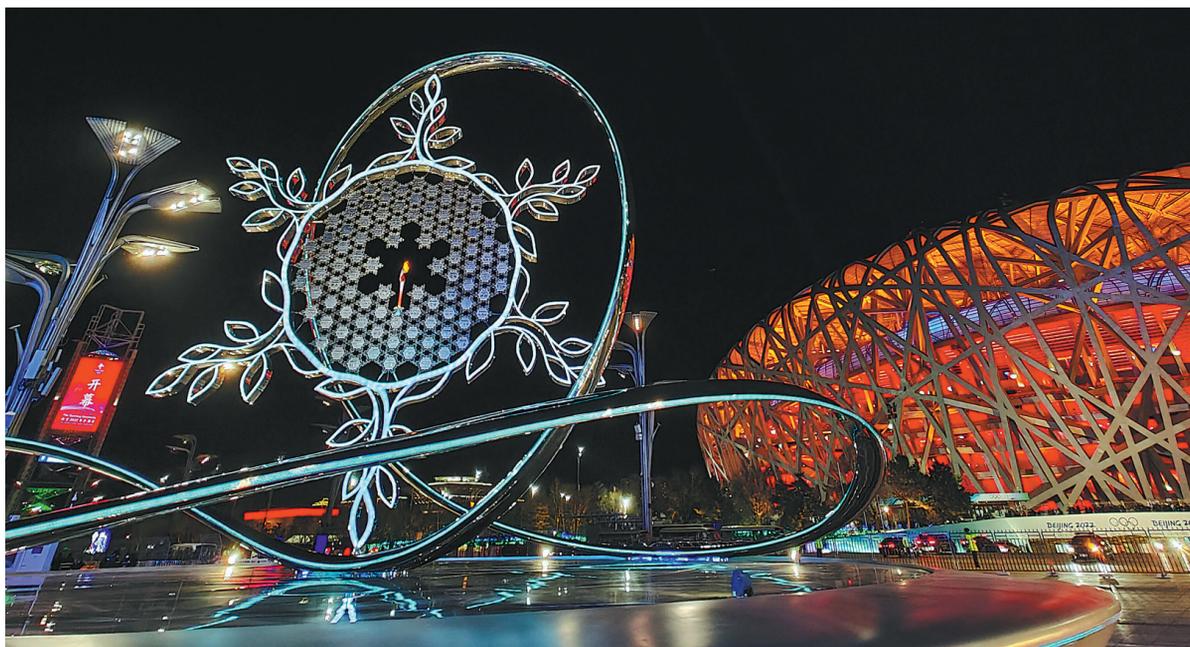


## Beijing 2022

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The Olympic flame burns inside the unique snowflake-shaped cauldron outside the National Stadium following the completion of the 2022 Winter Games opening ceremony on Feb 4. XINHUA

## Small flame makes big impression

New concept for Winter Games opening ceremony proves a winner.  
**Deng Zhangyu reports**

The topic “the smallest Olympic flame” quickly went viral on social media after two young athletes put their torch into the heart of a giant snowflake sculpture at the opening ceremony of the Beijing Winter Olympics on Feb 4.

Many people expressed their surprise, comparing the scene with the cauldron lit in 2008 for the Beijing Summer Olympics, which featured a huge flame burning lots of gas every hour. Filmmaker Zhang Yimou, director-general for the ceremony, said lighting the cauldron was his favorite part of the entire evening. “It’s bold and innovative to present such a tiny Olympic flame. It reflects China’s promotion of a green and low-emission world,” he said.

The giant snowflake comprised hundreds of smaller counterparts featuring the names of some 90 countries and regions taking part in the Games. These small snowflakes were also used as placards by those leading the athletes’ parade.

Zhang said the big snowflake signaled that “we’re together building a shared future” as the world tackles the COVID-19 pandemic. The tiny flame meant the “fire of hope would last forever.”

“We’re not telling stories of China. Instead, we are telling a story of the world,” he said, adding that the concept for the opening ceremony was totally different to that used in the 2008 Beijing Olympics.

Zhang also directed the opening ceremony 14 years ago, when he gathered a cast of 15,000 to show off China’s 5,000-year history and its traditional culture.

“In 2008, we were eager to introduce China to the world, including who we are and how we got here,” he said. “Fourteen years later, with China now the second-largest economy and with the world becoming more familiar with the nation, it’s time to show a modern China and tell the planet that ‘we’re together,’” he added.

