



Legacy Case Studies

Olympic and Paralympic Winter Games Beijing 2022





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Beijing Organising Committee for the 2022 Olympic and Paralympic Winter Games

Beijing Sport University

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Together for a Shared Future

Foreword

The Beijing 2022 Organising Committee has always adhered to the concept of hosting “green, inclusive, open and clean” Olympic and Paralympic Winter Games. It has actively implemented the reform roadmaps set forth by the *Olympic Agenda 2020*, and worked with all parties concerned to cope with various challenges such as the COVID-19 pandemic.

Creating long-term legacies that benefit the people, the host city and the region has always been taken as the priority of the Beijing 2022 Games preparation. The *Legacy Plan for the Olympic and Paralympic Winter Games Beijing 2022* aims to create a wealth of legacies in seven major fields, namely sports, economy, society, culture, environment, urban and regional development, so as to give full play to the promoting role of the Olympic Games in the coordinated urban and regional development and social progress.

To date, legacies are taking shape rapidly in the above-mentioned seven major fields, and more and more people are benefiting or will benefit from these legacies over a long period of time.

I. Engaging 300 million people in winter sports

Beijing’s success in the candidature for the Olympic Winter Games in 2015 ignited the public enthusiasm for winter sports and promoted the popularisation of winter sports across China. According to China’s National Bureau of Statistics, 346 million Chinese have taken part in winter

sports by October 2021 since Beijing was elected the host city for the Olympic Winter Games, which is equivalent to 24.56% of the total population.

The vision of “engaging 300 million people in winter sports” has become a reality.

Prompted by the preparations for Beijing 2022, a series of plans and policies have been formulated and launched to promote the development of winter sports, paving the way for the popularisation and development of winter sports in China.

Construction of winter sports venues and facilities has been accelerated, with 654 and 803 standard ice rinks and ski venues built across China by early 2021, a 317% and 41% increase compared with 2015.

Seven editions of the “National Public Ice and Snow Season” have taken place consecutively, and over 1,000 winter sports competitions and events have been staged each year, directly and indirectly engaging nearly 100 million people.

The Programme of Winter Sports on Campus has been extensively carried out to popularise winter sports among 250 million primary and middle school students across China. By the end of 2020, 2,062 schools in China had been selected as schools with winter sports programmes.

High-level winter sports events have been held in the country. From 2018 to 2019, 75 domestic

winter sports events took place, and a large number of international competitions like World Cups, World Championships, Tournaments and Grand Prix of the International Federations for winter sports were staged in China.

Preparing for participation in all the sports of Beijing 2022 has greatly propelled the development of competitive winter sports in China. 35 national teams have been established, covering all 109 events of Beijing 2022. Active efforts have been made to enable the people with impairment to take part in winter sports, and the Chinese teams will participate in all six sports of the Paralympic Winter Games Beijing 2022.

Beijing 2022 has encouraged more and more people to take part in winter sports. Regular participation in sports has become part of people's life and promoted fitness for all and the building of healthy China. The percentage of people regularly engaging in sports in Beijing increased from 43.7% in 2001 to 50.1% by the end of 2020, and that in Hebei accounted for 43.4% of its permanent population.

II. Promoting the development of winter sports industry and boosting technological innovation

Prompted by the preparations for Beijing 2022, winter sports resources are constantly gathering and winter sports industry is developing rapidly. The integration of science and technology with winter sports has brought forth the demonstrative application of a number of innovations for the Games. The marketing of winter sports industry has been fruitful. The vitality of the winter sports economy has become a pivotal force to support the high-

quality development of the regional economy.

As the popularisation of winter sports pushing ahead rapidly and the construction of winter-sports venues and facilities speeding up, the winter sports industry is developing swiftly, with winter sports equipment manufacturing, winter fitness and leisure industry, winter sports tourism, winter sports conferences and exhibitions and winter sports culture expanding continuously, forming a relatively well-developed winter sports industry system in China. The scale of China's winter sports industry was about RMB 423.5 billion by the end of 2019, a 56.8% increase compared with RMB 270 billion in 2015.

The *High-tech Winter Olympics (2022) Action Plan* was formulated and implemented, and 80 key projects of the plan had been launched by November 2021. 112 technological innovations in 37 of these projects have been applied to Beijing 2022. The application of these innovations will be expanded to different areas of urban operations after the Games, forming a rich technological Olympic legacy.

Beijing 2022 has successfully signed agreements with 45 Marketing Partners, including 11 Official Partners, 11 Official Sponsors, ten Official Exclusive Suppliers and 13 Official Suppliers. The Licensing Programme was formally launched in July 2018, and over 5,000 licenced products in 16 categories were developed by the end of 2021, with online and offline sales channels across the country. Beijing 2022 provides its sponsors with development opportunities and a platform, which have enabled them to develop rapidly.

III. Engaging people and creating social value

The preparation and staging of Beijing 2022 have not only embodied the idea of being “together”, but also reflected the concept of the Games being “participated by all, contributed by all and shared by all”.

The Olympic Education Programme has been widely unfolded to spread Olympic values among the youth and promote their healthy and all-round development. By the end of 2020, 835 schools across China had been recognised as Olympic Education Demonstration Schools.

Volunteer Services at Beijing 2022 have been driving the development of volunteer services in the city, and the number of people registered to be volunteers for Beijing 2022 has reached 1.15 million. Similarly, the number of people registered as volunteers on the information platform of Beijing Volunteer Service Federation has exceeded 4.436 million, among whom 130,000 have signed up to assist the people with impairment. The growing enthusiasm of the public to take part in volunteer services has set a positive social trend of “dedication, friendliness, mutual aid and progress”.

With Beijing 2022 as a vehicle, communication with international sports organisations has been strengthened and elements of Beijing 2022 have been integrated into diplomatic activities. Sports collaboration and cultural exchanges between China and other countries focusing on winter sports events have also been promoted, making Beijing 2022 an important platform to promote global solidarity during the pandemic.

The building of an inclusive society for people with impairment has achieved remarkable results. Construction of accessibility has sped up and the accessible service system improved, bringing great convenience to the travel and daily life of the people with impairment and allowing them to integrate into the society more easily.

IV. Spreading Olympic values and promoting Chinese traditional culture

The preparations and staging of Beijing 2022 have promoted the spread of the Olympic values in China, especially in the host city, as well as the discovery and learning of diverse world cultures, giving rise to cultural legacies unique to Beijing 2022.

A number of Beijing 2022 cultural facilities have been built to facilitate the spread of Olympic values at the Olympic Winter Games. By the end of 2021, 43 Beijing 2022 City Live Sites have been set up across China for the celebration of Olympic culture during the Games. Olympic Parks have been built in all three Competition Zones of Beijing 2022, adding new spaces for holding public cultural activities.

The founding of the Beijing Institute for International Olympic Studies, Chongli Overseas Chinese Ice and Snow Museum and Taizicheng Archaeological Relics Park will facilitate the study, spread and promotion of Olympic values and the Chinese traditional culture.

Rich and colourful cultural events have been held to mark the milestones and occasions in the preparations for Beijing 2022,

A series of Beijing 2022 identities and symbols have been designed and developed, including emblems, torches, mascots and pictograms, all inspired by elements of Chinese traditional culture.

A plenty of Beijing 2022 cultural products have also been created, including songs, TV programmes, video clips, films and television productions. These cultural products have perfectly combined the Olympic values with China's traditional culture and elevated the creation and production level of cultural products in China.

The means for the promotion of Beijing 2022 have been innovated, with many new technologies applied in the field of cultural communications, which has helped upgrade the capacity and standard of communications in the country as a whole.

To prepare for Beijing 2022, the host city has continued to improve its public cultural service systems to provide better cultural services, so as to satisfy the growing and diverse spiritual and cultural needs of the general public.

V. Sustainability in Games preparations and operations

The Beijing 2022 Organising Committee has applied the concept of sustainability in the preparation and staging of the Games. Low-carbon management has been enforced in the effort to achieve the carbon-neutrality target of Beijing 2022. Ecological and environmental protection at the Competition Zones has been strengthened in order to achieve significant improvement in regional ecology and

environment and positive impacts of the Games on the environment.

The planning and construction of Beijing 2022 venues maximised the use of existing venues and facilities. Out of the 12 competition venues, five are existing venues and the building of new venues has been avoided wherever possible. Great efforts have been made to apply green-building standards to the construction of all venues.

In the construction of the Competition Zones, flora and fauna, topsoil and water resources have been protected, and ecological rehabilitation actions have been taken in any areas affected by the construction.

Low-carbon management has been carried out in the Games preparations and innovative projects have been promoted and demonstrated, such as low-carbon venues, low-carbon energy and low-carbon transport. Carbon dioxide refrigerant is used at four ice sports venues, and 100% of the regular power demand of venues is satisfied with renewable energy. Over 85% of vehicles are energy efficient or use renewable energy.

In addition to the carbon reduction actions, carbon offsets have been carried out through multiple approaches, such as promoting forestry carbon-sink projects and enterprise-sponsored certified emission reductions. The Carbon Generalised System of Preferences has also been promoted to encourage the public to adopt a low-carbon lifestyle, so as to fully achieve the carbon-neutrality target of Beijing 2022.

The coordinated ecological and environmental

control in the Beijing–Tianjin–Hebei Region has been vigorously promoted, and intensive actions to reduce air pollution, protect water environment and prevent desertification have seen positive results. The air quality in the region has improved significantly, with the average concentration of PM 2.5 in Beijing and Zhangjiakou dropping from 80.6 $\mu\text{g}/\text{m}^3$ and 34 $\mu\text{g}/\text{m}^3$ to 33 $\mu\text{g}/\text{m}^3$ and 23 $\mu\text{g}/\text{m}^3$.

The launch of afforestation projects has resulted in the increased forest coverage from 41.6% and 37% to 44.4% and 50% in Beijing and Zhangjiakou. The water quality in Beijing, Tianjin and Hebei continues to improve. The percentage of wastewater treatment in Beijing has increased from 87.9% to 95%, while the percentage of ground–water sections with good water quality in Zhangjiakou has increased from 70% to 100%. The substantial improvement in the quality of regional eco–environment has created a beautiful backdrop for Beijing 2022.

VI. Promoting local development

The preparations for Beijing 2022 have vigorously promoted the development of the cities of Beijing and Zhangjiakou, and the urban and rural areas in Yanqing and Shougang, where the upgrade of urban infrastructure is speeding up; the ecology and environment have continued to improve, the winter sports industry is developing rapidly, the social services have seen substantial improvement, and the public sense of happiness has further increased.

Beijing is the first host city of both the Summer and Winter Olympic Games in the world. Beijing 2008 created a wealth of invaluable legacies

that have strongly supported the rapid urban development of Beijing after the Games, while Beijing 2022 has extensively facilitated the popularisation of winter sports and fitness for all. Furthermore, Beijing has continued to improve its infrastructure, public services and ecology and environments, and expedited urban transformation and high–quality development of the city.

Yanqing District has seized the opportunity provided by Beijing 2022 to develop its economy based on its three advantages, namely Beijing 2022, the Horticulture Expo 2019 and the Great Wall. It has also planned ahead the post–Games multiple uses of its venues and supporting facilities, and promoted the development of winter sports technologies and new energy and the building of beautiful villages. Yanqing is progressing steadily towards the goal of becoming a “Beautiful Beijing 2022 Host City”.

In **Zhangjiakou**, the popularisation of winter sports is picking up pace, and the industries focusing on winter sports equipment manufacturing are developing rapidly. The winter sports economy has increased employment in the area and improved people’s living standard significantly, with a population of 939,000 below poverty line lifted out of poverty. Zhangjiakou is striving to create an Asian winter–tourism destination and a sports city.

Shougang, a century–old steel company, was relocated for the purpose of providing services for the Beijing 2008 Games and in compliance with the national strategy for the transformation and upgrade of the steel industry and Beijing’s

strategic city positioning. Years later, the moving in of the Beijing 2022 Organising Committee and the building of Big Air venue have provided Shougang a good opportunity to combine the reuse of its industrial legacy with the preparations for Beijing 2022. Thus, a new landmark representing Beijing's city revival was created.

Beijing Winter Olympic Park, Yanqing Olympic Zone and Zhangjiakou's Chongli Olympic Park will embody the Olympic heritage and memory of the three Competition Zones. After the Games, the three Olympic parks will host top-level winter sports and mass sports events and consolidate their positioning as an all-season tourist destination and the top winter sports resorts in the Beijing-Tianjin-Hebei Region.

VII. Accelerating the coordinated development of the Beijing-Tianjin-Hebei Region

The preparations for Beijing 2022 have played a critical role in accelerating the coordinated development of the Beijing-Tianjin-Hebei Region. Beijing 2022 has accelerated the connection of transport infrastructure, enhanced the joint efforts in the control and protection of eco-environment, and promoted the development of industries that are mutually complementary and the co-development and sharing of public services in Beijing and Zhangjiakou. It is also attributed to the hosting of Beijing 2022 that the development of the Beijing-Zhangjiakou Sport, Culture and Tourism Belt has been launched and impressive progress achieved. The implementation of the strategy for the coordinated development of the Beijing-Tianjin-Hebei Region and the preparations for Beijing 2022 have created a win-win result

for both the Olympic Movement and the host country.

Transport infrastructure in Beijing and Zhangjiakou has been connected and the Beijing-Zhangjiakou High-Speed Railway and Beijing-Chongli Expressway built, reducing the travel time between the two cities to only 50 minutes. The density of the regional transport network has increased and general transport hubs have been built, which will provide strong support for the regions' continuous development after the Games.

Industries that are mutually complementary are developed in Beijing and Zhangjiakou. In line with their cities' functional positioning and giving full play to their respective advantages, Beijing and Zhangjiakou have actively enhanced the collaboration in winter sports industry, particularly in winter sports equipment manufacturing, renewable energy related industries and agriculture.

Public services have been co-developed and shared in the three Competition Zones in Beijing and Zhangjiakou, such as in the areas of telecommunications, accommodation, catering, medical care and education. In the area of infrastructure construction, Beijing and Zhangjiakou have jointly built the Peking University Third Hospital Chongli and some educational facilities, which have further elevated the overall public-service standard of the region.

The Beijing-Zhangjiakou High-Speed Railway and Beijing-Chongli Expressway have facilitated the development of the Beijing-Zhangjiakou Sport, Culture and Tourism Belt, bringing new

momentum to the development of the regional economy.

Behind the spectacular scene of Beijing 2022 is the hard work of tens of thousands of people. Their stories and the countless pages of Games preparation records are the mirror of the new concepts, methods and models they have developed in the Games preparations. Their innovative efforts have produced the most exemplary achievements of the preparations, which are also the best legacies most worthy of being passed on, as well as the best demonstrations of the fantastic, extraordinary and excellent Olympic and Paralympic Winter

Games.

The report includes 44 legacy cases from the preparations for Beijing 2022, reflecting the achievements in the areas of winter sports popularisation and development, Beijing 2022 venues, scientific and technological innovations, environmental protection, urban renewal, regional coordination, cultural communication, Olympic education, volunteer services and the building of an inclusive society for people with impairment. They are the most striking stories and the best examples of the Games legacies, and will always be remembered and passed on.

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Case Studies of Venues Legacy



National Aquatics Centre

From “Water Cube” to “Ice Cube”

Editor's note: The National Aquatics Centre, also known as the Water Cube, once housed the swimming, diving and artistic swimming events during Beijing 2008. Now, it will turn to host the curling and wheelchair-curling events of Beijing 2022. Sustained by a giant stilt frame made of steel structure, the original swimming pool of the Water Cube has been successfully transformed into a curling playground. After Beijing 2022, the venue will stage not only aquatic and ice sports events, but also major cultural and artistic performances, thus truly achieving the goal of repeated, all-round and continuous use of the venue.

Situated in the Beijing Olympic Green and accomplished on 28 January 2008, the National Aquatics Centre occupies a land area of 62,950 m² and possesses a total floor area of 100,000 m². With its main structure closely adjoining the city's Central Axis, the venue stands on the opposite side of the National Stadium. During Beijing 2008, it was the venue for swimming, diving, artistic swimming and part of water polo events, and accordingly witnessed a total of 42 gold medals being awarded here, of which eight were taken off by the US athlete Michael Phelps, making him the player who has won the most gold medals in a single edition of Olympic Games, and leaving a deep imprint in the Olympic history. During Beijing 2022, the venue is set to host curling and wheelchair-curling events, with four gold medals to be awarded.

