the project from the beginning. A clear process for conflict resolution should be established as part of the city's Environmental Guidelines.</p>	<p>Environmental NGO representatives from Friends of the Earth and Global Village of Beijing were invited to act as environmental advisors for the Games. World Wide Fund for Nature (WWF), Conservation International (CI) and Greenpeace were also consulted on environmental issues. The Games represented a good opportunity to open the channels of communication between government and NGOs in China. However, channels of communication need to be more frequent and systematic for public participation.</p>
<p><b>8</b> Education about environmental initiatives undertaken and the benefits gained is essential at all levels, from the public to athletes, sponsors, the media and the commercial sector.</p>	<p>A number of environmental and public education campaigns were undertaken by BOCOG and partner NGOs with support from sponsors and media. However more transparent information about what BOCOG achieved would create more understanding on environmental initiatives at all levels of society.</p>

9. Please see BOBICO's "Section Four: Environmental Protection and Meteorology" <http://www.beijing2008.cn/spirit/beijing2008/candidacy/files/and> Beijing's Green Olympic Action Plan commitments <http://www.beijing2008.cn/bocog/environment/guidelines/n214067229.shtml> (in Chinese)

# The Environment, Beijing and the 2008 Olympic Games

“1/4 of the population in China drink polluted water and 1/3 of the population breath severely polluted air. About 70 % of cancer in China is related to environmental pollution.”

*Pan Yue - Vice-Minister of the State Environmental Protection Administration*

China faces some of the world's greatest environmental challenges. Some 300 cities in China face severe water shortages.<sup>10</sup> Seventy percent of China's rivers are polluted and 385 Chinese species are listed as endangered.<sup>11</sup> Of greatest concern are China's rapidly increasing greenhouse gas (GHG) emissions levels over the past ten years. China is one of the world's largest GHG emitters, with an estimated 6 200 million tonnes of carbon dioxide (CO<sub>2</sub>) released in 2006 from burning fossil fuels and cement production.<sup>12</sup> This represents a 9% increase in emissions for the same year and is primarily due to the country's reliance on coal as its main energy source.<sup>13</sup>

In 2007, only 44% of cities met Chinese National level II air quality standards. Pollutant levels in Chinese cities often pose an enormous health risk to citizens.<sup>14</sup>

However, China produces only about one quarter of the emissions per person as the US and has set ambitious goals for energy saving and emissions reduction. In addition, despite the increasing numbers of cars in China, there were eight billion bicycles in Beijing by the end of 2006. Beijing's bicycles will compete for road space with the estimated 3.35 million cars by the time the Games begin in 2008.<sup>15</sup>

China's economy is one of the fastest growing in the world. Official Chinese government figures indicate that the China's economy grew at an 11.9% annual rate in 2007, the fastest rate of growth in more than a decade. The explosive growth was fueled by a huge trade surplus, booming retail sales and immense investments in new factories, roads, bridges, and real estate projects.



10. Worldwatch Institute research, "State of the World" report, February 2006, <http://www.worldwatch.org/node/3881>.

11. Worldwatch Institute research, "State of the World" report, February 2006, <http://www.worldwatch.org/node/3881>.

12. Worldwatch Institute, "State of the World" report, February 2006, citing research by a Chinese research institute, <http://www.worldwatch.org/node/3881>.

13. Netherlands Environmental Assessment Agency, <http://www.mnp.nl/en/dossiers/Climatechange/moreinfo/Chinanowno1inCO2emissionsUSAinsecondposition.html>

14. Xinhua, "2007 China environmental report released." [http://news.xinhuanet.com/newscenter/2008-06/05/content\\_8317525.htm](http://news.xinhuanet.com/newscenter/2008-06/05/content_8317525.htm)

15. Xinhua, "Vehicles in Beijing to reach 3.35 million during Olympics." March 27, 2008. [http://www.chinadaily.com.cn/olympics/2008-03/27/content\\_6571379.htm](http://www.chinadaily.com.cn/olympics/2008-03/27/content_6571379.htm)

The environment figured prominently in Beijing's original bid, planning, and preparation for the 2008 Olympics. The "Green Olympics" theme was one of three main themes of the 2008 Games. In the Green Olympics Program (GOP) formulated during Beijing's bid for the Games, Beijing's action plan set aside a total investment of 101.02 billion RMB (12.2 billion USD) for green initiatives: 46.37 billion RMB (5.6 billion USD) for the period of 1998-2002 and 54.65 billion RMB (6.6 billion USD)<sup>16</sup> for the period of 2003-2007.<sup>17</sup> From 1998-2007, Beijing spent a total of 120 billion RMB (15.7 billion USD) on environmental initiatives.<sup>18</sup>