“This is a stage to show Chinese people’s values. We are the same as everyone across the globe. We’re friendly, sincere, romantic and hope that everyone in the world is well.”

Some 3,000 people from many walks of life were invited to take part in the opening ceremony, which featured no stars or professional performers.

Asked whether she was nervous singing the Olympic anthem as the ceremony was broadcast worldwide, Han Shuxin, a 6-year-



Images of people from all walks of life are displayed during the ceremony segment *Tribute to the People*. CHEN YICHEN / XINHUA



Members of a children’s choir sing the Olympic anthem at the opening ceremony in Beijing on Feb 4. CAO CAN / XINHUA

old member of the Malanhua Choir, said she is not afraid to show her vocal talent. She started to learn music only in September.

The choir comprises 44 students from Fuping, Hebei province, a mountainous area lifted out of poverty two years ago. The choristers, aged 6 to 12, had no experience performing onstage.

Their parents are farmers or migrant workers. Liu Kai, a teacher in charge of the students, said they were selected from five village schools.

Some of the schools were only able to provide music classes for the young choir members in September, when they started their training.

“Some of them could only sing simple children’s songs when I first met them. After five months’ training, they traveled to Greece to sing the Olympic anthem,” Liu said proudly.

Professional music teachers and language experts also visited the children in China over the past five months.

Liu said many of the children’s parents had little knowledge of the Winter Olympics, but merely thought that their offspring were receiving free instruction in music. Some of the students have to walk hours from home in the mountains to go to school.

Singing at the opening ceremony in Beijing’s National Stadium, also known as the Bird’s Nest, was the first time many of them had visited the Chinese capital.

While waiting for their performance, Shuxin, the 6-year-old, sat reading picture books with her fellow choristers.

She said she was eager to complete the song and return home with her parents.

The Winter Olympics opened during Spring Festival, a traditional time for Chinese to be with family members.

Liu said: “The opening ceremony gave many of these children the chance to perform on such a large stage.”

The idea to invite children from a mountainous area came from Zhang, the director.

“China has helped many of its people out of poverty in the past few years. These children from the mountains are our future generation. We should introduce them to the world,” he said.

Those aged from 5 to 25 accounted for more than 90 percent of the cast of 3,000 on Feb 4. They are students from schools and universities in Beijing and Hebei, who began their musical training in October.

Zhang said that in 2008, when China was eager to show itself to the world, he could not dare to invite children who knew little about music to sing at the opening ceremony.

“Now, we don’t care so much about whether they’re the best singers, have good looks, or are in good shape. We want the world to see ordinary young people and a modern China represented by them,” he said.

Compared with the opening ceremony in 2008, which also took place at the Bird’s Nest, the number of cast members was significantly reduced due to the pandemic and cold weather.

Full use was made of high-technology to present an eye-catching spectacle.

Chang Yu, director of the opening and closing ceremonies department for the Beijing 2022 organizing committee, said: “China has invested a great deal in science and technology. With high-tech, we were able to stage a splendid show with a participating cast.”

Light-emitting diode, or LED, screens covered a large area of the stadium floor.

As more than 600 children sang the theme song for Beijing 2022, they played with snowflakes projected on a screen under their feet.

By using motion capture technology, the young singers interacted with the snowflakes, which changed shape and direction based on the children’s movements.

Chang said: “As far as I know, it’s the largest screen area to provide motion capture technology for such a big group of performers.”

Olympic rings made from ice rose from a huge frozen square about the height of a three-story building.

Reducing the weight of this structure to allow it to unfold easily posed a challenge to many scientific experts, who carried out numerous experiments to find the right materials to produce the “ice rings.”

“Raising the ice square (which was later sculpted into ice rings) was very complicated and involved lots of technology,” Chang said.

He added that he had discussions with director Zhang about the concept of presenting the opening ceremony.

Chang said the opening ceremony for the 2008 Summer Olympics told a good story about China’s past, while the Winter Games presented a story for the future.

“It’s about how Chinese people see the world, including how we should make efforts toward a shared future,” he said.

## Safer, smoother and smarter Olympics

By LUO WANGSHU

Transport has been finely tailored for the Beijing 2022 Olympic and Paralympic Winter Games, with smooth and safe travel in place for participants.

The measures are in place until March 16. The Games are being held in downtown Beijing, Yanqing district in the northwest and the co-host city of Zhangjiakou in Hebei province.