Serving the public: an aquatic entertainment park and a sports competition venue

After Beijing 2008, adhering to its positioning of serving the public, the National Aquatics Centre has kept promoting aquatic sports, so as to practise the ideal of fitness for all. The renovation after Beijing 2008 transformed the centre



● National Aquatics Centre

into three major functional areas, namely the Olympic Games Competition Hall, a warm-up area and an aquatic entertainment park, where children may play with water, and adults could swim and do exercise. By the end of 2017, the Centre had received over 20 million tourists, staged over 1,200 different events and served two million amateur swimmers.

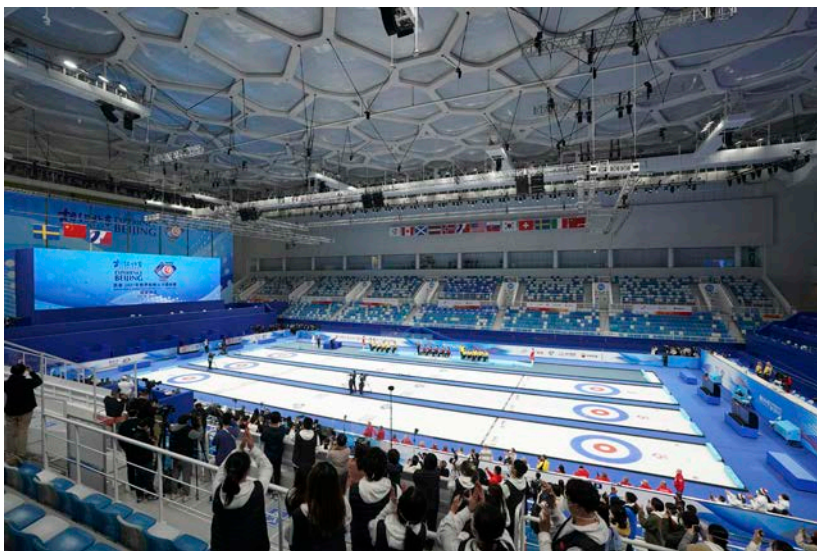
Besides, the Centre also held a series of International Swimming Federation (FINA) events, including the FINA Diving World Series, FINA Swimming World Cup and FINA Artistic Swimming World Series. The Beijing leg of the FINA Swimming World Cup has been

taking place for nine consecutive years, while that of the FINA Diving World Series, eight years.

A dual-function venue: transition between water and ice

The National Aquatics Centre is able to shift from a swimming pool to a curling arena through water-ice transition.

The curling venues of the previous Olympic Winter Games used to make their field of play by covering the concrete structures with ice. However, the National Aquatics Centre chose to set up curling ice surface atop the swimming pool. It did so by setting up steel frames



• Wheelchair-curling event of “Experience Beijing” winter sports event series at the Ice Cube

and support plates above the swimming pool before covering them with an insulation layer and a waterproof layer; and then the curling ice rinks were meticulously created atop for competition. The transition took about one month, and allowed the switch from the “Water Cube” to the “Ice Cube”, greatly expanding the functions of the venue. The materials used for the transition could be reused, therefore considerably reducing the cost of removal and renovation afterwards.

Smart management of the venue

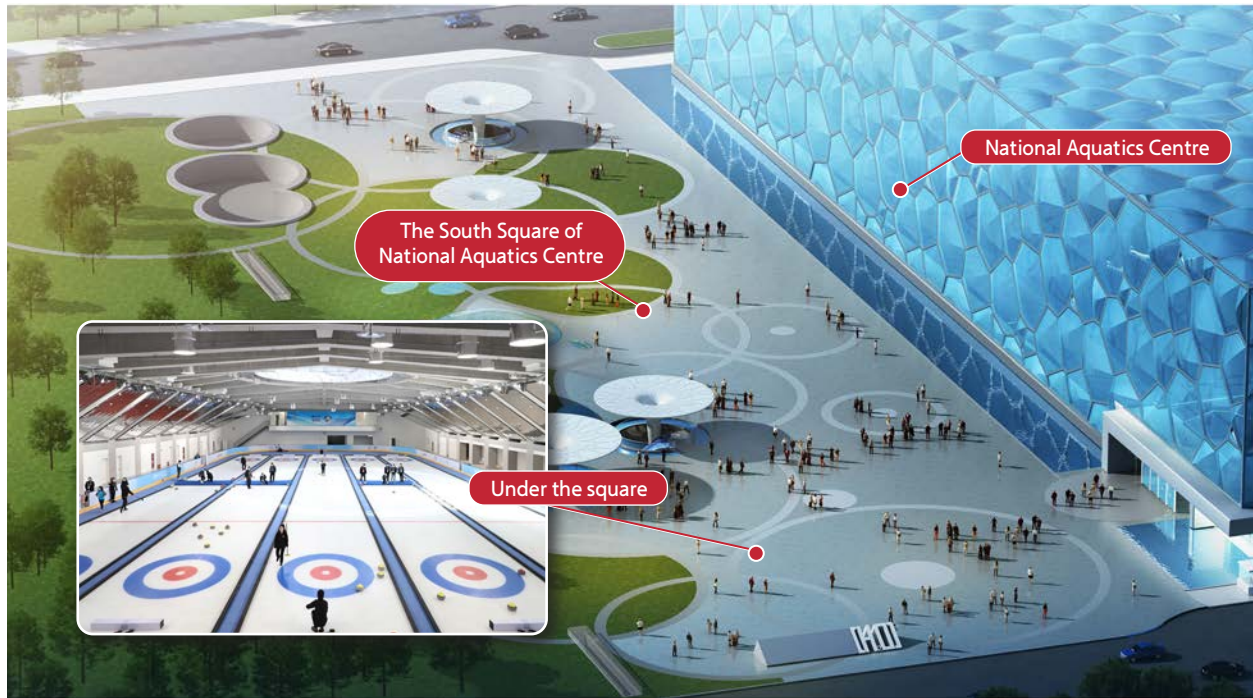
The National Aquatics Centre

is the first renovated venue of Beijing 2022 that received China’s



• Beijing leg of FINA Swimming World Cup 2017 took place at the Water Cube, the National Aquatics Centre

two-star grade designation for green architecture. Its smart architectural-management system will effectively control and monitor changes related to indoor temperature, humidity, lighting and acoustics, so as to provide a favourable environment for the curling events of Beijing 2022. Technological means such as the Internet of Things, cloud computing and building information modelling have been fully exploited. Meanwhile, an energy-control centre has been set up for the itemised and area-based measurement control of water and energy consumption, including air conditioning, heating, elevator use and lighting. A platform for the control and



monitoring of aggregated energy consumption and carbon emissions has also been built up, so as to effectively control the carbon emission and create a low-carbon venue.

Post-Games use: multi-purpose, all-weather and all-round operations

After Beijing 2022, the National Aquatics Centre will be staging events related to fitness for all, aquatic and ice sports, youth training and the training of China's national teams, in addition

to various cultural events.

Organising fitness-for-all and winter sports popularisation events. After Beijing 2022, the National Aquatics Centre will remain its identity as an “all-weather venue driven by two wheels”, that is, it will serve both aquatic and ice sports. On the one hand, the Centre will keep open to the public for promoting their swimming and fitness. On the other hand, the main swimming pool could be transformed to an ice rink for high-level curling competitions and public

experience activities. Meanwhile, the two newly built ice rinks in south square will also be opened to the public for various ice sports for all activities and training.

Staging aquatic and ice sports events. After Beijing 2022, the National Aquatics Centre will continue to stage national and international aquatic events, including swimming, diving and artistic swimming. It will also hold ice events, such as curling and figure skating. Furthermore, it will be the professional training and competition venue for China's



● The 100-day countdown to Beijing 2022 at the Ice Cube, the National Aquatics Centre

national swimming, curling and other professional sports teams.

Holding commercial events and residency performances. The National Aquatics Centre has held a great number of events related to science and technology, automobiles and fashion since 2008. After Beijing 2022, it will continue to stage different kinds of events, including major public-relations events, product launches, annual business meetings, major conferences, performances, banquets and exhibitions. In one word, it will become a top

exhibition and exchange platform for national and international art and cultural communication.

Introducing aquatic and ice sports education for the youth. The business model of the current swimming club will be replicated to create an ice club after Beijing 2022. Working with primary and high schools in Beijing, ice sports programmes will be offered. Meanwhile, a children's experience hall will be built to develop a children's educational base for multiple activities.

Showcasing and promoting the Olympic Winter Games culture.

A 1,500 m² culture exhibition area for both Beijing 2008 and Beijing 2022 will be set up after the Games. Through diverse promotions and events, the public will be drawn and inspired to take part in sports.

The National Aquatics Centre has maintained a high use rate after Beijing 2008. As the venue legacy of two Olympic Games, it will continue to expand its use and enrich its features after Beijing 2022; and ultimately developed into an "all-weather venue driven by two wheels", which can satisfy public demands for both aquatic and ice sports. The centre will adopt an annual service model of "aquatics for three seasons and ice events for the rest one". Furthermore, it will create an all-round operation pattern that integrates premium competitions and performances, sports and fitness, sports leisure and entertainment, development of intangible assets and cultural tourism, so as to propel the development of competitive sports, fitness for all and culture and leisure businesses.



National Indoor Stadium

Evolution of an Olympic Venue from Summer to Winter Games

Editor's note: As one of the summer and winter Olympic venues, the National Indoor Stadium that once hosted artistic gymnastics, trampoline, handball and wheelchair basketball competitions during Beijing 2008, is now planned to stage men's ice hockey, some of women's ice hockey and para ice-hockey events of Beijing 2022.

In the process of renovation, the National Indoor Stadium adhered to the concept of running athlete-centred Games, incorporated architect components featuring winter sports culture, and ultimately delivered a facility that allows more extensive exploitation after the Games in its utilisation in the fields of public sport and fitness activities, as well as other cultural and sporting events.



● National Indoor Stadium



● National Indoor Stadium

Located in the central area of the Olympic Green, the National Indoor Stadium originally had a total floor area of 80,890 m² and

witnessed the accomplishments of 14 Olympic gold medals during the Beijing 2008. After the Summer Games, it was used

mainly for large national and international sporting events and cultural performances, in addition to other services for the public.

Later on, in order to adapt to the needs of Beijing 2022, the stadium underwent a set of major renovations: the ice-hockey competition function was added to the Main Hall, the competition locker rooms were built up in the area of the original Auxiliary Hall, and an ice-hockey training hall, also known as Ice Castle, was newly constructed to the north side of the existing building, thus increasing its surface area to 98,000 m², and realising its evolution from a stadium for Summer Games to a dual-function Olympic venue.

Achieving green building evaluation standards

The stadium was renovated in line with the two-star grade classification requirements of the *China's Green Building Evaluation Standards*. The use of glass bricks that resemble ice blocks allows the introduction of more natural light, which is regulated by the external and internal shading systems that maximally reduces energy consumed by illumination. The adoption of the latest, internationally leading



● Training Hall of the National Indoor Stadium

refrigerants by the ice-making system effectively lowers the emission of greenhouse gases, and the thermal-recycling system makes the ice-making system more environmentally friendly. Fitted with sensors, the venue is able to automatically regulate fresh air, and 90% of the space has the capacity to purify air. As to the locker rooms, pre-fabricated blocks and assembly-type construction technology were adopted, and friendly and

recyclable construction materials were selected.

Diverse use of the “amphibious” venue after the games

The renovated stadium has two ice rinks that measure 60 x 26 m. They may also be transformed into 60 x 30 m rinks that could stage other events such as figure skating and short track speed skating. The stadium is also able to switch between a venue for winter sports

to one for summer sports, which fully reflects its “amphibious” feature while allowing its diverse use after the Games.

After the Games, the stadium will continue to hold national and international sports events, including ice hockey, basketball, gymnastics and boxing. Meanwhile, it will also be open to the public. In addition to staging summer events, it will introduce public ice-hockey training and competition events to promote the sport. Furthermore, charity events will take place to popularise and develop winter sports such as figure skating, curling and short track speed skating. The stadium will also be used for commercial purposes, including cultural performances, immersive experience for scientific and technological entertainment and television shows.

In summary, after Beijing 2022, the stadium will be used in an all the year round, making itself a major sports and cultural landmark in the Olympic Green.



Wukesong Sports Centre Venue Cluster

A Powerhouse in the West Part of Beijing

Editor's note: The Wukesong Sports Centre (M Space) (the “Centre”) played host to basketball competitions during the Olympic Games Beijing 2008 (“Beijing 2008”) and will host the finals of Women’s Ice Hockey during the Olympic and Paralympic Winter Games Beijing 2022 (“Beijing 2022”). The temporary baseball venue of Beijing 2008 which was built on the surrounding land of the Centre has been demolished after the Games and rebuilt into a commercial block (HI-UP). After Beijing 2008, a public basketball theme park (HI-PARK) was built in the south part of the Centre. To serve Beijing 2022, Wukesong Ice Sports Centre (HI-ICE) was built as an ice hockey training venue on the southeast side of the Centre, while the square to the west of HI-ICE was rebuilt into Wukesong Sports Square. After Beijing 2022, the venues and facilities including the Centre will be combined to form a complex of culture, sports, leisure and recreation, serving as a major sports and cultural powerhouse in the western part of Beijing.

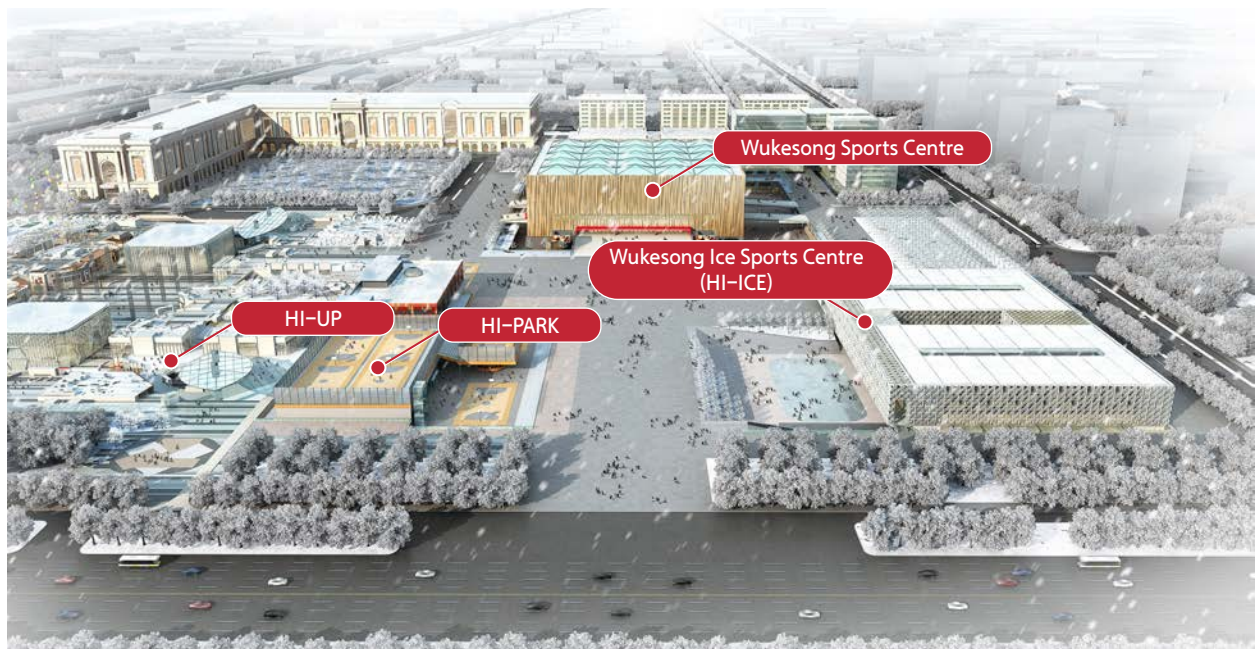
The Centre and its surrounding facilities are located in the northeast corner of Wukesong Bridge at the 4th Ring Road of Beijing, covering a total area of 28 hectares, of which the Centre occupies 168,000 m² and HI-ICE 39,000 m².

