

CHINA BRIGHT

With little more than 300 days to go until the Olympic flame is lit in Beijing, Games organisers are facing up to the challenges to be ready on time

The Water Cube will provide 17,000 seats during the Games



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When the spotlight falls on Beijing next August, it's the design and performance of the 37 competition venues that organisers hope will distinguish the Games from Athens and Sydney before it. Only six of the venues are outside the Chinese capital - Qingdao hosts sailing, Hong Kong stages equestrian events, Shanghai, Shenyang, Tianjin and Qinhuangdao hold preliminary rounds of the football tournament. During the Games, 56 training venues will also be used.

The 'wow' factor will be generated by two iconic facilities, the 91,000-seat Olympic Stadium - dubbed the 'Bird's Nest' because of its lattice steelwork exterior - and the equally stunning National Aquatic Centre, better known as the 'Water Cube'. They are among ten Games venues located at the 1,135-hectare Olympic Green, the hub of competition during the Olympics.

Designed by Swiss architects Herzog & De Meuron and China Architecture Design Institute, the Olympic Stadium - host of athletics and football - includes 80,000 permanent seats and 11,000 temporary seats in a bowl-like structure that offers unobstructed sightlines from all vantage points. Covering an area of 258,000m², the stadium features a transparent rain-proof ETFE membrane on the upper levels of the steel structure and a cream-coloured PTFE membrane hung from the steel structure to ensure sound insulation inside the venue.

Once the Olympic circus has left town, it will revert to its role as the national stadium, positioning itself as a multifunctional destination for national and international sports competitions, along with major cultural and entertainment events. Funded by the Chinese government and the private sector in a public-private partnership initiative, the consortium of companies who have invested in the project is charged with operating the venue for the next 30 years.

The Water Cube, the only Olympic venue partly financed by donations

from Chinese compatriots, is sure to generate plenty of media attention during the Games. Designed by CSCEC International Design and Australian architects Peddle Thorp Walker, in conjunction with Arup Engineers, the structure's striking membrane exterior comprises over 100,000m² of ETFE foils. The translucent material acting as the venue's 'skin' has good insulation and light properties. Of its 17,000 seats, only 6,000 are permanent. "It is a landmark building for Beijing," says the venue's construction manager Zhao Zhixiong. "The Water Cube is the biggest ETFE structure in the world," he adds. After the Games, the aquatic centre will be downsized to fulfil its role as a community facility, while swimming and water polo competitions are an integral part of legacy plans.

Beijing's dearth of sports facilities for educational institutions has also been addressed by the Olympic project. Six competition venues, either built from scratch or renovated, are located on university campuses.