Point-to-point shuttle buses are the main form of transport during the Games, said Wu Shijiang, deputy head of the Beijing transport commission.

Due to epidemic control protocols, all participants are required to stay within a closed loop during the Games.

Special lanes marked with Beijing 2022 logos have been set up in the capital to facilitate the movement of permitted vehicles. A total of 42 roads in Beijing stretch as long as 240 kilometers, including highways and freeways. The lanes cover links to the airport, railway stations, venues and athlete villages.

Only permitted vehicles and vehicles for emergencies, such as fire trucks and ambulances, are allowed on the Olympic lanes. Most of the special lanes are for permitted vehicles from 6 am to midnight; the expressway connecting Beijing and Chongli district of Zhangjiakou is for permitted vehicles 24 hours a day.

An expressway linking Yanqing district of Beijing and Chongli halves travel time between the two venues to one hour. There used to be no direct expressway linking the two areas.

The 115-km link is a smart and green expressway, the Ministry of Transport said. It opened to traffic in 2020, traversing mountainous areas in northwestern Beijing. Highway construction posed many challenges, with nearly 90 percent of the road’s Beijing section consisting of tunnels and bridges.

The link crosses wetlands, reservoirs, mountains and other natural sightseeing areas, including the Wild Duck Wetland and the Yudu Mountains in the suburbs of Beijing. Designers and builders paid special attention to environmental protection, such as the laying of long tunnels to reduce any impact on the surroundings.

Special construction techniques, such as anti-frost road surfaces, were also adopted for the expressway to improve driving safety in mountainous areas, especially in winter.

Smart facilities and equipment such as information robots have been deployed in service areas along the expressway, and a Beidou navigation system has been

adopted to improve travel.

Games participants can also experience China’s smart high-speed railway. During the Olympics and Paralympics railway authorities are using as many as 80 bullet train trips every day along the Beijing-Zhangjiakou high-speed railway, with a designated speed of 350 kilometers an hour.

Passengers can take the bullet train from downtown Beijing to Yanqing in half an hour and to Chongli in an hour, the national operator China State Railway Group said.

Four railway stations, Qinghe and Yanqing in Beijing, and Taizicheng and Chongli in Zhangjiakou, offer separate services to participants in the closed loop and regular passengers to comply with epidemic control protocols, said Cui Wei of the passenger service department of China Railway Beijing Group.

The stations are divided into two areas in and out of the closed loop. Participants required to stay within the loop during the Games use the special areas at the stations, including designated bullet trains and platforms.

Regular passengers can enter, wait and board the train in the other areas.

Shuttle buses for transfers between stations and destinations are provided in certain areas.

A designated group of railway staff, including drivers, attendants and conductors, provide onboard services to passengers in the loop.

The stations also offer customer services in English and Chinese, as well as ski gear shipment services.

A specially designed livery for the smart Fuxing bullet train has joined the fleet to serve the Games. The white and blue design sports 24 snowflakes representing the 24th Games.

It has eight carriages, including business, first- and second-class compartments. A broadcast of the Games and Wi-Fi are provided onboard.

To serve media needs, the train has special working compartments with tables and international electric sockets. There is also a high-definition studio for live broadcasts of interviews with athletes and officials, supported by 5G technology. The train is the first of its kind to offer HD signal transmission while traveling at speeds of up to 350 km/h.

The interiors are decorated with Winter Games motifs, including winter sports photos on the walls and paper snowflakes on the roof.

“It is the most advanced bullet train in China,” said Zhu Yan of the engineering research center at the China Railway Rolling Stock Corp Changchun Railway Vehicles, the train maker.



During the Olympics and Paralympics, as many as 80 bullet train trips have been scheduled a day along the Beijing-Zhangjiakou High-speed Railway line, with a designated speed of 350 km an hour. JIA TIANYONG / CHINA NEWS SERVICE

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## Skate expectations

By ZHAO YIMENG

With a blue to white gradient tulle dress and pink skates, Ren Zan performs an elegant and confident ice dance with teammates on the rink inside their primary school in Yanqing district of northwestern Beijing.

The fourth-grade student has been practicing ice dancing since she first went to school and spends nearly an hour every day on the 1,800-square meter outdoor skating rink. Taipingzhuang Center Primary School built the rink in 2016 as part of an effort to boost students' interest in winter sports.

"Sometimes we were afraid of falling, but our coach would ask us to relax our shoulders," Zan said. "I love dancing on ice."

The school's ice-dancing team has more than 30 members, she said.