Venues use after Beijing 2008

After Beijing 2008, the Centre became the home court for CBA Shougang Basketball Team and successively served as the competition venue for the NBA China Games in Beijing and the 2019 FIBA Basketball World Cup. Apart from being used for



● Wukesong Sports Centre



sporting purposes, the Centre also played host to various kinds of commercial performances, award ceremonies, conventions and exhibitions, attracting a mass of visits every year. From 2012 to 2019, the Centre saw an increasing efficiency of utilisation. Particularly since 2015, the number of activities held at the Centre has maintained an annual average of 70, making it a new landmark in Beijing that integrates sports, culture, entertainment, education and daily life.

A quick shift from basketball venue to ice hockey venue within four hours

As early as 2004 when the Centre started to plan for the construction of a basketball court, it had reserved infrastructure for hosting ice hockey events in the future. The pre-buried ice-making system and corresponding refrigerating equipment have made it possible for ice hockey competitions to take place here without major reformation of the venue. After being upgraded, the Centre may turn from a basketball venue into an ice rink in only four hours. This shift technology has not only reduced the cost and transition time, but also provided possibilities of duplicated use. During the home match of KHL for

the season of 2016–2017, the pre-buried pipelines were used for the first time to make ice. Besides, as the home court of the KHL Kunlun Red Star Team, the Centre has also hosted KHL and NHL China Games for many consecutive years. In 2018, the 1st Winter Games of Beijing took place at the Wukesong Centre. In addition, the Centre has also played host to a series of figure skating and ice hockey competitions, including three consecutive editions of Artistry on Ice.

Reducing energy consumption and carbon emissions

The CO₂ transcritical direct cooling ice-making technology was adopted by HI-ICE for

the first time in the history of Olympic Winter Games. By transferring carbon dioxide to the pre-buried refrigeration coils for heat exchange, the ice-making system may achieve a higher heat exchange efficiency, saving comprehensive energy consumption by more than 40% as compared with the traditional ice-making method. Besides, the CO₂ direct cooling system may deliver better ice quality by ensuring homogeneous, constant temperature of all points on the ice surface, without generating sewage or causing environmental pollution.

HI-ICE is designed and constructed according to the



● Ice resurfer at Wukesong Sports Centre



• Wukesong Ice Sports Centre (HI-ICE)

Chinese ultra-low energy consumption building standard. A number of energy-saving measures have been adopted to reduce the demand. Specifically, the thermal performance of the enclosure structure has been optimised to reduce the air conditioning cooling and heating loads generated by the enclosure structure; exhaust heat recovery devices have been installed to reduce the air conditioning cooling and heating loads generated by the fresh air system; and the technology for recovering waste heat from ice-making has been adopted to reduce the needs for municipal heat supply. A series of technical measures such as the installation of high-performance chiller units and high-efficiency water pump

fans, frequency conversion of fan pumps, and optimisation of ice rink dehumidification have been adopted to securing an energy-

conservation rate of 77.1% as a result of substituting the high-efficiency electromechanical system for the conventional electromechanical system. Besides, renewable energy systems have been adopted. For example, the traditional means of power generation have been partially replaced by the photovoltaic power generation system to reduce the consumption of conventional energy.

Multiple innovative energy-saving technologies have been used during the construction of HI-ICE. For example, the traditional aluminum alloy curtain wall system, which is the first



• Ice-hockey event of "Experience Beijing" winter sports event series at Wukesong Sports Centre

of its type in China, is adopted, featuring high-performance glass that has brought the heat transfer coefficient down to less than $1.0\text{W}/(\text{m}^2\text{K})$; the solution dehumidifier unit is used for the first time at the ice rink to replace the traditional means of electric heating wheel dehumidification; the ice rink area has gone through re-insulation design for the first time to balance insulation and the risk of dew condensation; magnetic suspension chiller units and air conditioning units with high airflow and total heat recovery performance are adopted, achieving a heat recovery efficiency that is $\geq 70\%$; besides, the ice rink area is equipped with an upgraded LED lighting system to meet HD broadcasting requirements, saving energy by 23%.

Post-Games utilisation: a sports and cultural powerhouse in the western part of Beijing

After Beijing 2022, the Wukesong Sports Centre Venue Cluster will continue to develop into a cultural, sporting and recreational

complex that consists of ice hockey and basketball venues, a basketball park, an ice sports centre, commercial blocks, and sports squares, becoming a major place for cultural and sports development in the western part of Beijing.

Serving fitness for all. After Beijing 2022, Wukesong Sports Centre will become an all-season sports venue. In winter, the Centre will convert its basketball court into an ice rink to host ice sports events and activities; the HI-UP Central Square will host Ice World each winter, a three-month festival enjoying great popularity among the public; besides, the Wukesong Sports Centre Venue Cluster will serve as an ice sports (particularly ice hockey) base for the general public and the youths. In other seasons, fitness-for-all activities will be organised to promote the development of public fitness and sports as well as youth sports, with the aim of building the Centre into a domestically famous or even world-renown basketball venue.

Hosting sports events. After Beijing 2022, the Centre will continue to host professional basketball events such as NBA China Games and professional ice hockey events such as NHL China Games. Besides, the Centre will continue to serve as the home court for the CBA Shougang Basketball Team and KHL Beijing Kunlun Hongxing Ice Hockey Club.

Holding cultural- and sports-themed commercial activities.

After Beijing 2022, the Wukesong Sports Centre Venue Cluster, driven by culture and sports, will undertake commercial events such as domestic and international concerts, fashion shows, stage plays, enterprise ceremonies, new product launches, as well as commercialised sports events such as basketball training camps and popular events. By developing “immersed” interactive experiences and brand-new business formats, it aims to create a commercial street featuring Chinese sports and a new growth point for sports, cultural and economic development in the western part of Beijing.



National Speed Skating Oval

A Blueprint for Sustainability in China

Editor's note: The National Speed Skating Oval, also known as the Ice Ribbon, was built on the site of the former hockey and archery arena for the 2008 Beijing Olympic Games and the five- and seven-a-side blind-football fields for the Paralympic Games. During Beijing 2022, Speed skating events will be staged in the National Speed Skating Oval. With its floor fully covered in ice, the venue has a surface area of about 12,000 m² and therefore may satisfy the competition requirements of five major ice sports, namely speed skating, short track speed skating, figure skating, curling and ice hockey. After the Games, the venue will be entitled the International Skating Union (ISU) Centre of Excellence (CoE), where ice sports events will be held throughout the year and public winter sports programmes will be developed extensively. It will also become a multi-purpose venue, where residents of Beijing may take part in other sports, public fitness, culture and leisure, exhibitions and public welfare.

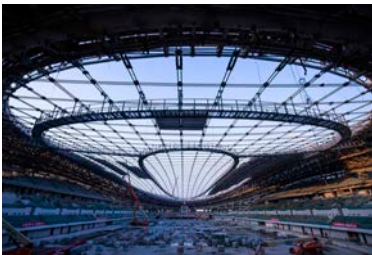
The newly built National Speed Skating Oval, also known as the Ice Ribbon, is located on the site of the Beijing 2008 temporary venue for the archery and hockey events. It will be staging the speed skating events of Beijing 2022, and 14 gold medals will be awarded here.

Scientific and technological innovations

As a newly built iconic venue of Beijing 2022 in the Beijing Zone, the National Speed Skating Oval has been following the concept of sustainability since its planning phase. Meanwhile, it features four innovative technical highlights:

Highlight I: 12,000 m² of ice surface

With a surface area of 12,000 m², the National Speed Skating Oval has the largest ice surface floor in Asia, which comprises three 400 m speed skating courses, one speed skating practice course, one



● Saddle-shaped cable-net roofing of National Speed Skating Oval

60 x 30 m multi-purpose rink (for short track speed skating), one 61 x 31 m multi-purpose rink (for ice hockey and figure skating). The temperature of each rink may be individually controlled and will satisfy public needs and the competition requirements for five major ice sports, namely speed skating, short track speed skating, figure skating, curling and ice hockey. Consequently, the venue may operate simultaneously for different events.

Highlight II: single-layered bidirectional orthogonal saddle-shaped cable-net structure

The National Speed Skating Oval has a design height of 33 m and the floor area of its main structure measures about 80,000 m². Its external curtain walls are made up of 3,360 pieces of glass. Its architectural design integrates the concepts of ice and speed to create “ice ribbons” that wind along the curved surface of the outer wall, resembling 22 trails left behind by professional skaters as they hurtle over the ice. The National Speed Skating Oval is to date the sports venue with the largest single-layered bidirectional orthogonal saddle-shaped cable-net structure in the world, whose length spans

about 200 m and its width 130 m. The single-layered bidirectional orthogonal saddle-shaped cable-net structure used only about a quarter of the steel compared with conventional roofs, saving about 1,100 tonnes of steel and reducing 2,255 tonnes of carbon-dioxide (CO₂) emissions.

Highlight III: CO₂ direct cooling ice-making technology

The National Speed Skating Oval has been given China's three-star designation for green architecture and pioneers the CO₂ direct cooling ice-making technology at Olympic Winter Games. The technology, currently the most advanced one in the world, produces nearly zero carbon emission and ensures that the difference in temperature ranges of the ice surface remains within 0.5°C, so high-standard competition courses can take place.

The waste heat produced during the ice-making process may be recycled to provide athletes with hot water, in addition to melting ice and maintaining the ice surface, saving 1.8 million kWh per year.

Highlight IV: A smart venue

In order to build up a smart



● National Speed Skating Oval

venue, the National Speed Skating Oval, by using the Internet of Things and big-data information technology, introduced the latest smart operating system and positioning navigation system for its design, construction and operations management. It is like fitting the venue with a cerebrum for accurate calculations, which also include providing athletes with training services involving time, speed and lap calculations. It may also provide different clients, including spectators, with mobile-phone positioning navigation services in finding out the best routes to reach the destination. Many other new technological achievements will also provide spectators with a fast and easy

Games spectating experience, such as robot guides, unmanned sales trolleys and virtual winter sports.

To build up a regional ice sports centre after the Games

Satisfying the needs of ice sports competitions. As the ISU CoE, the National Speed Skating Oval will stage all kinds of national ice sports events and international competitions throughout the year, including speed skating, short track speed skating, figure skating, curling, ice hockey and bandy. Meanwhile, as a training base for China's national teams and other sports teams at different levels, the venue will provide professional ice-training facilities to help

cultivate professional talents.

Satisfying the public needs for ice sports. Different areas of the National Speed Skating Oval will be open to the public after the Games and hold ice sports events, particularly those popular ones among the youth. The rinks will be adapted according to the events and based on different areas and standards, and over 2,000 visitors may simultaneously take part in ice sports, such as speed skating, short track speed skating, ice hockey, curling and figure skating. Ice sports training and courses will also be offered to satisfy the growing public demand for winter sports while to foster the future talents for ice sports.

In addition to meeting the needs of winter sports, the National Speed Skating Oval may serve as a venue for cultural and leisure events. It is committed to becoming a multi-functional ice centre that integrates sports events, public fitness, culture and leisure, exhibitions and public welfare. Furthermore, it will become one of the latest urban landmarks in Beijing, along with the iconic Olympic venue cluster comprising the National Stadium, National Aquatic Centre and National Indoor Stadium.



Capital Indoor Stadium

Half-a-Century-Old Venue Rejuvenated

Editor's note: As the most long-standing sports venue of the Beijing Competition Zone, the Capital Indoor Stadium will take on a new mission and role in 2022 as it serves as the short track speed skating and figure-skating venue of Beijing 2022. The renovation of the venue followed the major principle of “refurbishing as it is”, which has preserved the façade and the precious memories that people have of the stadium while allowing the extensive adoption of more sustainable technologies. The staging of Beijing 2022 is breathing new life into this time-honoured stadium, which will continue to support the development of ice sports in the Chinese capital.

Situated in the east of Baishiqiao area in Haidian District of Beijing, the Capital Indoor Stadium was built in 1968. Over the last five decades, it has witnessed many historic moments in Chinese sports, including the Sino-US Table Tennis Friendship Games in 1971, visit by the American figure-skating team to China in 1980, 1990 Asian Games in Beijing, Universiade in 2001 and Beijing 2008. The stadium hosted volleyball events during Beijing 2008 and witnessed two gold

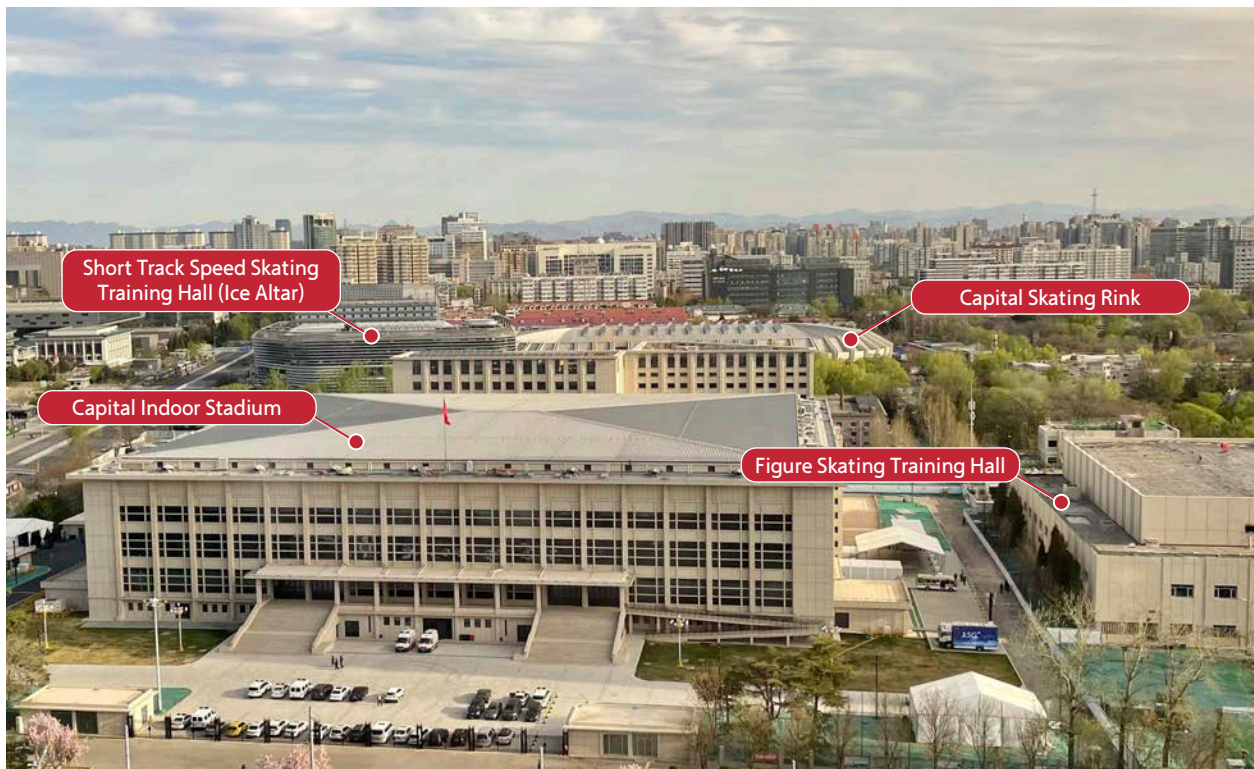
medals being awarded here. It will be transformed into a venue for short track speed skating and figure skating during Beijing 2022, with 14 gold medals being competed here.

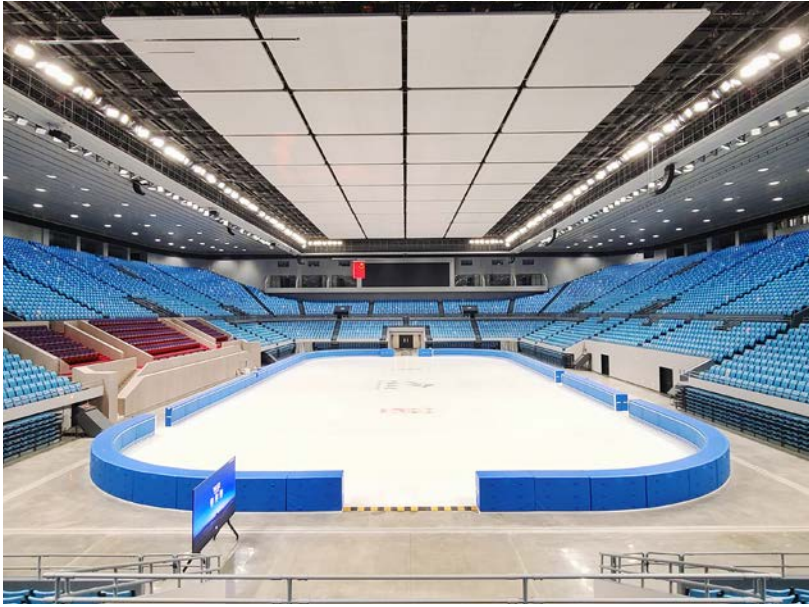
“Refurbishing as it is”

The building, expansion and renovation of the stadium was completed on 25 December 2020, including the renovation of the stadium and its Figure Skating Training Hall and the building of its Short Track Speed Skating

Training Hall, also known as the “Ice Altar”.