To host an Olympic Games requires an enormous investment in infrastructure. For events themselves, some 31 venues are needed inside the city of Beijing along with six venues in other cities, namely a sailing venue in Qingdao, an equestrian venue in Hong Kong and four venues for football preliminary matches in Tianjin, Shanghai, Shenyang and Qinhuangdao. Moreover, there are 76 training venues in use prior to and during the Games.

Of the 31 Olympic competition venues, 12 are newly constructed venues, 11 are renovated or expanded/upgraded venues and eight are temporary venues.<sup>19</sup> Key venues include the National Stadium (known as the Bird's Nest), the National Aquatics Centre (known as the Cube), the Shunyi Olympic Rowing and Canoeing Park, The National Indoor Stadium, and the Workers' Stadium.

The main Olympic venue development is the Olympic Green, which is situated at the northern end of Beijing's central axis, spanning a total area of 1 135 hectares. The Green is divided into three areas. The northern area is the Olympic Forest Park, which spans 680 hectares. The 291 hectares central area is where major Olympic venues and facilities are located. The southern park is 114 hectares and will also be home to Olympic venues. The Olympic Village (Athlete's Village) is located at the northwest side of the Olympic Green, south of the Olympic Forest Park.<sup>20</sup>

During the Games, the Construction and Environment Department is responsible for the coordination and supervision

of the construction of the Olympic venues and the relevant environmental protection issues.

Post Olympics, the ownership of these venues will return to various municipal governmental agencies with the largest venues to be owned by the Beijing municipal government. Others renovated venues will return to the State Sport General Administration, and various district government administrations and universities such as the Fengtai District Government, the Haidian District Government, Beijing University, and Beijing University of Technology.<sup>21</sup>

When evaluating physical venues, this report does not consider Olympic venues outside of Beijing.

San Francisco-based Sasaki Associates, Inc., in conjunction with a local firm, Tianjin Huahui Architectural Design & Engineering Co., secured the winning bid for the Olympic Green.<sup>22</sup> The largest stadiums and venues at the Olympics site were designed by international architects and executed with local partners. The consortium of Arup, PTW architects, the CSCEC (China State Construction and Engineering Corporation) and the CSCEC Shenzhen Design Institute (CSCEC+DESIGN) won the international design competition for the Cube, the Olympic swimming venue.<sup>23</sup> The National Stadium or Bird's Nest was designed by the Swiss firm Herzog & DeMeuron and the China Architecture Design Institute. The Olympic Village is located to the northwest of the Olympic Green and will accommodate 16 800 athletes and officials during the Games. It will be converted to 6 000 apartments after the Games.<sup>24</sup>

16. The above investment figures was provided in USD. The conversion to RMB is based on the exchange rate on January 07, 2001 when Beijing 2008 Olympic Games Bidding Committee (BOBICO) submitted their bid for the Games.

17. Beijing 2008 Olympic Games Bidding Committee (BOBICO), "Section Four: Environmental Protection and Meteorology," p.53.

18. The official website of the Beijing 2008 Olympic Games. "Beijing puts in Big Money to improve the Environment." <http://en.beijing2008.cn/26/44/article214084426.shtml> Both figures in RMB and USD are provided by BOCOG.

19. "Preparation for Olympic Games Moving Forward as Planned" <http://www.en8848.com.cn/EnglishSquare/200703/2007-03-28/41632.html>

20. "2008 The Hi-Tech Olympics" exhibition." Put on by the leading group for the "Hi-Tech Olympic Games (2008) Action Plan." May 21-25th, Beijing International Exhibition Center.

21. UNEP, "Beijing 2008 Olympic Games: An Environmental Review," p.45-53.

22. "Bidding on Beijing 2008." <http://www.chinabusinessreview.com/public/0301/teoh.html>.

23. "Watercube-National Swimming Center Beijing," Design Build Network. <http://www.designbuild-network.com/projects/watercube/>.