Ding Jianpei, the principal, said the school has bought more than 200 pairs of skates and other skating gear to provide ice activities for all 164 students.

"We rescheduled the school curriculum, integrating the time for exercise breaks, physical education classes and after-school activities to make sure that each grade is granted access to the ice activities for an hour every day."

The school has organized student clubs for speed skating, figure skating, ice hockey and curling, and the outdoor rink is open to parents and nearby residents.

Fan Huixin, 10, is part of the school's curling club formed in late December. "The first time I saw curling stones was in school," Huixin said. "We have learned unity and wisdom from the game."

During a competition a member of the boys' team shouted: "Remove their stones."

The outdoor curling sheet is scaled down from the standard size used in the Winter Olympics, said Zhang Lijia, coach of the curling team.

Zhang, a teacher at the school, has an interest in winter sports and is

enthusiastic about introducing the students to them.

"I studied the rules of curling by myself and taught my students. We made progress together through learning and competitions. By taking part in winter sports, children can experience success and failure, and also glean happiness and wisdom."

Ding said children not only enjoy playing winter sports and strengthening their bodies, but also have their personalities shaped through physical education.

"Our students organize the gear and sometimes sweep the ice on their own."

The school has nurtured nearly 30 ice skaters for the district's professional ice and snow sport teams, he said.

As China set a goal to get 300 million people involved in winter sports and the buzz around the 2022 Olympic

Winter Games grew, more children and school students have been given access to such activities.

Wang Chunlu, a former short-track speed skating world champion and multiple Olympic medalist, and dean of the China Ice Sport

School at Beijing Sport University, said China, which began promoting ice and snow sports in early 2015, has already exceeded its goal, with 346 million people taking part in winter sports.

"Teachers play an essential role in getting children involved in winter sports. Like sowing seeds, they provide knowledge, skills, and promote the winter sports culture to teens at school."

Winter sports celebrities are also playing a role in attracting more teenagers to winter sports. Last month the Chinese figure skating duo Pang Qing and Tong Jian established a foundation to support the winter sports industry in China. The foundation, part of the China Sports Foundation, will fund projects to cultivate figure skating skills among teenagers and offer them opportunities in international competitions, Tong said.



Teenagers practice speed skating at a rink in the Yanqing district of Beijing last month. LI YAN / FOR CHINA DAILY



Women competing in a 3,000-meter race in the National Speed Skating Oval in Beijing on Feb 5. CHINA NEWS SERVICE

## Golden legacy is Beijing Games' greatest gift

Sustainable plans boost regional development. Sun Xiaochen reports

Beijing's vision of hosting a sustainable Winter Olympics is materializing in a big way, with the Games' venues and projects primed to benefit local communities and the economy far beyond the closing ceremony.

Chinese organizers have focused not merely on delivering an excellent and safe Games on schedule, but have banked on venues, services and infrastructure to facilitate sustainable regional development and boost people's well-being.

Owners and operators have drawn up post-Games plans for all newly built venues, and efforts relating to ecological conservation, reducing carbon emissions and long-term winter sports promotion have yielded positive results, a sustainability report issued by the organizing committee shortly before the Games opened on Feb 4 said.

"This report shows that Beijing 2022 recognizes the responsibility to integrate sustainability principles throughout all stages of the Games' preparation," the International Olympic Committee President Thomas Bach said.

"Already now, these Games are providing tangible social and economic benefits for the people in Zhangjiakou and Yanqing."

Preparations for the Games, featuring measures such as repurposing existing venues, energy-efficient architecture and eco-friendly refrigeration, are expected to shed light on a green and sustainable future for people and businesses in the three competition zones of downtown Beijing, the northwestern district of Yanqing and the co-host, Zhangjiakou, in Hebei province.

The reuse of venues built for the 2008 Summer Games in downtown Beijing, such as transforming the National Aquatics Center into a venue for curling, and changing the Wukesong Arena from a venue



The Capital Indoor Stadium has installed an eco-friendly ice-making system that uses carbon dioxide as a refrigerant. XINHUA



From using 2008 venues to the many measures to minimize environmental impact and reduce carbon emissions, all these initiatives underline the commitment of Beijing 2022 to contribute to sustainable development in China."

Thomas Bach,  
International Olympic  
Committee President

for basketball to one for ice hockey, set the standard for post-Games operations of permanent Olympic venues.