The Capital Indoor Stadium has a surface area of 45,406 m² and 15,000 spectator seats. The ground floor can host summer and winter sports events such as short track speed skating, curling, figure skating and ice hockey. The stadium will be hosting the short track speed skating and figure-skating events of Beijing 2022. “Refurbishing as it is” was a defining feature of its renovation





● Capital Indoor Stadium

and expansion while “protective dismantlement and restoration” was a major principle. After its renovation, the stadium still has the elegant beige-coloured walls, dark glass windows and a façade decorated with linear lines. The main spectator entrance to the south of the stadium and the steps in front of the VIP entrance to the north once bore witness to the Sino-US Table Tennis Friendship Games in 1971 and Beijing 2008. They are of profound significance to the stadium and have been preserved following the renovation. Although the exterior of the stadium has changed little, its interior has been completely

overhauled. Focus has been placed on the post-Games use of the stadium. After undergoing renovation and upgrade, the stadium that had witnessed the sports history of the new China was reborn.

The Short Track Speed Skating Training Hall, the “Ice Altar”, has a surface area of 33,220 m², including two standard ice rinks and two non-ice training fields. It has recuperation rooms, an athletes’ dormitory and a cafeteria, as well as facilities that support scientific research and medical treatment. All athletic activities may be carried out here, from professional daily training

to recovery, making it a real multifunctional venue. The hall may host training and small-scale sports events for short track speed skating, curling and figure skating and will be the training venue for short track speed skating during the Games.

The Figure Skating Training Hall has a surface area of 13,720 m², including an ice rink that measures 61 x 31 m on the first floor. It may be used for ice sports training, including figure skating, while the second floor may be used as a physical training ground. The hall will serve a training venue for figure skating during the Games.

Lowering carbon emissions

The Capital Indoor Stadium adopts the carbon-dioxide ice-making technology, which emits nearly zero carbon and keeps the temperature difference of its ice surface within 0.5°C. The technology improves efficiency by 30% compared with traditional means and produces even temperatures.

Advanced energy-monitoring and control system and energy-conservation equipment have been installed. The setting up of an energy-control system accurately adjusts the operation parameters of the venue

using big-data and artificial-intelligence analysis, thus reducing the overall energy consumption of venue operations.

Energy-efficient lighting systems are installed. Outdated lighting systems have been replaced by energy-efficient light fixtures. Smart lighting controllers have been installed on the walls in general areas, such as corridors, lounges and underground garages, while ceilings have been fitted with infrared and illuminance sensors. Areas close to windows have a separate control system and fully exploit the natural light. The lighting systems are carefully arranged to avoid reflecting indirectly on cameras or shining directly on the ice and affecting its quality. A smart-lighting system has also been adopted, so the lighting mode may be easily switched according to use and illumination needs.

Giving play to the clustering advantage after the Games

After Beijing 2022, the Capital Indoor Stadium, Short Track Speed Skating Training Hall (Ice Altar), Capital Skating Rink, Figure Skating Training Hall, Athlete Apartments and Beijing 2022 Event Centre will form a Capital Indoor Stadium venue cluster

comprising primarily four venues, two supporting facilities and five ice rinks. The cluster will be committed to creating China's winter headquarters featuring sports, culture, leisure and entertainment. Its post-Games use will focus on the following areas:

To promote and popularise winter sports. The Capital Skating Rink will be regularly open to the public as a base that promotes and popularises winter sports among the public. Taking advantage of the research of the Winter Sports Management Centre of the General Administration of Sport of China, the venues will also offer free information on public participation in winter sports.

To support the training of China's national and professional teams.

The Short Track Speed Skating Training Hall will continue to be the training venue for China's national teams. Meanwhile, taking advantage of the research of the Winter Sports Management Centre, it will help professional Chinese sports teams improve their competitiveness.

To host top national and international sports events.

The Capital Indoor Stadium will be switching from being a venue for figure skating to that for short track speed skating in two hours during Beijing 2022. This will be an invaluable experience for the stadium after the Games as it stages general winter sports



● “Ice Altar”, Short Track Speed Skating Training Hall in Capital Indoor Stadium



● Skating events of the “Experience Beijing” winter sports event series at the National Speed Skating Oval

events. Furthermore, the stadium may seamlessly switch between winter and summer sports events, allowing the staging of a variety

of sports events after the Games.

To promote and popularise winter sports among youth. The Capital

Indoor Stadium venue cluster will be regularly open to youth free of charge as a base that promotes and popularises winter sports. It will also be open to youth sports clubs to support the development of youth winter activities and sports

To host commercial events such as exhibitions and performances.

The Capital Indoor Stadium has amassed extensive experience in hosting commercial events such as exhibitions and performances over the years. In addition to continuing to host commercial events after the Games, the stadium will welcome winter exhibitions and performances in Beijing.



Big Air Shougang

“Flying Apsaras”

Editor's note: After a century-old industrial enterprise moved away, what will be the fate of the massive industrial land it left behind? Seising the opportunity of Beijing 2022, the Big Air Shougang was built in the Shougang Park. So, what is the story of this venue? What ingenious designs does it have? How will it be used after Beijing 2022 to drive the transition of the entire park? This article should be able to answer all these questions.

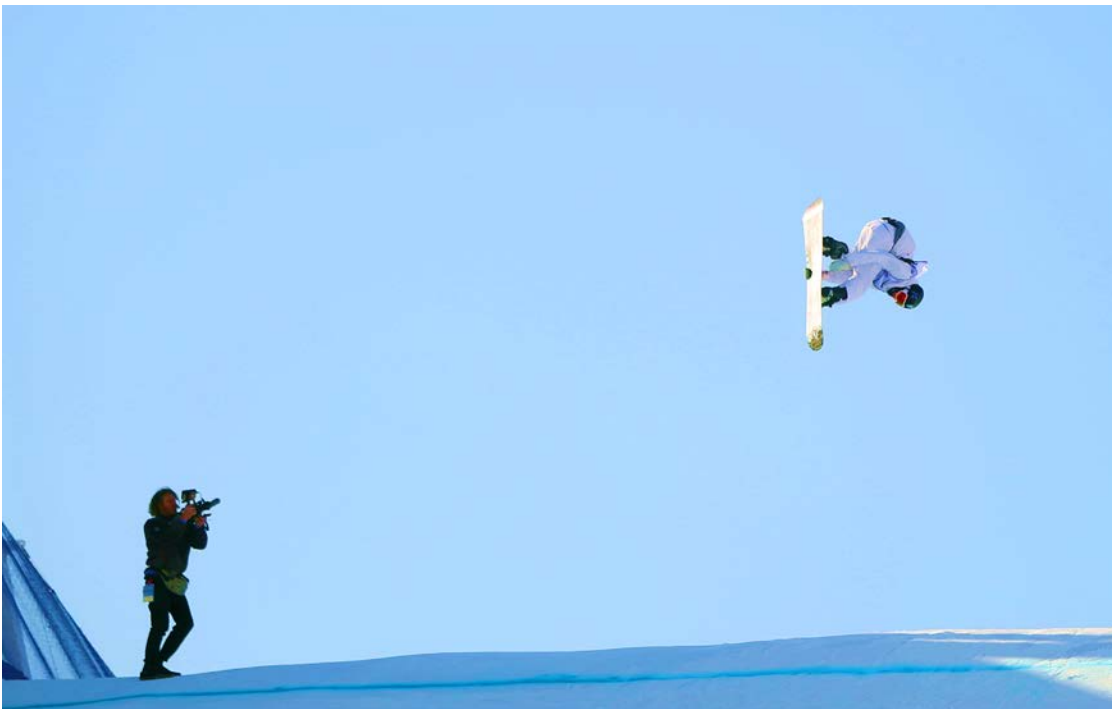
The Big Air Shougang, also known as the “Flying Apsaras” and situated in the north block of the former Shougang Industrial Park, is the only snow sports venue in the Beijing Competition Zone. It will host the snowboard and freestyle skiing big air events of Beijing 2022, with four gold medals for men and women’s events being handed out here. The Big Air Shougang consists of one ramp, a referee tower and the spectating stand. The ramp measures 164 m in length and 34 m and 61 m at its widest part and tallest point

respectively. It occupies a surface area – including the finishing area – of about 5,500 m², and the square below the large hill can accommodate over 8,000 spectators. The design of the ski jumping platform was inspired by how its profile resembles the fluttering ribbons of the apsaras depicted on the murals in Dunhuang, which also looks like crystal high heels from afar at night. During the competition, athletes will set off from its “heel”, the 48 m-high starting area, and accelerate until they reach the

take-off platform, where they will take off and perform technical moves, such as flips and spins, before landing and reaching the finishing area.

Rebirth of an industrial park

In building the venue for big air and freestyle skiing, industrial legacies of the park were well-preserved: with the exception of the platform itself, all other supporting facilities of the Big Air Shougang are renovated plants and industrial structures. Construction of the platform



● 2019 Air+Style Beijing FIS Big Air World Cup

began at the end of December 2018 and completed in November 2019.

Ingenious designs that took into consideration the long-term needs of different events

The adaptable design of the platform can meet different demands of the big air and aerials

events of snowboard and freestyle skiing, and the ramp may adapt to other public experience and fan games activities through the adjustment of temporary components.

Developing Beijing's new landmark of urban revival

After Beijing 2022, the Big Air Shougang will hold various

events such as fitness for all, sports competitions, professional training, and commercial and cultural performances. It will drive the diverse sports and socioeconomic development of Shougang Park and even west Beijing, helping the park become Beijing's new landmark of urban revival.

Introducing fitness-for-all events around the year. During the winter, the spectator square and jumping platform will be turned into a winter park, offering winter-experience events, such as snow tubing, snowboarding and cross-country skiing. The experience could be further enhanced through the introduction of popular sports fan games and Olympic Winter Games knowledge programmes. In summer, the spectator square, jumping platform and supporting facilities will be used to build up an outdoor sports park covering different business patterns including sports experience and training, sales, team building, summer sports events and cultural activities, as well as to develop a top summer attraction in west Beijing by holding water-park activities. Furthermore, mass sports-entertainment events

© Air & Style

Air & Style, currently the most mature big-air event in China, has taken place for ten consecutive years in Beijing since 2010. It integrates professionalism and entertainment and sets the fashionable trend of outdoor winter sports with a unique approach that combines skiing big-air events with live concerts. Air + Style Beijing was upgraded to a FIS World Cup in 2017 and debuted as a qualifier for PyeongChang 2018, placing it among top global winter sports events.

On 14 December 2019, the Big Air Shougang held its first formal event-the 2019 Air + Style Beijing FIS Big Air World Cup, which attracted 146 competitors from 25 countries and regions and saw the doubling of both athlete number and competition time.

After Beijing 2022, the Big Air Shougang will become a permanent venue for Beijing FIS Big Air World Cup, which will be turned into an annual "big party" for skiing enthusiasts. Seising the remarkable development of skiing and the gradually thriving skiing sub-culture, all efforts will be made to turn the Big Air Shougang into a highlight for skiing enthusiasts.

that integrate fun, entertainment, performances and sports will be created with the production team of “Intercities”^[1] from France.

Building up a professional competition and training base.

The Big Air Shougang may hold professional sporting events after the Games, such as the International Ski Federation (FIS) Snowboard and Freestyle Skiing

[1] “Intercities” is a programme produced by China Central Television and France Télévisions and comprises a Chinese version and an international version. It is a large game show that targets the public, using sports as its platform and cities as its selling point to promote cities.

World Championships, national freestyle skiing and snowboard competitions and Air & Style (see below). It may also serve as an ongoing training base for China’s national teams and youth teams to foster top competitive talents for snowboarding and freestyle skiing.

Staging commercial, cultural and entertainment events.

After Beijing 2022. The Big Air Shougang will host all kinds of commercial extreme-sports events, including the X Games, a global extreme sports event. It will develop a brand and image of winter extreme sports venue.

Besides, the Big Air Shougang will stage various commercial events, including brand launches, exhibitions, celebrity meet-and-greet events and top forums, in addition to art performances and special cultural events, such as light shows and concerts.

As one of the iconic structures reflecting the transformation of Shougang Park, the Big Air Shougang will stand out as a major legacy of Beijing 2022. By reusing industrial legacies and the revival of industrial areas after the Games, it will become Beijing’s new landmark of urban revival.



National Alpine Skiing Centre

“Snow Swallow”

Editor's note: The Yanqing National Alpine Skiing Centre is home to the first Olympic-standard alpine skiing course in China, and to date, one of the most challenging venues in the world. After Beijing 2022, it will drive the development of Yanqing by evolving into a world-leading competition venue and training base, a nationally leading mountain sports centre and China's top public base for winter and outdoor sports. In the future, the venue will keep propelling the development of the local sports and leisure industries and year-round tourism, making it a major legacy of Beijing 2022.

Located in Yanqing District of Beijing, the Yanqing National Alpine Skiing Centre is built on Xiaohaituo Mountain, which has an altitude of 2,198 m. The courses measure 21 km in total and have a vertical drop of about 900 m. The centre is home to the first Olympic-standard alpine skiing course in China, and to date, one of the most challenging venues in the world. With a silhouette resembling a swallow that is about to take flight, the top start house is nicknamed the “Snow Swallow”. It has three competition courses and four training courses and will be staging all the alpine skiing events of Beijing 2022, including downhill, super giant slalom, giant slalom and slalom, with a total of 11 gold medals is to be awarded

here.

Measures to reduce ecological impact

During the construction of Beijing 2022 venues, measures were taken to reduce the ecological impact. During the early stage of the construction, Yanqing conducted an assessment on the current condition of its flora and fauna resources, evaluated the potential impact of the construction, and compiled the *Investigation Report on the Original Ecological Environment Status of the Yanqing Competition Zone of Beijing 2022*. An expert consultant group, along with an expert team, was formed to find solutions for major challenges that emerged during the ecological development of

the Yanqing Competition Zone. Ecological-rehabilitation plans and a rehabilitation policy of “customised policy for each venue” for complex terrains were thus formulated.

Prior to construction, constructors collected the topsoil from the Competition Zone as directed by the expert team. Upon the completion of venue construction, the soil was reused to plant 70,000 trees and 310,000 bushes in the Competition Zone. The “three conservation and one rehabilitation approaches” had been adopted to reduce the ecological impact of construction in the Competition Zone. “Tree conservation”, one of the three conservation approaches, referred to keeping as many trees as possible within the construction area and not disrupting the environment outside the designated area. “Grass conservation”, another conservation approach, referred to the removal of subalpine meadow located at an altitude of over 1,800 m, which was preserved over winter before being reused. “Species conservation”, the last conservation approach, referred to the removal and storage of humus between 15 and 20 cm below ground prior to the



• Top start house of the National Alpine Skiing Centre

beginning of earth work. They were reused upon the completion of the snowmaking project to conserve the seeds in the soil. The rehabilitation approach, referred to the most extensive ecological rehabilitation along the slopes and courses. A total of 11,027 rare plant species were transplanted in a dedicated conservation area near the Competition Zone during venue construction, protecting 24,000 trees. To date, ecological rehabilitation on Xiaohaituo Mountain is beginning to show results. The meadow is blooming with flowers in spring, and the nearby Songshan Natural Reserve continues to spot wild animals such as gorals and wild boars.

Water resources are recycled. Taking advantage of the natural mountainous terrain, rainwater is detained and infiltrated in low-lying areas and natural water bodies. Sewage from the Competition Zone is recycled after collection and treatment, while excessive water is conveyed via pipelines down the mountain, so as to avoid disrupting the surface water in the Competition Zone. Stones excavated from the mountain during construction were spalled to fill in cages that decorate the auxiliary buildings of the venue. The Yanqing National Alpine Skiing Centre passed the



● National Alpine Ski Centre

certification for three-star design, the *Evaluation Standards for Green Snow Sports Venues*, in March 2021, which signifies the venue is designed and built according to China's highest standards for green architecture.