24. UNEP, "Beijing 2008 Olympic Games: An Environmental Review," p 65.

### “Green Olympics: Key Official Documents and Implementation Bodies”

- China's national economic development has been guided by a series of Five-Year Plans since 1953. These plans map the strategies of economic development as well as set growth targets and launch reforms. The current 11<sup>th</sup> Five-Year Plan from 2006-2010 sets a series of energy reduction and environmental conservation targets.<sup>25</sup> The 11<sup>th</sup> Five-Year Plan specifically commits China to an ambitious target of a mandatory 20% reduction in energy consumption per unit of GDP by 2010.
- In order to diversify energy sources and tackle climate change, the Chinese government introduced its Renewable Energy Law on January 1st 2006. The National Mid-to-long-term Development Plan<sup>26</sup> for Renewable Energy has set the goal of deriving 15% of China's national energy from renewable sources by 2020.
- Beijing's “Environmental Master Plan” (an environmental protection program developed by the Municipal Government for the period 1997-2015, funded by the World Bank) was integrated into the bid. Some targets had accelerated deadlines that were moved from 2010 to 2008 for the Games.
- On June 4th 2007, China became the first developing country to release a National Plan on Climate Change.<sup>27</sup>
- At the recent UN Climate Change Conference in Bali, China demonstrated a more constructive attitude towards emission targets and has shown encouraging signs towards acknowledging the need for emissions reduction.<sup>28</sup>
- Beijing Olympic commitments at the time of the city's bid in 2001 have guided environmental reforms in Beijing up to 2008.<sup>29</sup> We will examine some of Beijing's key commitments in the rest of this report.

### The key organizing bodies of the Beijing Olympic Games include:

- The Beijing Organizing Committee for the Games of the XXIX Olympiad (BOCOG)

BOCOG was set up on December 13, 2001, five months after Beijing won the right to host the 2008 Games.<sup>30</sup> BOCOG's executive board is composed of senior officials from the Beijing municipal government, the Chinese Olympic Committee and athletes.<sup>31</sup> Within BOCOG, the Construction and Environment Department is responsible for the coordination and supervision of the construction of the Olympic venues and relevant environmental protection issues.

The Environmental Management division is responsible for implementing the Environmental Management System of the Committee, for assessing whether bids commitments have been fulfilled as well as being in charge of environmental communication, risk management and cooperation with international organizations such as UNEP and the United Nations Development Programme (UNDP) and environmental NGOs.

The Environmental Engineering division is in charge of managing the environmental aspects of the design and construction of the venues as well as venue waste and cleaning program.<sup>32</sup>

### Other key Chinese agencies responsible for specific environmental initiatives include:

- Beijing's Municipal Environmental Protection Bureau (EPB)
- The Ministry of Environmental Protection of the People's Republic of China (formerly the State Environmental Protection Agency (SEPA))
- Beijing Municipal Development and Reform Commission
- Beijing Municipal Administration Commission (BMAC)
- Beijing Municipal Bureau of Industrial Development
- Beijing Water Authority
- Beijing Municipal Construction Committee
- Beijing Municipal Science and Technology Commission (BMSTC)
- Beijing Meteorological Bureau

25. “The National Eleventh Five-year Plan for Environmental Protection.” [http://english.sepa.gov.cn/Plans\\_Reports/11th\\_five\\_year\\_plan/200803/t20080305\\_119001\\_3.htm](http://english.sepa.gov.cn/Plans_Reports/11th_five_year_plan/200803/t20080305_119001_3.htm)

26. National Reform and Development Commission. [www.ndrc.gov.cn/zcfb/zcfbtz/2007tongzhi/t20070904\\_157352.htm](http://www.ndrc.gov.cn/zcfb/zcfbtz/2007tongzhi/t20070904_157352.htm)

27. National Reform and Development Commission. [http://www.ndrc.gov.cn/xwfb/t20070604\\_139486.htm](http://www.ndrc.gov.cn/xwfb/t20070604_139486.htm)

28. “UN officer: China's effort on pushing negotiation is encouraging” <http://www.climatemediapartnership.org/spip.php?article192>. (Chinese and English)

29. Beijing 2008 Candidacy File. <http://www.beijing2008.cn/spirit/beijing2008/candidacy/files/>. (in Chinese)

30. The official website of the Beijing 2008 Olympic Games. <http://en.beijing2008.cn/bocog/about/index.shtml>.

31. “Bidding on Beijing 2008.” <http://www.chinabusinessreview.com/public/0301/teoh.html>.

32. UNEP, “Beijing 2008 Olympic Games: An Environmental Review,” p.33.