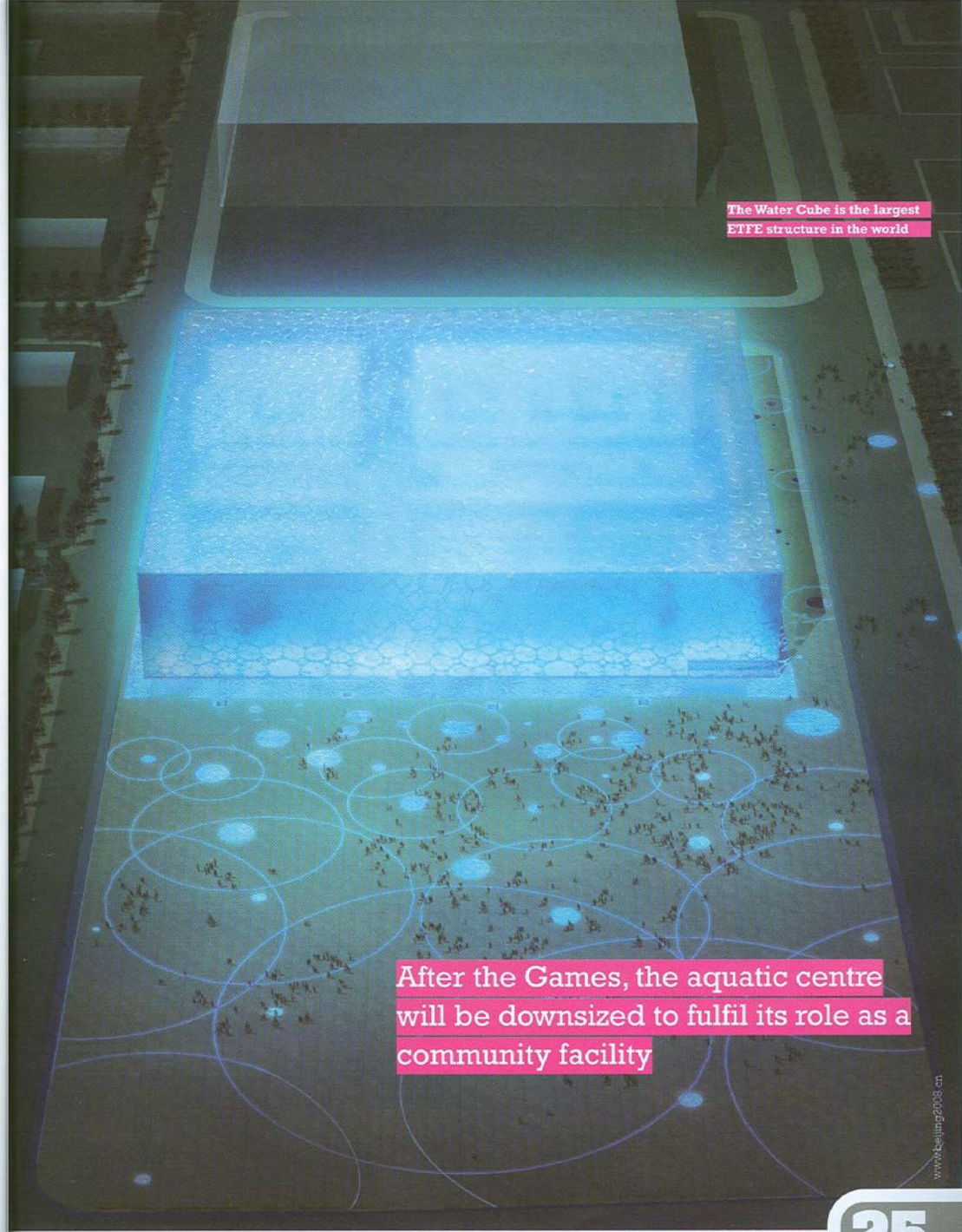
Race for the finish

The Olympic Stadium's opening ceremony raises the curtain on the Games. But the venue won't be completed until March and only tested in April at one of the 'Good Luck Beijing' sports events scheduled in the build-up to the Olympics. However, over a third of the competition facilities are already up and running, and the remainder are due to be finished by the end of 2007.

Still, organisers remain confident deadlines will be hit. "Construction of the Olympic venues and related facilities is accelerating," says Sun Weide, BOCOG's deputy director of communications. "Preparations are going well and very much on schedule."

In the 12 new Games venues, installation of fixtures and equipment is well underway, he confirms. Meanwhile, work on the renovation and expansion of 11 existing venues and construction of eight temporary venues is firmly on track. Of the five Games-related facilities under construction, the National Convention

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Did you know? Anti-aircraft guns will fire shells containing silver iodide into rain clouds during the Games to help keep the skies blue

Center, the Olympic Village and the Digital Beijing Building will be completed before the end of this year, Weide says. The Media Village and the Olympic Forest Park are due to be unveiled in the spring. In terms of city-wide infrastructure projects, the airport's expansion is set for completion next May with the airport line of the city's metro system ready in July 2008.

Growing pains

Despite the Chinese government and BOCOG trumpeting the social and economic impacts of the Olympics, Human rights organisations have underlined the negative effects, citing forced evictions and displacements to discrimination against racial minorities as major concerns.

Statements by the Chinese government and estimates documented by the Geneva-based Centre on Housing Rights and Evictions (COHRE) show that 1.5 million people will be displaced as a result of Olympic-related urban development by the time the Games begin. COHRE claims that between 2006 and 2008, some 60,000 homes will have been demolished, not including the migrant community. According to COHRE, these large-scale forced evictions have been "characterised by arbitrariness and lack of process and repression of housing rights defenders through intimidation, harassment and even abuse".

Olympic organisers counter the claims, insisting they have been fair-minded in the relocation of residents. "Beijing's resettlement programme has greatly benefited local residents," Weide says. "The living conditions of Beijingers have been improved drastically. On average, their housing space has soared from 20m² in the early 1990s to more than 60m² today per household." Since 2002, he explains, 6,037 households have been demolished to make way for nine Olympic venues. "During the process, all relocated residents have received cash compensation and appropriate resettlement," he adds.

Mixed results

What has buoyed Beijing organisers in the race to be ready is the success of recent test events. With the 2008 Games featuring 28 sports, 38 disciplines and 302 events – involving over 10,700 athletes – Olympic leaders know they must get venue operations running smoothly



GREEN CREDENTIALS?

Olympic Stadium to feature China's first rainwater recycling system

The recycling system will collect and recycle 80 tons of rainwater per hour (60,000 tons per year) for landscaping, fire-fighting and cleaning. Meanwhile, solar-powered lighting will be used at Fengtai Softball Field in the south of Beijing, while the venue's hot-water supply system for athletes and officials is also powered by this renewable energy source. The Olympic Village will also harness the sun's energy through a 6,000m² solar power system. Elsewhere, Chaoyang Park, venue for beach volleyball, features what's billed as a "sun-chasing" solar energy system. A sun-chasing mechanism controls a rotating battery that switches according to where the sun shines to maximise the solar power collected. The system can generate 72,000kWh per year, with an average of 200kWh per day. But the idea of a 'Green Olympics' only extends

so far. Despite dropping the original proposal for a retractable roof, The Olympic Stadium's striking design still required 42,000 tons of steel!

well in advance of the Games. As a result, a total of 26 test events will have taken place before the year's end and 16 more are planned in 2008.