All-round operations and multifaceted development

Sporting-events staging and training. The Yanqing National Alpine Skiing Centre may hold major international alpine skiing events after the Games, including the FIS Alpine World Ski Championships and FIS Alpine Ski World Cup, providing a competitive platform for top alpine skiers from around the globe. The staging of national

alpine skiing events, such as the National Alpine Ski Championships and National Youth Alpine Ski Championships, will further improve the competitiveness of Chinese alpine skiers. The venue will also serve as a world-leading training ground for professional skiing teams from home and abroad.

In terms of fitness for all. The Yanqing National Alpine Skiing Centre will operate all year round after the Games. A trail that connects the venue with the Olympic Village will be turned into a training course in winter to provide the general public with an easier, comfortable and interesting skiing ground. The starting point of the alpine skiing



● National Alpine Skiing Centre

venue will be suitably lowered before opening to advanced skiing enthusiasts. The centre may serve as a venue for mountain tourism and outdoor sports during non-skiing season, offering mountain adventures, such as mountain cross-country, biking, ziplining and rock climbing. It may also hold educational events, including science education, field trips and outdoor education.

In terms of cultural tourism.

Yanqing's reputation as a sports and cultural city will be enhanced by integrating the Competition Zone with other facilities to hold forums, conferences, exhibitions and educational events. Tourism resources in and around Yanqing will also be brought together to create cultural-tourism itineraries, which will drive the development of the tourism industries in Yanqing and elevate the living standard of its residents.

After Beijing 2022, Yanqing will become a world-leading competition venue and training base, a nationally leading outdoor mountain sports centre and China's top public experience base for winter and outdoor sports. It will propel the development of the local sports industry and year-round tourism and leisure industries, making it a major legacy of Beijing 2022.



National Sliding Centre

“Snow Dragon”

Editor's note: The bobsleigh, skeleton and luge events are characterised by high-standard venue design and construction. Despite lack of such experience in China, the teams responsible for construction of the Yanqing National Sliding Centre and for the ice-making created a “soaring dragon” on Xiaohaituo Mountain. After Beijing 2022, the centre will contribute to the continuous development of the region, as an iconic landscape and artistic treasure of the Yanqing Competition Zone.

Bobsleigh, skeleton and luge events are often referred to as the “F1 on snow”, mainly due to their high speed and demand for professional skills, all of which set up very strict requirements on the competition ground. The Yanqing National Sliding Centre is home to the only course for bobsleigh, skeleton and luge in China. It is also one of the two such courses currently in use in Asia. Albeit the centre succeeded in achieving its FIS certification in November 2020 and is already highly recognised by relevant International Sports Federation for winter sports.

Venue design

It was a challenge to design the Yanqing National Sliding Centre. No model or experience

was available in China, while international designs are highly customised, offering limited replicability. The venue design team conducted a series of research, explorations and field investigations. Eventually, a course measuring about 1,975 m in total with a vertical drop of 121 m was worked out. It has 16 bends with all angles and inclinations, one of which is a unique 360° spiral bend.

Venue construction and ice making

Turning the blueprint of Yanqing National Sliding Centre into reality needed excellent construction technology. China had neither equipment nor workers qualified for performing the task. To overcome this challenge, the

construction firm set up a R&D team to develop an innovative injection equipment, materials and techniques, thus fostered a group of high-level injectors.

Ice making is key to the launch of Yanqing National Sliding Centre. A professional technical team therefore needs to be established for ice making and course maintenance. For this purpose, a Chinese ice-making team was set up, and later sent to Pyeongchang for learning the ice-making techniques. In October 2020, the China’s national bobsleigh, skeleton and luge teams started their training at the venue, and eight international and 20 domestic icemakers were working together to make the ice. So far, the Chinese ice-making team has commanded the basic ice-making techniques. After Beijing 2022, the foreign experts will finish their duty of providing guidance, and the domestic team is expected to take charge of the ice-making task independently.

Post-Games use: winter sports shared

In terms of public participation. After Beijing 2022, the Yanqing National Sliding Centre will be open all year round. The public-departure point reserved at the course will allow the public



● Walking path of the National Sliding Centre

to experience bobsleigh and skeleton safely in winter. Other commercial projects are set to be launched in summer at the Yanqing Competition Zone, such as rock climbing, grass skiing, mountain biking, zip lining, cable cars, outward bound, and camping site for recreational vehicles. Furthermore, outdoor youth camping and Olympic Winter Games-themed science camping sites are also to be offered.

Sporting events staging and training. After Beijing 2022, the Yanqing National Sliding Centre will continue to be used as a competition venue for top sporting events. It will also serve as a profession training ground for



● Luge event of “Experience Beijing” winter sports event series at Yanqing National Sliding Centre

China’s national teams and other teams to conduct training.

Cultural tourism. A hotel will be built nearby the venue while art and cultural events such as concerts and outdoor exhibitions

will be held. The venue will also actively work with tourism resources in and around Yanqing, so the sporting resources of the Games and the surrounding tourist and cultural resources may complement and promote one another, facilitating the development of Yanqing as an Olympic Winter Games city.

After Beijing 2022, the Yanqing National Sliding Centre will build itself into a unique venue for both major sporting events and public leisure. Sustained by the three brilliant titles, namely Beijing 2022, Expo 2019 and the Great Wall, and backed by the integral development of Yanqing, the venue will continue to drive the rapid progress of the region, giving rise to a unique venue legacy of Beijing 2022.

◎ Terrain Weather Protection System (TWPS)

Qiu Jianbing, chief designer of the Yanqing National Sliding Centre explained: “The Terrain Weather Protection System is a system that reduces the effect of solar radiation on our courses by taking into consideration the terrain and using canopies and screens.”

It protects the ice surface of the courses and minimises the effect of weather factors. While ensuring course quality, it keeps energy consumption to a minimum. The system primarily focuses on shading the course from the sun, winds, rain and snow. Unlike other protection systems for bobsleigh, skeleton and luge courses, the TWPS emphasises how the terrain may help shielding the course.



Genting Snow Park

Editor's note: Located in Chongli District, Zhangjiakou City, Hebei Province, the Genting Snow Park (the “Park”) is the only one among the seven snow sports competition venues of Beijing 2022 that is an existing snow resort. It had been used for commercial operations for three years before the election of Beijing as the host of the 2022 Olympic and Paralympic Winter Games in 2015. To ensure sustainable use after Beijing 2022, the Park will be restored into a public skiing and tourism resort and its Olympic tracks will be retained for use at subsequent world-class sports events.



• Spectator area at Genting Snow Park

Construction of the Park started in October 2008. Since opening to the public in January 2012, the Park has received approximately 1.4 million visits by tourists. Genting Grand Hotel and high-speed cableways No. 1, 5 and 6 were built up as affiliated supporting facilities at the early operation stage. After the election of Beijing as the host of the 2022 Olympic and Paralympic Winter Games, the Genting Snow Park was chosen as one of the snow sports competition venues for Beijing 2022. To serve the Games, the venue has renovated its four existing snow tracks, built temporary functional rooms covering more than 30,000 square metres, as well as four drag lifts, one cableway, one apron, and one 10kV switch station, and upgraded

its water supply pump station.

During the Beijing 2022 Games, Freestyle Ski and Snowboard competitions will take place at the Park, where athletes will vie for a total of 20 gold medals. The Park is equipped with six Olympic slopes to be used for Aerials, Moguls, Halfpipe, Slopestyle, Parallel and Cross competitions, respectively.

A user-friendly venue

To ensure the safety of athletes, the Aerials track has been positioned to minimise the possible crosswind influence. In addition, the finish areas of the six tracks were creatively combined into three, allowing spectators, journalists and other groups to watch two sorts of competition in the same finish area. The skiing

ground in the Park is equipped with cableways with heated seats (making the skiing ground the only one of its type in China), offering sufficient comfort to passengers.

Reducing environmental impact

Four of the six ski tracks in the Park were rebuilt upon the existing tracks and so were another two training tracks and a substantial number of connecting lines. In this way, the Park has reduced damage and disruption to nature.

Efficient utilisation of water resources: the Park has upgraded its three existing reservoirs, enlarging their total capacity from 180,000 cubic metres to 280,000 cubic metres. These reservoirs are designed to collect snow water and rainwater that are used for irrigation in summer and snowmaking in winter.

An all-season comprehensive tourist resort

- ❖ **Hosting high-level sports events.** The Park aims to host professional events including the FIS World Cup, FIS Asian Cup, Winter X Games, and China Open Ski & Snowboard.
- ❖ **Building a high-performance**



● Men's finals of Audi FIS Ski Cross World Cup for the 2021/22 season at Genting Snow Park



● BMX in Genting Snow Park

sport training base. The Park will invite professional ice and snow sports teams from

different countries and regions to train and provide them with professional training facilities.

❖ **Organising fitness-for-all and public experience activities.**

The Park will organise a series of family leisure & holiday activities such as sightseeing, hiking and skiing in different seasons.

❖ **Building a youth training base.** The Park will provide free training grounds and professional coaching to facilitate the popularisation and education of ice and snow sports among the youths.

❖ **Building a comprehensive holiday resort.** Focusing on developing tourism that features ice and snow as well as summer sports, the Park aims to build itself into comprehensive public resort that integrates sports, fitness, leisure, conventions and exhibitions. It is expected that the Park, together with its supporting facilities in the surroundings, will become the largest snowboard park in Asia and a world-class sports resort after the Beijing 2022, offering 10,000 rooms, an annual reception capacity of 30,000 tourist visits, and around 250 open days each year.



National Ski Jumping Centre

Building the Most Beautiful “Snow Ruyi”

Editor's note: Located in Guyangshu Venue Cluster of Zhangjiakou Zone, the National Ski Jumping Centre (the “Centre”) is the first sports venue in China that is used mainly for ski jumping. Since the architectural design of the main building is inspired by “Ruyi”, a traditional Chinese talisman, the National Ski Jumping Centre is also known as “Snow Ruyi”. During the construction of the venue, close attention was paid to reduce the impact on the natural environment. Besides, considering the weak foundation for ski jumping in China, the venue was designed in a way that allows considerable possibilities for post-Games sustainable uses other than ski jumping.

It takes only one hour by high-speed rail from Beijing to Taizicheng (Chongli District, Zhangjiakou city, Hebei Province), where the National Ski Jumping Centre, the National Cross-Country Skiing Centre, and the National Biathlon Centre are located, making up the Guyangshu Venue Cluster of Beijing 2022 in the Zhangjiakou Zone.

“Snow Ruyi”, a breathtaking landmark

Since the architectural design of the main building is inspired by “Ruyi”, a traditional Chinese talisman, the National Ski Jumping Centre is also known as “Snow Ruyi”. As the first ski jumping venue in China, “Snow Ruyi” consists of a Peak Club, a

starting area, a course area and a spectating area, and features an S-shaped curve that is perfectly matched with its ring-shaped roof, track profile, and spectator stand at the bottom. During the Games, the “Snow Ruyi” will play host to five Ski Jumping events, and three Nordic Combined events together with the National Cross-Country Skiing Centre, where athletes will vie for eight gold medals.

Sustainability actions in venue design and construction

During the construction of “Snow Ruyi”, the three-star standard for the Chinese eco-friendly snow sports venues standard was adopted, encompassing a series of energy-saving and environmental-protection

technologies including wind power, natural lighting and ventilation, external shading, underground utility pipelines, and water purification with breathable and impermeable materials. In addition, to minimise the impact to the valley ecology, recyclable materials and eco-friendly techniques were adopted wherever possible during the construction process. For example, during the construction works, the tracks were supported by piers to avoid disruption to the existing river flows and ecological corridors; temporary cages and caves were provided for wildlife; and mountain vegetation in the surroundings has been restored.

Water recycling

Surface water collection technology is adopted to collect melt snow for reuse in snowmaking. In spring, a substantial amount of snow on the tracks will melt into water to flow downhill under gravity into a nearby reservoir with a capacity of 200,000 m³. The collected melt snow water, together with rainwater, will then be purified by an automatic underground purification system and supplied to the venue and its surroundings for daily use.



● “Ruyi”, a traditional Chinese talisman

Diverse means of post-Games use

Serving sports events. As a state-of-the-art ski jumping competition and training venue in the world, the Centre will serve as for high-level ski jumping events such as Ski Jumping World Championships and Ski Jumping World Cup and provide professional training grounds for national, international and other professional teams.

Serving fitness for all. In the snow season, a rich variety of activities will be held at the Centre based on the interest of ski jumping fans. Such activities include ski jumping presentations, training programmes and experience activities, ice and snow



• Ski-jumping events

entertainment programmes such as snow football and outdoor ice hockey (in the spectating area), as well as skiing performances and public ski activities to encourage public engagement. In non-snow seasons, an Adventure Park will be established in the Centre to

offer entertainment programmes such as sport climbing, strop ropeway, and grass skiing; the spectating area will be converted into a standard football field used for professional and non-professional matches and training; standard basketball courts, table tennis courts, volleyball courts, and badminton courts will be built around the football field to cater for public fitness. Besides, the Peak Club can be used to host e-sports and chess and card competitions such as LoL Professional League, National Bridge Championship, and National Cup Board and Poker Professional Masters (NCBP) all year round.

Commercial use. After the Games, the Peak Club will be modified to offer a variety of facilities, including a high-end convention



• National Ski Jumping Centre

centre, a 360-degree aerial view restaurant for family gathering, VR aurora equipment projecting a polar landscape, a dreamy and romantic high-end recreational area, as well as an Olympic museum and VR skiing experience hall for teaching and practice of ice and snow sports. The spectating

area will be used to host major cultural and recreational events such as concerts and music festivals in summer and launch a series of nature education products such as winter camps and summer camps for the youths.

After the Games, the National

Ski Jumping Centre will provide commercial functions and operate in all seasons, becoming an all-season, full-time, and region-wide destination that integrates ice and snow recreation, holiday resort, and outdoor mountain activities for visitors from all around the world.



National Biathlon Centre

Editor's note: Located in Chongli District, the Zhangjiakou National Biathlon Centre is one of the newly built snow sports venues of Beijing 2022. In designing the venue, user-friendliness was emphasised, spectators' experience was taken into consideration, and necessary actions were taken to reduce environmental impact. In the future, the centre will strive to promote fitness for all, building itself into a role model of the Beijing 2022 legacy.



Found in the north of Guyangshu Venue Cluster of Chongli, Zhangjiakou National Biathlon Centre adjoins Zhangjiakou National Ski Jumping Centre to the west and Zhangjiakou National Cross-Country Skiing Centre to the south. The three venues are connected by a sky corridor, the “Ice Ring”. Zhangjiakou National Biathlon Centre will stage all the biathlon events of Beijing 2022 and witness a total of 11 gold

medals being awarded here.

Sustainability measures integrated into the venue construction

To meet the snowmaking needs in winter, Zhangjiakou National Biathlon Centre had to build reservoirs for large quantity of water. Due to their size, the reservoirs would impact the natural environment. To mitigate such impact, with the help of

landscape designers, the two reservoirs were turned into several smaller ponds scattered around the courses, some of which formed small lakes in low-lying areas. While satisfying the snow-making needs, they also became a distinctive feature in the landscape of the venue.

While designing the tracks, a warm-up track was developed, leading to the remains of the Ming-Dynasty Great Wall, a

Major Historical and Cultural Site Protected at the National Level. In addition to protecting the remains of the Great Wall, this also creates an opportunity for athletes to learn more about China's traditional culture.

While installing the light poles, efforts had been made to affect as few trees as possible. For instance, a bend was specially designed to go around a large tree along the track. The tracks were designed to preserve as many of the existing

trees as possible, while fully reflecting the passion and fun of biathlon—a sport originated from hunting in the snow.

The technology building of the centre uses high-performance hollow-glass curtain walls to improve the wind resistance, water tightness and airtightness of the venue, which minimise the loss of cool air or heat. The spalls produced during construction are reused, thus reducing the volume that needed to be transported away while amplifying the effect of decorations.



● Technical Building at Zhangjiakou National Biathlon Centre



● National Biathlon Centre

Planned post-Games use

Upon its conception, the centre had deliberated its post-Games use in mind. The partitions inside the technology building are made of light materials, allowing them to be moved, disassembled and reused after the Games. The Games-time service facilities outside the building are made of tents and containers, which may be easily removed or relocated after the Games for reuse.

