

Chapter 9

CLIMATE NEUTRALITY

Climate change is one of the main challenges currently facing the global community.

The challenge for BOCOG — as for organizers staging other mass events — was to measure, offset and curtail the amount of carbon dioxide released into the atmosphere directly or indirectly as a result of the Games.

Energy efficiency measures at venues helped offset emissions.

According to recent scientific studies, most notably by the Intergovernmental Panel on Climate Change, the reduction of greenhouse gas emissions by at least 50 per cent of 1990 levels by 2050 is critical in order to limit global warming at up to 2°C by the end of this century.

Over the past three or four years, some studies show China's greenhouse gas emissions have even exceeded those of the United States of America (even if the per capita emissions are still around 20 per cent that of a US citizen). Although they are already high, emissions in China may double by 2030 without an ambitious mitigation programme. This would affect China and the world at large.

In late October 2008, the Chinese State Council presented a White Paper "China's Policies and Actions for Addressing Climate Change". Among other things, the White Paper showed the extent to which global warming is already having

a negative impact on China. China is generally described as one of the countries which is very susceptible to the adverse effects of climate change, mainly in the fields of agriculture, livestock breeding, forestry, natural ecosystems, water resources and coastal zones.

9.1 CLIMATE NEUTRALITY AND SPORT

The amount of carbon released into the atmosphere directly or indirectly as a result of all the activities associated with the Games is what we are challenged to measure, offset and curtail. Arguably, the measurement of the climate impact of an Olympic and Paralympic Games should include the activities undertaken in all phases of the Games, from the early planning stages to Games-time. It should also cover travel, in particular international travel, by athletes, officials, spectators and the media.

A strategy towards achieving climate neutrality for the Games involves:

- Measuring the carbon footprint of the event;
- Reducing energy demand;
- Increasing energy efficiency;
- Expanding the use of renewable energy, and
- Compensating or offsetting "unavoidable" emissions.

The main focus of such a strategy should be to reduce greenhouse gas emissions at the source. Offsetting is only a second best option. Carbon offsets are activities that compensate for carbon or greenhouse gas emissions in one area by reducing them in another, ensuring that there is no net increase in emissions.

Projects that generate carbon offsets typically reduce greenhouse gas emissions by

improving energy conservation, development of renewable sources of energy (including wind, solar, small hydro, geothermal and biomass) and tree planting (which increases CO₂ removal through photosynthesis). They are bought and sold through international brokers, online retailers and trading platforms in the way that stocks, bonds and mutual funds are sold.

Beijing's Olympic bid commitments

Beijing did not explicitly refer to climate change in the Olympic bid it submitted in 2000. However, some of its commitments and goals addressed climate protection. These included:

- Increase in energy efficiency;
- Use of cleaner technologies and fuels in housing, industry and transport sectors;
- Adoption of green commuting policies and practices; and

The use of cleaner fuels in the transport sector was factored into calculations of greenhouse gas emission reductions for the Games.



- Reforestation and greening of the city.

9.2 BEIJING 2008 GAMES CARBON FOOTPRINT

As a consequence of UNEP's recommendations regarding climate change in its 2007 Environmental Review, BOCOG and the Beijing authorities adopted the following approach and measures:

They commissioned a study* to calculate the additional (incremental) greenhouse gas emissions caused as a direct result of the Beijing 2008 Olympic Games to analyse the expected negative impact on global warming. The study then estimated the positive effects of the environmental measures on the climate and then calculated whether the net balance is positive or negative. (Note calculations for the Beijing Paralympic Games were not included on this occasion).

The study was done by a team of researchers from the Administrative Centre for China's Agenda 21, the Energy Research Institute of the National Development



Games-linked art competitions helped heighten awareness of climate change and other environmental issues.

Reform Commission of China, the Geography Institute of the Chinese Academy of Sciences and Tsinghua University. The final results are currently not publicly available.

The study considered emissions during the construction and

operation of new venues, emissions from the activities of athletes, officials, spectators and related services for the Games. It also included emissions caused as a result of the torch relay (see Figure 9.1).

According to these figures, the total incremental carbon footprint for Beijing Olympic Games was about 1.18 million tonnes of greenhouse gases.

It should be noted that up until now, none of the major international sport events

TABLE 9.1: CARBON FOOTPRINT OF BEIJING 2008 OLYMPIC GAMES

Sources	Emission (1,000 tonnes of Green House Gas)	Percentage in total	
Construction of venues	24.0	2.0%	
Operation of venues	77.0	6.5%	
International flight trips	International spectators	680.0	57.5%
	Media and others	44.5	3.8%
	Athletes, Olympic family	33.6	2.8%
Domestic flight trips	139.0	11.8%	
Other domestic trip and in-city trips	29.0	2.5%	
Operation of BOCOG	0.4	0.03%	
Accommodation	144.0	12.2%	
Waste treatment	1.5	0.1%	
Torch relay	8.9	0.8%	
Total	1,181,900	100%	

Source: Beijing Municipal Science and Technology Commission

*Note: The study presented above was commissioned by the Beijing Environment Protection Bureau. However, the EPB has not fully endorsed the findings of the study.