"The point is not to refurbish old venues and turn them into something totally different," said Liu Yumin, director of planning, construction and sustainable

development of the Beijing 2022 organizing committee.

development of the Beijing 2022 organizing committee.

"It's to diversify the functions of these venues and make them compatible with various purposes while expanding their businesses."

The National Speed Skating Oval, the only newly built competition venue for the Games in downtown Beijing, has adopted a cooling system using carbon dioxide as a clean refrigerant, instead of the harmful substance Freon, to make ice for skating tracks.

The system features high security, low energy consumption and operational costs, and is environmentally friendly, Zhang Xinrong, a professor at Peking University, said.

Song Jiafeng, an engineer with the venue's construction team, said using carbon dioxide as a refrigerant can increase ice-making efficiency by 30 percent and save around 2 million kilowatts of electricity per year.

The choice was applauded by the IOC, which "fully supports" the decision and its implementation.

It is the first time in Olympic history that CO2 refrigerant has been used at a competition venue

of such scale, and organizers said they expect to transfer the cooling system to more commercial rinks and skating centers after the Games.

The design of the 12,000-square-meter ice surface at the venue, compared with traditional speed skating venues with only an oval-shaped circle track, leaves enough rink space at the center to accommodate more activities, such as curling, figure skating and hockey, said Li Sen, director of Beijing 2022's general planning department.

"It will help diversify business operations for the venue owner after 2022. Grassroots winter sports promotion and recreational activities could be staged here as well in the breaks between world-class speed skating events."

Impressive sustainable efforts outlined in the report also include the ecological conservation, natural environment protection and water-saving projects implemented at mountain venues in Yanqing and Chongli district of Zhangjiakou, where the construction of ski slopes, athletes' villages and snow-making facilities were carried out under the guidance of experts to avoid disturbing wild animals, forest destruction and wasting resources.

At the foot of the National Alpine Skiing Center on Xiaohaituo Mountain in Yanqing, more than 24,000 trees were transplanted from ski runs to two nearby forest parks totaling 53 hectares in area.

More than 90 percent of the transplanted trees have survived and flourished in their new home, the district government said.

"From using 2008 venues to the many measures to minimize environmental impact and reduce carbon emissions, all these initiatives underline the commitment of Beijing 2022 to contribute to sustainable development in China," Bach said.

## Winter sector sees profits snowball

By ZHU WENQIAN

Ever since Beijing won the bid to host the 2022 Olympic Winter Games in 2015 interest in snow and ice sports in China has surged, with skiing and ice skating venues popping up all over the country.

A case in point is Changsha Xiangjiang Happy City, a veritable snow paradise whose visitor numbers have soared, especially since the summer of 2020.

Since July 1 of that year the indoor ski venue in Changsha, Hunan province, has welcomed about 400,000 visitors. The center is busiest in summer, welcoming about 2,500 visitors each day.

"In the southern part of China, where there is hardly any snow, many people didn't know much about skiing before," said Liu Yu, a sales representative at Changsha Xiangjiang Happy City. "Now, more and more people are willing to learn about it and try the sport. In terms of the market, the positioning of indoor ski venues in the region is similar to theme parks."

"Many companies in southern China like to organize group ski outings for their staff, and locals tend to prefer skiing to other group events."

The increasing number of indoor ski venues opening nationwide over the past two years, especially medium- and large-scale venues in southern China, has helped drive the growth in participation.

In 2020, 2.69 million people went

skiing at indoor ski venues in China, accounting for 21 percent of those who went skiing during the year. Nationwide there were 36 indoor ski resorts by the end of 2020, the highest globally, an industry research report by the Beijing Ski Association said.

"From 2014 to 2020 the number of ski resorts and the quality of facilities improved significantly," said Wu Bin, vice-chairman of the Beijing Ski Association and a distinguished visiting lecturer at Beijing Sport University. "Between 2014 and 2020 the number of skiers in China doubled to more than 20 million."

During the three-day new year holiday in early January ice and snow trips were among the most popular activities for Chinese travelers. Nationwide, bookings for hotels near ski resorts, for ski venues and related ice and snow sightseeing spots all rose more than 110 percent compared with the previous season, the online travel agency Tongcheng Travel of Suzhou said.

Investment in the industry is expected to pick up this year, with the national fitness drive envisaged as one of the industry's main focuses over the next few years.

By 2025 total revenue in China's ice and snow sector is forecast to reach 1 trillion yuan (\$157 billion), with more than 500 million people projected to take part in ice and snow activities, a report by the General Administration of Sport said.

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