Hosting top sports events. The Zhangjiakou National Biathlon Centre will stage premium professional sporting events, including the International Biathlon Union World Cup, World

Para Nordic Skiing Championships and National Biathlon Championships.

Building up a top-class training base. The Zhangjiakou National Biathlon Centre will continue to collaborate with professional winter sports teams from different countries and regions, inviting them to stay for training and providing them with professional training grounds.

Organising fitness-for-all and mass-experience events. In addition to organising mass skiing events after Beijing 2022, the Zhangjiakou National Biathlon Centre will introduce ice and snow entertainment programmes, such

as a Santa's house. During non-winter seasons, the centre will take advantage of its facilities and surrounding natural environment to stage fitness-for-all events, such as roller skating, cycling, hiking and orienteering. It will also turn the venues into a camping site for recreational vehicles and an extreme-sports park, so as to truly build up an all-season mountain sports centre.

Building a youth training base. Capitalising on its international-standard venues and facilities, the Zhangjiakou National Biathlon Centre will introduce quality educational and training resources for mountain sports to develop a youth cross-country skiing

training site and a mountain sport training base.

The Zhangjiakou National Biathlon Centre will join hands with the Olympic Village, Zhangjiakou National Ski Jumping Centre, Zhangjiakou National Cross-Country Skiing Centre and the neighbouring Taizicheng Winter Town to provide visitors with high-quality, all-round services, including tourism, training, wellness, dining, business, conference and exhibition and accommodation. The centre will be developed into a general holiday resort featuring biathlon events and drive the regional development in the long run.



Beijing Olympic Village



Yanqing Olympic Village



Zhangjiakou Olympic Village

Olympic Villages

Editor's note: With the aim of serving Beijing 2022, one Olympic Village is set up in the Beijing, Yanqing and Zhangjiakou Zones respectively. In designing these villages, different needs of their residents such as accommodation, dining and medical service are all taken into account. Furthermore, elements of traditional Chinese culture are integrated into the villages' architectural design, and the concept of sustainability is taken into consideration throughout the construction and operations processes. After Beijing 2022, the three Olympic Villages will continue their sustainable use based on their respective conditions and plans, so as to facilitate their regional development in the long run.

Overview

The Beijing Olympic Village has a total floor area of 330,000 m² and comprises 20 residential buildings. During the Olympic Winter Games, a total of 2,338 beds will be available for the athletes and team officials.

Consisting of six housing groups and one public area, the Yanqing

Olympic Village has a total floor area of about 118,000 m² and is expected to provide about 1,430 beds to the incoming residents during the Games. Underground corridors are specifically developed in the Village for athletes and trainers to travel between different building blocks, free of heavy outer wears.

The Zhangjiakou Olympic Village

comprises 31 buildings in 10 housing groups. It will provide a total of 2,737 beds in 1,668 rooms during the Olympic Winter Games.

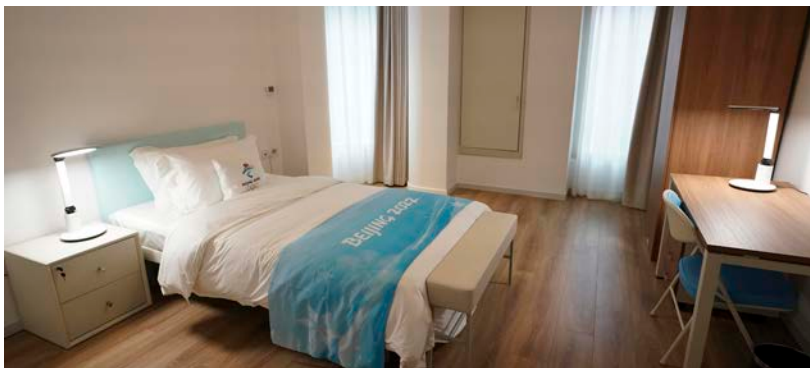
In addition, to satisfy the needs of the Paralympic Winter Games, the Beijing Olympic Village will further provide about 1,040 beds during that Games. The Beijing Olympic Village includes barrier-free paths to different functional service areas and appropriately furnished rooms that are wheelchair-user friendly.

Apart from single and double rooms, accessible rooms are also available in the Yanqing Olympic Village.

In Zhangjiakou Olympic Village, a total of 237 accessible rooms and 36 backup accessible rooms will become available during the Paralympic Winter Games.



● Beijing Olympic Village



● A room in Beijing Olympic Village

Extensive presence of traditional Chinese culture

The Beijing Olympic Village is inspired by *Siheyuan*—a traditional courtyard of Beijing. Such integration of the Olympic culture with Beijing's tradition is reflected through the 20 buildings that surround six courtyards. The variation between open and closed spaces gives rise to the landscape design that provides



● “Frolic on Ice”, a picture scroll depicting traditional ice sports and activities from the Qing Dynasty

each building with a courtyard and each apartment with a view. The central garden is inspired by “Frolic on Ice”, a picture depicting traditional ice sports and activities from the period of Qing Emperor Qianlong. Hardy trees such as bamboo and plum have been planted to recreate the poetic atmosphere of classical Chinese gardens. The main entrance and façades of the buildings use grids and corbel brackets that mimic traditional Chinese architecture to highlight China’s culture.

The Yanqing Olympic Village adopts a “mountain–village” layout that is low lying and high density. Scattered about the forests in clusters, the semi–

open structures with courtyards next to the mountains reflect the cultural features of Beijing’s courtyard without disrupting

the surrounding landscape. The Yanqing Olympic Village had also innovatively integrated the ancient Xiaozhuangke village from



● Yanqing Olympic Village



● Lobby of Yanqing Olympic Village



● A room in Yanqing Olympic Village

the late Qing Dynasty into its planning and construction, making it a window that showcases China's ancient village culture to the world.

The nine courtyards in the residential area of Zhangjiakou Olympic Village echo the “nine rites” mentioned in the chapter “Zodiac Year” in the *Book of Rites* by Dai De, reflecting the integration of modern

architecture with an ancient culture. Furthermore, during the construction of the Olympic Village, the Taizicheng Relics from the Jin Dynasty were uncovered. Through the adoption of an integrated design, while preserving historical artefacts, the remains of the temporary imperial abode have been ingeniously turned into a square with international vibes in the Olympic Village. The building of

temporary Games facilities on non-excavation sites has allowed Zhangjiakou Olympic Village to foreground and integrate China's historical culture and the Olympic culture. After the Games, the Taizicheng Relics Park will be turned into a public leisure venue and a historical and cultural base, making it the latest cultural-tourism destination in Zhangjiakou.

Sustainability measures in construction

Measures to reduce the environmental impact were adopted in the construction of Beijing Olympic Village, which has met the highest national standard on green buildings. In terms of water supply, multi-grade water-purifying systems have been fitted to provide residents with clean domestic water and drinking water. In terms of noise reduction, same-floor-drainage systems have been built to prevent noise that arises from water draining through different floors, thus ensuring a good resting environment for the athletes.

The Yanqing Olympic Village was constructed according to the three-star grade classification requirements of the China's Green Building Evaluation Standards,

and some of the structures were even built as models of ultra-low energy consumption. The primordial trees have been preserved, and a total of 313 trees have been preserved on-site, transplanted or conserved

ex situ. Spalls generated during construction were turned into gabion walls, which offer both aesthetic appeal and thermal insulation. The building of sunken green spaces, infiltration ditches and rainwater-detention

tanks allow the collection of precipitation and the reuse of purified domestic sewage.

Likewise, the Zhangjiakou Olympic Village was also constructed in line with the highest national standard for green building. For the sunken square in the village centre, over 30% of outward-facing windows could be opened, therefore ensuring the maximal use of natural light. The independent heating system used in this Village allows the temperature adjustment of each individual apartment. Meanwhile, the electric power for the building heating comes from renewable wind energy. Moreover, the precipitation collection devices of the buildings enable the recycled water to be utilised for watering plants or flushing toilets.



• Zhangjiakou Olympic Village



• A room in Zhangjiakou Olympic Village

Post-Games use

After Beijing 2022, the Beijing Olympic Village will provide medium to large public housing open for rent.

After Beijing 2022, the Yanqing Olympic Village will be turned into a mountain hotel run by an internationally renowned hotel group. Focusing on holiday and leisure and with clients from Beijing and around, the hotel is expected to become a high-

quality, all-season holiday destination that offers extensive outdoor sports experience as well as fitness-for-all and leisure tourism. Furthermore, it will also encourage new economic growth in Yanqing. The different hotel rooms will satisfy the demands of different clients. The accessible rooms will also be retained to meet the needs of guests with impairment. Furthermore, auxiliary services will be offered to the training and competing athletes after the Games.

The Zhangjiakou Olympic Village will be turned into hotel

apartments and a wellness centre after Beijing 2022. The apartments will offer short- and long-term leasing services to athletes, clubs, individuals and groups from around the globe. Meanwhile, the wellness centre will take advantage of the facilities of the Olympic Village to provide athletes with services such as training, testing and rehabilitation, in addition to conducting research related to sports medicine and sports science. In conjunction with Taizicheng Relics Park, cultural-tourism events will be launched, and winter tourism will

be combined with history and culture to drive the development of cultural tourism in Chongli.

In summary, the post-Games use of the three Olympic Villages will be based on their respective local conditions and the needs for socio-economic development of each city, while presenting their distinctive regional characteristics and identities. They should be developed into not only architectural treasures but also aesthetic attractions in their own region, thus turning out into valuable permanent legacies to be left by Beijing 2022.



Main Media Centre

China National Convention Centre Phase II

Editor's note: The China National Convention Centre Phase II will assume the key role as the Main Press Centre (MPC) and International Broadcasting Centre (IBC) of Beijing 2022. Together with the China National Convention Centre Phase I, it will become a world-leading conference and exhibition complex and will stage top political and diplomatic events and major conferences and exhibitions after the Games, making it Beijing's new urban "reception hall".

The China National Convention Centre Phase I, which once served as the IBC and MPC of Beijing 2008, has experienced stable operation since the end of Beijing 2008. Its leasing rate has remained ahead of other venues in this sector over the years. To satisfy the continuously growing demand for conference and exhibition venues and to meet the needs of the Beijing 2022, the host city began building the China National Convention Centre Phase II, which is planned to serve as the IBC and MPC of Beijing 2022.

Early opening in preparations for Beijing 2022

Centrally located in Beijing Olympic Green, the China National Convention Centre Phase II has a total floor area of 780,000 m², of which 419,000 m² belong to the conference and exhibition centre of the main structure that comprises three floors above ground and two underground. Construction of the project began in December 2018 and is scheduled to

formally open in December 2023.

To ensure preparations for Beijing 2022, the part of China National Convention Centre Phase II designated for the Games use, with a total surface area of 213,900 m², has been handed over to the Organising Committee in October 2021. During Games time, this part will serve as the Main Media Centre (MMC) of Beijing 2022, receiving over 3,000 written and photographic reporters from over 100 countries and regions and 12,000 media staff from over 200 broadcasters. It is worth mentioning that the MMC is composed of the MPC and IBC, and will be the news editorial office and television-signal production

and transmission centre that report and broadcast Beijing 2022, as well as the Games-time headquarters of the IOC and the Organising Committee's media operations and Olympic Broadcasting Services. The arrangement reflects the concept of staging economical Games.

Materials and energy conservation

The principal structure of China National Convention Centre Phase II has received the highest certification in China's assessment standards for green architecture, namely the "Three-Star Green Architectural Design Designation". On one hand, the use of steel



● Main Media Centre



● Main Media Centre

structures has reduced that of non-recyclable material (concrete) by 224,000 tonnes. On the other hand, the design team has fully exploited renewable energy and has installed 600m² of solar-thermal collectors, which may satisfy the demand for 17.5

tonnes of domestic hot water daily. The all-air system in the main structure may regulate up to 70% of the fresh air during the transition seasons, saving about 31% of annual energy consumption.

Smart cleaning, food and beverage services

The China National Convention Centre Phase II will introduce a series of smart applications during the Games. A group of multi-purpose robots will be unveiled, providing services such as meal and item delivery, giving directions, disinfection and sterilisation, and waste removal. The robot-based digital services provided to reporters and Rights Holding Broadcasters will be fast and around the clock. For example, the pandemic-control robots do rounds and perform disinfection and sterilisation, while the waste-removal robots will independently travel to the spot requiring cleaning and then return to the temporary storage point.

The restaurant providing the media with food and beverage services will also be turned into a smart restaurant. It will have a total surface area of about 6,000 m² and is divided into Western and Chinese food areas. Thousands of people may simultaneously be served by about the 120 catering robots manning the restaurant, including those responsible for preparing hamburgers, stir-fried food, pot rice and snacks. It reflects and highlights the feature of Hi-tech Beijing 2022. The

facilities and equipment will be kept as the legacy of the Games and will be used for receptions, major conferences and exhibitions, and supporting business events. A high-quality leisure, dining and entertainment space is thus created, adding to the hi-tech features of the central area of Beijing Olympic Green.

Construction of the China National Convention Centre Phase II will continue after the Games. The main part of the project will complete on 31 December 2023, while the rest of the project will finish on 30 June 2025. Once completed, along with the China National Convention Centre Phase I, the venue will become a world-class conference and exhibition

complex. It will play host to top political and diplomatic events as well as those of major international exchange events and business conferences and exhibitions. Furthermore, it will play a critical role in meeting the conference and exhibition needs of Beijing as the city evolves into a centre of international communication.



Case Studies of Sports Legacy



Beijing Youth Ice Hockey League

Editor's note: Fostering the development of youth ice and snow sports and integrating the ideals of Olympic Winter Games into youth development are part of the implementation of the Nationwide Winter Sports Promotion Programme that aims to engage 300 million people in winter sports. In Beijing, youth ice hockey began to develop in 2008 and has become one of the most popular youth ice and snow sports of the city. Riding on the enthusiasm unleashed by the Olympic Winter Games Beijing 2022 and the campaign to promote ice and snow sports across China, the Beijing Youth Ice Hockey League has grown rapidly, laying a solid foundation for developing ice hockey as a competitive sport and turning it into a flagship symbol of the city's ice and snow sport development.



● Beijing Youth Ice Hockey Club league matches 2021 – 2021

The Beijing Youth Ice Hockey League made its debut in 2008 and has been active for 14 years since with games usually held during October of each year to March of next year. It has gone from initially having only four teams with about 60 players participating to the current membership of 25 clubs, 256 teams and nearly 3,600 young players. It has become the largest and longest-running youth

ice hockey competition in Asia. Beijing Youth Ice Hockey League is supported by Beijing Municipal Bureau of Sports and managed by Beijing Ice Hockey Association.

Embracing international standards

The League adopts international standard and organises games with high professionalism. It constantly strives to create a top

international youth ice hockey league.

The participating athletes are divided into thirteen age categories from U6 to U18. The groups above U14 are divided into men's and women's groups, and the groups below U14 are mixed. These categories include both competition groups and selection groups. Competition groups have regular seasons and playoff games in line with the international competition systems. Such arrangements foster talent cultivation and help players make progress step by step.

The League organises games based on international rules of competition including those in the International Ice Hockey Federation Official Rule Book 2018–2022 and International Ice Hockey Federation Sport Regulations. In addition, small fields, small gates and lightweight balls are used for U6, U7 and U8 games, in light of the physical attributes of athletes in the low-age groups.

Scaling up competitions to promote ice hockey sport

The Olympic Winter Games Beijing 2022 have boosted the development of the League. To

promote ice and snow sports and make ice hockey an iconic sport in Beijing, the municipal government has provided generous support to the League. The League keeps expanding in scale with increases in the number of participating athletes, clubs and teams, especially since China won the bid for the Olympic Winter Games in 2015. Whereas only 455 athletes, 5 clubs and 24 teams competed in the 2012–2013 Season, nearly 3600 athletes, 25 clubs and 256 teams took part in the 2021–2022 Season.