In August alone, there were 12 test events, including: rowing, field hockey, sailing, baseball, equestrian events, beach volleyball, wrestling and BMX, which makes its debut in Beijing.

The new Qingdao International Sailing Center in China's Shandong Province was praised by the International Sailing Federation after staging an international regatta for the second year running.

Shunyi Olympic Rowing-Canoeing Park, located one hour north of Beijing, was described as the most spacious ever for the Games by International Rowing Federation officials. One of the big advantages it enjoys over Athens and Sydney is the lack of winds at the venue, which will ensure races run on schedule. An IOC inspection team saw the venue in action during the Good Luck Beijing 2007 Canoe/Kayak Slalom Open, voicing favourable impressions and noting the warm smiles of friendly volunteers.

The IOC delegation also visited Chaoyang Park, venue for beach volleyball in east Beijing, and gave its approval for the organisational work behind the 2007 FIVB Beach Volleyball Women's Challenger. More than 6,000 spectators attended the event – the biggest crowd for any test event in August – acting as a full-scale dress rehearsal

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EAST OF EDEN

The expertise behind the Water Cube's construction

ETFE specialist Vector Foiltec, the multinational responsible for roofing the Eden Project in Cornwall, UK, was contracted to deliver the Water Cube's membrane structure – over three times the size of the Eden Project. The Texlon ETFE cladding system consists of pneumatic cushions restrained in aluminium extrusions and supported by a lightweight structure. The cushions are inflated with low-pressure air to provide insulation and resist wind loads. Originally developed for the space industry, ETFE is unique in that it does not degrade under UV light or atmospheric pollution, and actually cleans itself under the action of rain – cutting maintenance costs and ensuring the venue continues to dazzle in the years ahead. Vector Foiltec relocated its fabrication plant from Europe to China, partnering with the country's largest cladding firm and training its Chinese employees in fabrication and installation.

for the Olympics. The facility garnered good feedback from athletes, although concerns were raised over traffic congestion around the facility and lack of volunteer training. Elsewhere, heavy rain and oppressively high humidity affected riders and horses participating in an event at the Olympic equestrian venue in Hong Kong.

“The events helped us to refine our operational plans and gets us believing that we can stage a successful Olympics,” says John Soong, division chief of BOCOG's venue management department. While there were no major problems impacting test events and in the operation of venues, Soong concedes that valuable lessons have been learnt. He says spectator access to some venues needed to be improved, while changes were also coming to enhance the comfort factor for visitors.

Breakdowns in communications between volunteers and athletes, as well as with spectators, were also noted. Soong says additional education of venue management staff and training of the 100,000 Games volunteers “to get them to understand Olympic methodologies” would remedy problems. The other challenge is to fine-tune venue plans for the Olympics, a task involving all staff in BOCOG's 200-strong venue management department. “We will spend a lot of time and energy to produce professional venue teams,” says Soong.

Sky's the limit?

While China's human rights record continues to come under scrutiny, BOCOG has other worries. The single biggest issue – and one of major concern to the IOC – is Beijing's air pollution caused by industries and the city's three million cars serving its 17 million population. More than 1,000 new vehicles are registered every day.

Speaking to media in August, BOCOG secretary general Wang Wei underlined the fact that the city's “blue sky” days have risen from 100 in 1998 to 241 in 2006, suggesting that recent steps taken to address the problem have had dramatic results. A four-day experiment to remove 1.3 million private vehicles from the roads during August led to significant reductions in air pollution and traffic congestion. Air pollutants dropped by 15 to 20%, says BOCOG's Weide. Whether this traffic plan will be introduced during the Olympics is not yet clear. Other measures to reduce the chronic smog problem have seen over 50,000 old and inefficient taxis retired and 4,000 gas-fuelled buses deployed in the past year. Use of public transport is also being encouraged through upgrades to the city's rail system and adoption of cheaper bus fares.

These are among more than 200 environmental initiatives implemented by the Chinese government and BOCOG. Others include: the closure of polluting factories or their relocation to neighbouring provinces; renovation of Beijing's five major coalfire power plants to reduce toxic emissions; promotion of clean energy country-wide; and the planting of 28 million trees in the Beijing area in 2006. During Games-time, the city's major construction sites will use massive dust covers to help enhance air quality.

Nagging doubts remain about environmental issues, but in delivering an array of magnificent venues there's no question organisers are making good on their promises. And with a low-price ticket policy to ensure the Games are accessible to as many people as possible, the venues should get good crowds for sports across the board – over five million tickets are available and sales are said to be proceeding smoothly. ■

Author

Mark Bisson is a freelance sportswriter and former editor of *Stadia*