TABLE 9.2: AVOIDED EMISSIONS DURING THE GAMES PERIOD, AUGUST 2008

Measures	Avoided GHG-emissions (1,000 tonnes of Greenhouse Gas)
Clean fuel used in public transportation system	19.7
Clean fuel buses used in Olympic Green	0.63
Solar energy power generation	0.07
Solar energy hot water system	0.67
Green lighting system	0.83
Geo-thermal (wastewater) heat pump	0.45
Total	22.3

Source: Beijing Municipal Science and Technology Commission

included all the above parameters in their calculations, particularly, the impact of international flights taken by spectators, athletes and various officials.

9.3 CARBON FOOTPRINT REDUCTION MEASURES

This includes the emission reductions created by the application of renewable energy and energy efficient products at the sites and venues during the Games.

These figures indicate that greenhouse gas emissions savings of about 22,300 tonnes for the Games' period.

Overall carbon footprint reduction

In addition, the authors of the study also calculated the anticipated effects of all 'Green Olympics' measures and campaigns by BOCOG and Beijing municipal authorities during the preparation and hosting of the Olympic

Games on reducing greenhouse gas emissions. The results of that calculation are listed in Table 9.3.

The results of this calculation shows that approximately 1.2 million tonnes of greenhouse gases was saved by the measures which were related to the Beijing Games bid commitments.

Based on the calculations, comparing the carbon footprint of the Games with the reductions from the measures presented

above, it can be deduced that the 2008 Olympic Games were climate neutral. This may have been one of the reasons why Beijing may not have felt the need to implement additional climate protection or compensation measures to reach the objective of "climate neutrality."

TABLE 9.3: TOTAL IMPACT OF BID COMMITMENTS ON GREENHOUSE GAS EMISSIONS REDUCTION

Measures	Emission reduction
(1,000 tonnes of Greenhouse Gas)	
Clean fuel vehicles	–
Solar energy power generation	11
Solar energy hot water	–
Green lighting	17
Application of Geothermal (wastewater) heat pump	–
Pollution control in industries	166
Traffic control during the Games	802
Greening of Olympic venues	2.5
City wide greening	65
Boiler conversion	119
Total	1,182,500

Source: Beijing Municipal Science and Technology Commission

9.4 COMMENTS AND RECOMMENDATIONS

Beijing's climate neutrality programme has, for the first time for a global sports event, taken into account the carbon emissions from international flights. Based on the calculations by the authors of the study, international flights accounted for over 64 per cent of the emissions of the Games. The authors of the study should therefore be commended for taking a very progressive approach to the issue of carbon neutrality in sport.

However, the calculations that the authors of the study used to arrive at its conclusions do not provide sufficient basis for an in-depth evaluation. They do not provide any detail of the methodology used. The calculation of the impact of the environmental measures on the greenhouse gas emissions reductions raise

questions about whether this was done in accordance with international standards.

The results presented in the tables above were released in May 2008, before the Games. Therefore, the data might not reflect the actual carbon emissions during the 2008 Olympic Games.

The study raises the following questions:

- Which international guidelines were used for the calculations?
- What was the scope of the emissions included?

What primary data from Beijing 2008 did the study draw upon and what was the source of secondary data (i.e. from prior sporting events)?

Given that the study has raised numerous questions, it is

therefore difficult for UNEP to assess the carbon footprint of the Games and the impact of the measures to mitigate and offset the emissions.

An analysis using exact data from the Games period has obviously not been done. If Beijing was to ascertain the carbon footprint of the 2008 Games and the impact of the measures to mitigate and offset those emissions, it might be necessary to have an independent verification.

Organizers of upcoming major sports events (the Olympic Games, the FIFA World Cup, the Rugby World Cup) and sports organizations in general, should be encouraged to seriously look at their carbon footprint and seriously analyse primary data from events. It should be noted that any activity that claims to be climate neutral should have a zero net impact on climate change.

Efforts to mitigate and offset emissions should be a collective responsibility of the organizers, suppliers, contractors, sponsors, spectators, countries and organizations participating in the event.

Organizers and countries hosting mass events are encouraged to look for creative ways of engaging all stakeholders, including the above-mentioned groups, in efforts to reduce their emissions.

As the issue of carbon neutrality is likely to be increasingly important for future Olympic Games, UNEP would offer to assist the International Olympic Committee and other sport organizations to come up with a harmonized standard for addressing this issue in sport.

Beijing Capital International Airport.