The League organises more ice hockey events than any other organisation in Beijing. It organised 1,224 games in the 2021–2022 Season, accounting for 50% of all ice hockey games held in the city. The games were livestreamed and displayed the impressive potential of young local talents. They answer to the



● Beijing Youth Ice Hockey Club league matches 2021 – 2021

© How the League Evolved in Scale during the 2012–2022 Period

Items	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
Total number of participating athletes(including U6)	455	840	1,205	1,545	2,350	2,619	3,308	3,701	3,127	3,600
Total number of participating clubs	5	8	9	17	19	29	29	29	24	25
Total number of participating teams (U6 not included)	24	47	68	90	139	162	199	202	189	256

Source of data: The Youth Department of the Beijing Bureau of Sports (2021–2022 season data is available online)

demands of various groups of audience, publicise the sport and increase its influence, foster more youth engagement and contribute to the development of ice hockey in Beijing.

Building a talent cultivation system

Because of the city's campaign that encourages youth to engage in ice and snow sports, more and more young people are getting involved in the ice hockey. The level of competition in ice hockey has also been enhanced in the process. As of now, Beijing has more than 4,000 registered youth ice hockey athletes and a well-developed system of training comprised of schools and training institutions, county-level sports teams, municipal-level sports

teams and professional sports teams. More than 2,500 ice hockey events are held in the city every year.

The League believes consistently that competitions can facilitate training and that the two should be combined to achieve better results. It has helped scout and cultivate talents in the field of ice hockey for the city and kicked off a new chapter in the city's ice hockey development. By the end of 2020, the League helped train 77 athletes for the national team and the national training team and is establishing itself as a platform for selecting talented ice hockey players.

The League offers a competing stage for youth ice hockey enthusiasts and is also an important platform to promote

youth ice hockey sport and cultivate aspiring competitive ice hockey talents. It takes the Olympic Winter Games Beijing 2022 as an opportunity to assert itself as a driving force for ice and snow sport development in Beijing. After the Games, the League will continue to organise games on a greater scale with improved competition systems. It will try to enhance its international profile by inviting youth teams from other countries excelling in ice hockey to participate and provide more opportunities to the local youth teams to go toe to toe with strong foreign teams. All these efforts will help further promote the development of ice hockey and make it a unique feature in the development of youth ice and snow sports in Beijing.



National Public Ice and Snow Season

Editor's note: Seven editions of the National Public Ice and Snow Season ("Ice and Snow Season") have been held successively, which has now become the largest public winter sports event in China to encourage the widest public engagement. It has expanded continuously in terms of geographical reach and in terms of variety of activities and events, contributing to the goal of "engaging 300 million people in winter sports". The Ice and Snow Season will continue after the Games as one of the most important legacies that Beijing 2022 will leave.



● 11th Bird's Nest Ice and Snow Festival

The Ice and Snow Season is a series of public activities and events, which are open to the public and aimed at promoting winter sports. It has taken place for 7 years in a row since 2014. Its geographic coverage has expanded from the Beijing–Tianjin–Hebei Region, Northeast China, North China and Northwest China in the first year to 184 cities in 31 provinces and municipalities. A total of over 4,780 events have been held cumulatively and over 365 million person/time engaged in these events, hosted by the

© Details of All Editions of the National Ice and Snow Season^[1]

Year		Place of launching ceremony	Number of events held	Number of provinces, autonomous regions and municipalities involved	Number of participants
1 st	2014	Beijing	80	10	Around 10 million
2 nd	2015	Beijing	100+	15	Around 15 million
3 rd	2016	Beijing	100+	25	30 million
4 th	2017	Shijiazhuang	1,000+	25	50 million
5 th	2018	Shanghai	1,500+	27	90 million
6 th	2019	Tianjin	800 (most planned events were not held due to the pandemic)	27	70 million
7 th	2020	Changchun	1,200 (less events were held due to the pandemic)	31	Nearly 100 million

General Administration of Sport of China.

The Ice and Snow Season has become an important platform for the promotion of winter sports. It runs through the whole winter season and all sectors are encouraged to use the platform to promote winter sports. For the Ice and Snow Season, sport, social tourism and cultural organisations at provincial, municipal, district, sub-district, township levels are encouraged to organise all sorts of engaging ice and snow activities, in collaboration with government agencies, public institutions, venues, enterprises, local organizations, colleges and universities as well as primary and middle schools. Communities are mobilised to take part in the activities, including urban and rural residents, people of all age groups and abilities. An environment of winter sports for all has been formed across the country in order to create a new dynamic for nationwide development of ice and snow sports.

Various events of ice and snow sports taking place across China

As the “Ice and Snow Season” unfolds, the provinces, autonomous regions and cities



● Launch of the 6th Joyful Ice and Snow Season for Beijing Residents

involved have developed various plans to hold public ice and snow sport events with their own geographical and cultural peculiarities.

Beijing has held the Joyful Ice and Snow Season for Beijing Residents for 7 years in succession. Between 2016 and 2020, a variety of 15,000 public ice and snow sport events took place at various levels with a total of 24.80 million participants. The city also provided skill training programmes for around 23,000 sports instructors.

Zhangjiakou has hosted the “Beautiful Country – Passionate Zhangjiakou Ice and Snow Season” for 6 consecutive years. During the 2020–2021 snow season, a total of 5 million people in the city and 22 million from the entire Hebei Province

participated in the event. ^[1]

In line with the strategy of “developing winter sports across China”, all regions in China have actively sought and created new forms of ice and snow sport activities.

In the **three provinces in Northeast China**, folk ice and snow fun games typical from Northeast China like ice top whipping, ice sledge, dog-pulling-sledge, snowmen making, snow fights and snow ring sliding are played during the Ice and Snow Season.

In Beijing–Tianjin–Hebei Region

[1] Hebei Provincial Bureau of Sports: Up to 22 million people in Hebei will participate in ice and snow sports in the 2020–2021 Snow Season. <http://www.hebsport.gov.cn/zhuantipindao/tigonghui2020/meitibaodao/2020/0418/13636.html>



● “Glacial Border River, Wellness in Heihe” Winter Swimming Cultural Festival of the 7th National Public Ice and Snow events series

and **Northwest China**, a large variety of ice and snow sports activities are carried out, such as cross-country skiing, ice sledge, snow hiking, snow tug-of-war, snow karting, snow relay and snow cycling.

In **Southwest China**, people are encouraged to join in ice and snow-related activities, such as winter sports on-campus photography competitions, free skiing experiences and skill training, exhibitions on snow as well as diverse skating events.

In **South China**, because of the warm weather, people are encouraged to practice activities resembling ice and snow sports such as roller skating, floor curling and ‘dry land’ ice hockey.

Promotion of youth ice and snow sports

The youth is an important population in the drive to achieve the goal of “engaging 300 million people in winter sports”. During the Ice and Snow Season, rich and diverse ice and snow sport

events for the young people are organised to enable them to experience the appealing ice and snow sports.

The “World Snow Day – International Children’s Skiing Festival” was held during the Ice and Snow Season, which has successfully drawn the wide participation of teenagers. The Festival in 2019 took place in 114 skating rinks across China in sync where more than 10,000 children were on ice at the same time, greatly bolstering the development of youth ice and snow sports.^[2]

Also during the “Ice and Snow Season”, the sports authorities

[2] Data source: the Winter Sports Management Centre of the General Administration of Sport of China.



● Ski mountaineering competition in Zhangjiakou

worked with the educational authorities at various levels to introduce ice and snow sports to schools and classrooms, enable teenagers to learn skating and skiing and appreciate the unique appeal of these sports. To encourage children and their parents to take part in winter sports together, “Big Hands and Small Hands” family experience classes are provided. These promotional efforts have stoked the interest and enthusiasm of the residents and more and more families are going to ice rinks and snow resorts.

Winter sport-related public services

During the Ice and Snow Season, many free activities were organised for local communities to incentivise their engagement in ice and snow sports. During the 5th Ice and Snow Season 2018–2019:

In Beijing, public ice and snow sports experience classes were offered to the public. 10,000 people and nearly 100,000 respectively signed up for the municipal-level and the district-level classes. A total of 20,000 free

coupons were given out.

In Henan, 100,000 people participated in free ice and snow sport events entitled “Getting on Ice and Snow” free experience event.

In Fujian, “Promote Olympic Winter Games and Join in the Winter Camp” – Fujian–2019 National Youth Sport Winter Camp was held with 1,000 people participating for free every day.

In Guizhou, the “2019 Winter Tourist Season for Ice and Snow Sports” offered 15,000 students



● A snowmobile pulls snow tubes at a winter-theme park in Harbin, Heilongjiang Province

free skating coupons.

In Liaoning, the 2018–2019 “Ice and Snow Liaoning –Citizens Getting on Ice” Series introduced activities like “snapping up skating tickets” and free skating and skiing training camps.

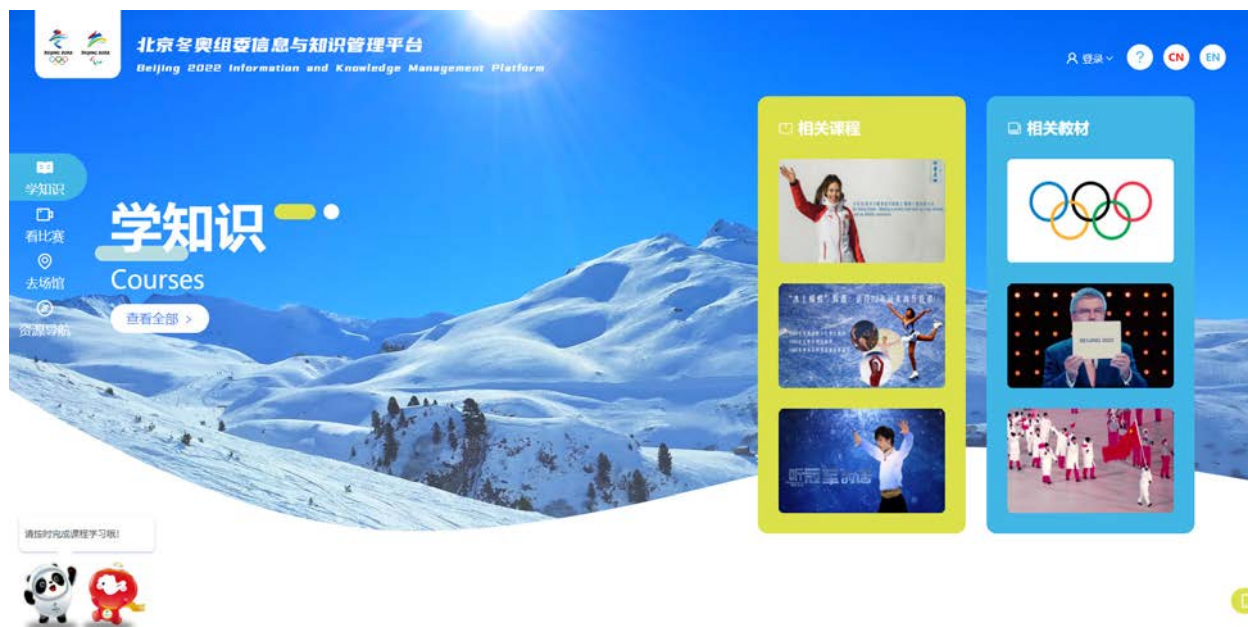
In Guangdong, people had great fun at the ice and snow world of wonder in the “Ice and Snow Sport Carnival” where they enjoyed figure skating, ice hockey performances and fun games on ice as well as free experiences on

the skating rink.

The National Public Ice and Snow Season was born because of the Olympic Winter Games Beijing 2022 and it has grown after 7 years of development. It has unleashed a host of distinctive, well-organised, highly popular and large-in-scale public ice and snow sport events. These events have fired up the people across the country for winter sports and helped achieve the goal of “engaging 300 million people in winter sports”, forming an

important Olympic legacy.

The Ice and Snow Season will go on after the Olympic Winter Games to build on what has been achieved in the development of ice and snow sports. New forms and types of events and activities will be created to bring winter sports closer to the public and make winter sports an important part of people’s life. It will continue to contribute to the development of fitness for all and health for all to the building of a “Healthy China”.



Cloud Learning Platform

Editor's note: The Information and Knowledge Management team of the Beijing 2022 Organising Committee launched the cloud learning platform to its staff and the public. Digital interactions have made information dissemination and knowledge acquisition more efficient and allowed the Olympic values and culture to reach more people.

The IKM platform is an important tool for Olympic knowledge learning. It represents a classic legacy the Beijing 2022 Organising Committee will leave for future Olympic Games, and enables Beijing to contribute its learning to the development of the Olympic Movement.

Since the start of the preparations for the Games, the Information and Knowledge Management (IKM) team of the Beijing 2022 Organising Committee has been working closely with the IOC Olympic Games Knowledge Management team to use digital technologies and information platforms for Games knowledge management, staff training and education. The staff and the public have been provided with free access to the IKM network platform, the WeChat Applet “Learning about Olympic Winter Games” and visual products like “Public Classroom on Olympic Winter Games”, contributing to the wider spread of the Olympic values and culture.

IKM platform – an “encyclopedia” and “tool-kit” for the Games staff

The IKM platform officially went on line on February 1, 2021. Digitised knowledge about

the Games is aggregated and published, linked with the official website of the Beijing 2022 Organising Committee.

The platform pools together international and domestic learning resources including knowledge, case studies, data and information related to previous Olympic Games and to the preparations for Beijing 2022 in the past five years. By November 2021, the platform collected video courses on 147 subjects and digital notes totaling more than 4 million words.

The IKM platform is an encyclopedia and a tool-kit tailored for different categories of people such as Games staff, technical officials and volunteers. It includes many functions such as information search and online tests, as well as both Chinese and English user interfaces. Users can log on computers or smart phones to start learning or look up information or build up their own personalised learning files.

At the same time, the platform is a new window for the public to learn new things about the Olympic Winter Games. Some of the contents on the platform is accessible to the public, including a large variety of free and open

learning resources. People interested in Beijing 2022 can log on the platform to learn more about the Games.

WeChat Applet “Learning about Olympic Winter Games”

The WeChat Applet “Learning about Olympic Winter Games” is an open knowledge platform



- “Learn about Beijing 2022” WeChat applet



• Beijing 2022 Public Lecture

to the public, particularly the youth. The platform uses social media software to provide online streaming courses and short cartoon videos, and applies VR technology to offer interesting Q&A games.

The applet aims to provide the public an easy access to Games-related knowledge and information in an engaging

way, so as to promote the public awareness of the Olympic Winter Games and the development of winter sports. As an incentive, the users may exchange licensed products of the Games with the credits they have been awarded in the learning activities.

Although the platform is operated by the Beijing 2022 Organising Committee, it is invested by enterprises and shared by the whole society. As all the resources to support the platform are drawn from the public, it should serve the public and the Olympic Winter Games. Now it is accessible to the public, where everyone may download, read and inquire anything from it. With several hundreds of thousands of users, it has become one of the most popular, cost-efficient and effective learning and training platforms. The “Beijing 2022 Public Lecture” is the premium part of the contents on the cloud learning platform, which provides a series of movie-quality visual products that integrate knowledge and arts. The lectures are delivered by elite athletes, movie stars, famous experts and scholars as well as Games staff members. These lectures are a highly effective vehicle to spread Olympic knowledge and tell Chinese stories. The “Beijing 2022

Public Lecture” series includes five episodes, nine minutes for each. They respectively focus on the history of China’s ice and snow sports, ice sports, snow sports, technology and sustainability, and Olympic culture. Every episode was put online by more than 400 Internet media outlets when launched, in addition to being broadcasted on TV. The programme has a wide audience and is well-received by the public.

The cloud learning platform built by the Beijing 2022 Organising Committee innovates in terms of information management and knowledge learning. The platform has incorporated Chinese elements and Beijing 2022 information in the Olympic knowledge transfer, which has enriched the knowledge about the Games.

Following the Games, the IKM platform will be transformed into the “Beijing 2022 Knowledge and Data Museum” to house the valuable heritage of Olympic Winter Games knowledge. It will continue to be a platform to promote the winter sports, Olympic culture, transfer the knowledge about the Games and showcase the achievements of the Olympic Winter Games Beijing 2022.



The Beijing Olympic Skiing Corp

A Precious Talent Pool

Editor's note: The Beijing 2022 Skiing Corp (the "Skiing Corp") is a team of volunteers who were recruited by the Beijing Organising Committee for the 2022 Olympic and Paralympic Winter Games (the "Organising Committee"), and trained for supporting Beijing 2022 as professionals in snow sports. Through this initiative, shortage of winter sports professionals was addressed, and high calibre professional teams capable of serving ski slope management were trained, thus leaving the host city a precious talent pool, one of the most important Olympic legacies.

In order to satisfy the needs of Beijing 2022 for the talents capable of serving snow sport competitions during the Games, and tackle a series of concerns such as shortage of qualified workforce, the Organising Committee searched for new skiing talents. With the Skiing Corp as the starting point, the Organising Committee recruited skiing enthusiasts from all sectors of the society, offered them ski-related trainings and actual scenario simulations, and therefore succeeded in fostering a set of ski slope management teams with a high level of proficiency.

A team of grassroots skiers

Since Alpine Skiing is not yet very developed in China, Beijing 2022 encountered the problem of insufficient ski slope management professionals capable of serving competitions during the Games.

To make up for the shortage and meet the demands of the Games, the Organising Committee recruited candidates from all sectors of the society in search for grassroots skiing talents. Later on, the Organising Committee issued professional certifications for the 3,095 talents who had completed trainings and passed tests. With the certification, the talents could be involved in the preparations for the Olympic Winter Games, as well as other post-Games skiing-related work, on either full-time or part-time basis. At the same time, the Organising Committee could keep tracking the working status of the talents and provide them with continuous trainings.

The Skiing Corp was officially established on 28 October 2018 by the Organising Committee, when the first 154 members were selected. Further, an additional 165 new members were added

to the Corp on 22 December 2019. Members of the Corp not only have good skiing skills but also have passed tests on basic knowledge about snow sports, English-speaking skills, and good physical conditions. By January 2021, the total headcount of the Corp had increased to 542, while the average skiing experience of the Corp members ranged from 10 to 15 years. The oldest member was 64 years old, and the youngest 18. The Corp members came from all sectors of the society, including party and government agencies, universities, public institutions and social organisations.

An “Iron Corp” on the ski slope

There are various types of service work related to snow sports competition and ski slope management, which require different professional skills. To meet the actual demands of the Olympic Winter Games, the Organising Committee divided the Corp members, based on their know-how and skills, into five different groups, namely competition organisation, ski slope management, equipment and facilities management, snow making and storage management, and emergency response. Such a differentiated and specialised training system has been proved



● Beijing 2022's skiing team

helpful.

Foreign experts of the Organising Committee, together with professional coaches from domestic sport associations and national teams hired by the Organising Committee provided professional instructions to the Corp members on skiing skills, skiing slope management, and equipment management. The Beijing 2022 Organising Committee leveraged the Beijing 2022 Olympic Winter Games Training Bases set up in high education institutions such as the Beijing Sport University and the Capital University of Physical Education and Sports. All the Corp members are required to take part in high-end skiing events at home and abroad to put their skills to test in competitive scenarios so that they can improve their professional capabilities and skills. The Corp members also used the Beijing 2022 Cloud Learning Platform and internationally recognised resources to increase their knowledge. The Organising Committee attached great importance to the integrity education and team-building activities of the Corp. Moreover, the Organising Committee established the Corp's

organisational culture of "willing to give while asking for nothing in return" and "strict adherence to instructions", and eventually built up an "Iron Corp" that can fight and win battles.

After three years of efforts, the Organising Committee, in its targeted talent training programs, has provided a total of 520-hour training to the members of the Corp, with the actual scenario simulation taking up more than 80% of the hours spent. As a result, 55% of the Corp members have been certified as skiing judges, civil-society sport instructors and foreign-accredited skiing coaches. 37% of the Corp members have obtained international or national qualifications, and are capable of acting as judges for high-end competitions like Alpine Skiing, Freestyle Skiing, Snowboarding, Nordic Combined, Ski Jumping, Cross-country Skiing and Luge.

In pursuit of excellence

From 4 to 7 December 2018, the Corp made its debut in a real competition for the first time since its establishment. 50 Corp members participated in the organisation of the FIS Far East Cup on its first stop, and were involved in almost all types of

skiing-slope-management-related work, from judging, installing gates, smoothing tracks and maintaining safety nets. Their dedication won applause from the FIS staff.

Since its establishment, the Corp has taken part in the organisation, operation and supporting tasks of more than 10 important skiing events including the Far East Cup, the 14th National Winter Sports Meeting, the Beijing Municipal Winter Sports Meeting and the "Meeting in Beijing" events. By doing so, the Corp improved its operational capabilities and skills, and therefore laid a solid foundation for servicing the Olympic Winter Games.

The establishment and cultivation of the Beijing 2022 Skiing Corp represent an important endeavour to address the lack of ski-related professionals. Thanks to this program, China now has ski-related professionals who are able to serve the skiing events of the upcoming Beijing 2022. After the Games, the Skiing Corp will continue to be a driving force for the development of ice and snow sports in China, and turn into a precious human resource legacy left by the Olympic Winter Games.



Ice Dragon Boat Race

Editor's note: The sport of “Ice Dragon Boat Race” originated from the time-honoured dragon boat race, a traditional Chinese team aquatic sport. Ice Dragon Boat Race inherits and spreads the traditional sport culture of China while breaking the seasonal limitation of the traditional Dragon Boat Race. It enriches the list of existing winter sports, and accordingly, carves a new ground for the popularisation and development of the mass winter sports. Driven by Beijing 2022, more and more ice dragon boat races and other relevant events are organised and promoted in the host cities and other areas across China, which brings in more people, particularly the youth to be engaged, thus turning into a unique means for popularising winter sports and promoting fitness for all.



● Ice dragon-boat racing

The “Ice Dragon Boat Race” is an innovation and extension of the traditional dragon boat race of China. Moreover, it is a combination of the traditional sport of dragon boat race and ice-and-snow sports. It retains the skillfulness and competitiveness nature of the dragon boat race. By taking place on ice, it breaks the seasonal limitation of dragon boat races. It is an emerging ice sport that integrates competition, teamwork and entertainment, and drives the innovative development of winter sports.

From dragon boats on water to dragon boats on ice

The dragon boat race is an exceptional aquatic sport of China. With a long history, it is both

competitive and entertaining, making it a highly popular public activity. Rooted in China’s dragon culture, each boat is painted with lifelike dragon scales and decorated with a unique and exquisitely carved head and tail on each end. The races reflect the team spirit of “solidarity in face of difficulty” and have been popularised worldwide after being passed down from generation to generation and after years of development. The International Dragon Boat Federation (IDBF) now has 85 member countries and has held 13 World Dragon Boat Racing Championships. There are over 50 million dragon boat enthusiasts around the world.

The initial form of ice dragon boat race originated from the “Ice

Cart”, a popular winter activity in northern China. After creative transformations, it has evolved into a winter sport enjoyed by the public across China. **In terms of the equipment**, the ice dragon boats are primarily made of fiberglass, and like traditional dragon boats, they also have a dragon head and tail, drum and rudder. However, they are fitted with two sledge frames with blades underneath and a device for controlling the direction and braking on the tail, allowing them to slide on ice. The ice paddles, fitted with needles, allow paddlers to perform a series of technical manoeuvres, such as touching, pulling and riding the ice and shifting the paddles mid-air. **In terms of the racing rules**, the ice dragon boat race was born out of the traditional dragon boat race and consists of one drummer, one helmsman and ten paddlers who use ice paddles to push the boats forwards along a straight course. **In terms of the competition venues**, the race primarily takes place on frozen natural rivers and lakes in winter. Formal races require the ice surface to be even, smooth and no thinner than 30 cm. The courses must be of the same width, between 6 to 8 m, and an auxiliary course on one side of the courses must be at least 8 m wide.

Popularisation and development of the ice dragon boat race

The ice dragon boat race is an emerging winter sport that is competitive, entertaining and safe. More important, it has a low entry threshold, and the training and acquisition of the technical movements are easy. Neither its venue and equipment requirements nor its skill demands are high. As a team sport, it allows a large number of participants, making it an ideal mass sport. It also does not have a strict age requirement and may serve as a platform for people without winter sports experience to take part in winter sports.

Beijing's successful candidature for the Olympic Winter Games in 2015 greatly popularised and promoted the ice-and-snow sports. As a winter sport deeply loved and easily participated by the public, the ice dragon boat race achieved wider popularisation and promotion, which led to the increasing competitions across China. The **Beijing Ice Dragon Boat Race** is a key event of "Joyful Ice and Snow Season for Beijing Residents" and has been built up as a new brand of ice-and-snow events in Beijing. The 1st Beijing Ice Dragon Boat Race drew nearly 200 participants from 12 teams across Beijing on January 3, 2020. The 2nd Beijing Ice Dragon Boat Race

attracted over 300 participants from 19 teams across Beijing on January 18, 2020.

The 2nd Shenyang International Ice Dragon Boat Race was staged on January 3, 2020, and drew 92 teams with 1,380 members of all ages and professions from across China, and nearly 2,000 participants enjoyed paddling above the Hun River. The ice dragon boat race was further included in the 14th National Winter Games, which was held in Duolun County of Xilingol League in Inner Mongolia between 10 and January 12, 2020, and over 500 people from 20 teams across China, including that from Hong Kong, took part in the races.



• Ice dragon-boat racing in Shenyang

Ice dragon boat race stepping into the world

The International Ice Dragon Boat Federation (IIDBF) was formally founded on 19 April 2016, following the initiation and hard work of Mr. Luo Zhongyi, who currently serves as its president. The federation later took part in the summit of the Global Association of International Sports Federations in Switzerland and introduced for the first time the ice dragon boat race to the international sports circle. In 2017, IIDBF became a member

of the International Dragon Boat Federation. And by then, a total of over 15,000 athletes have taken part in different ice dragon boat races across the world. The World Ice Dragon Boat Championships (WIDBC) and the World Club Crew Ice Dragon Boat Championships (WCCIC) have now become the most influential international sporting events of the ice dragon boat race, strongly driving the popularisation and promotion of the sport around the globe.

Because the ice dragon boat race has gained popularity across the world at a fast pace, related international events are organised more frequently. From 2015 to 2018, a total of 23 international ice dragon boat race series were held around the world. IIDBF's 1st WIDBC was staged on

Longze Lake in Duolun County of Inner Mongolia in January 2018. Over 300 athletes from 27 teams representing 23 countries and regions took part in the championship, including those from China, the U.S., the U.K. and Germany. The 1st WCCIC kicked off in Ottawa, Canada, in February 2019, drawing 125 teams from eight countries, namely China, the U.K., Ireland, Ukraine, New Zealand, the U.S., South Korea and Canada.

Ice dragon boat race is easy to organise and has only few limitations. It is also engaging and has minimal risks. Steeped deep in culture, the sport has ingeniously integrated the essence of China's dragon-boat culture with winter sports, and is equally full of speed, power and passion. The

preparations for Beijing 2022 have presented the ice dragon boat race with unprecedented developing opportunities. And rapid development of the sport has been achieved in many areas, such as general popularisation, technique progress, industrial advancement and international promotion. More and more people are being drawn to the sport, thus leaving a unique legacy in the popularisation and promotion of winter sports in China. Today, the sport of ice dragon boat race has turned into an attractive activity in the winter fitness-for-all programme. Furthermore, it is positively contributing to the promotion of the dragon boat race around the world and the spreading of China's millenary traditional culture.



Case Studies of Economic Legacy



World Winter Sports (Beijing) Expo

A World Leading Ice and Snow Expo

Editor's note: China made the commitment to host the World Winter Sports (Beijing) Expo in its candidature for the 2022 Olympic Winter Games. The Winter Expo aims to promote awareness of Chinese winter sports and encourage millions of Chinese to engage in ice and snow sports. It intends to use international winter sport resources to promote the development of China's ice and snow industry. It is an international expo that encourages mass participation and industry development. Since 2016, the Expo has been held in Beijing every year. In 2020, by holding the Expo and the China International Fair for Trade in Services, China successfully harmonised the two world-class expos and offered a platform for the international development of China's ice and snow industry, as well as the popularisation of ice and snow sports in China. After Beijing 2022, the Expo, as an important legacy of Beijing 2022 in boosting economic and industrial development, will continue to be held.



• Olympic City Development Forum at World Winter Sports (Beijing) Expo 2020

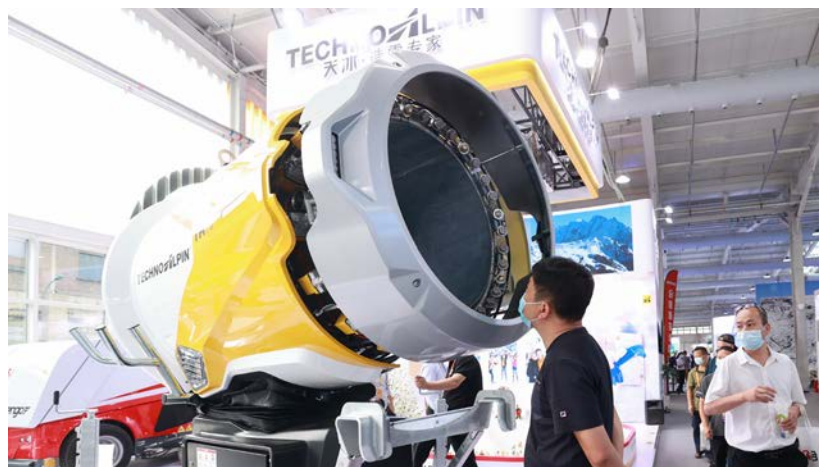
The World Winter Sports (Beijing) Expo the “Winter Expo” is a communication and promotion platform for ice and snow sports and the ice and snow industry. It has been held yearly since 2016, and by now resulted in fruitful achievements: a total exposition area of 150,000 square meters, one million visitors and more than 600 participating enterprises, many of which have regular presence. In addition, the Winter Expo has hosted more than 100 forums and promotional events which attracted nearly 1,300 guest speakers and 130,000 professionals in total.

A showcase platform for domestic and foreign winter sport enterprises and brands.

The Winter Expo is a promotional and development platform for

leading winter sportswear and equipment manufacturers in the world. Over the past six years, many world-renowned brands unveiled their latest products and achievements during the Winter Expo and enhanced exchanges with Beijing, the host

of the 2022 Olympic Winter Games, including by having their equipment installed in the Beijing 2022 venues. The Winter Expo has born witness to the rise of China’s ice and snow industry. Some domestic enterprises that started out as Chinese branches of foreign brands now have indigenous R&D and production capabilities and their fully proprietary IP. An example is the partnership between a domestic winter equipment manufacturer with a Finnish enterprise which brought Finnish products to China and marked the beginning of the international and specialised development of China’s domestic winter sports. They co-launched an Olympics Winter Games high-tech project to develop and deploy an efficient and smart snowmaker



• World Winter Sports (Beijing) Expo 2021



● VR skiing at World Winter Sports (Beijing) Expo 2020

adaptable to various geographical conditions and promote the domestic production of ice and snow equipment.

A platform for the integrated development of global ice and snow industry. Domestic and foreign winter sports enterprises have realised mutually beneficial development and worked together to promote the global ice and snow industry through resource-sharing and exchanges. Enterprises from different countries have shared their success stories and their views on industry development trends on parallel sessions, in think tanks and through release of reports. For example, the International Ice and

Snow Think Tank Closed-door Meeting offers comprehensive solutions for industry projects. The Ice and Snow Entrepreneurship Challenge attracts promising foreign startup enterprises and projects to China and incubates domestic ones in China. The Ice and Snow Industry Review has become the “weathervane” for observing the latest developments in domestic and foreign ice and snow industry.

A promotional platform for winter sports. The Winter Expo has a winter sports experience area that is designed to promote winter sports with a rich selection of activities like skiing experiencing, VR skiing and skiing shows. The

first edition of the Winter Expo held in 2016 had a 500 square-meter real-ice rink and a lot of simulation equipment and provided a fantastic ice-skating show and a chance for teenagers to experience and learn skating. It gave the public a taste of the speed and thrill of winter sports in a way that combined the physical and the virtual. In 2017, a forum was held to promote winter sports in schools with the aim to train winter sports talents for realising the goal of “engaging 300 million people in winter sports”. Since 2018, the Winter Expo has held the Teenager Winter Sports Promotion Forum yearly to attract more international winter sport education resources to China and facilitate the popularisation of winter sports.

Wide participation of international sports organisations and countries leading in winter sports. The International Olympics Committee, the Global Organisation of Winter Sports, the Association of International Olympic Winter Sports Federation and the World Union of Olympic Cities have shown great support for and actively engaged in the Winter Expo. Countries leading in winter sports like Finland, Austria, Norway, Switzerland, France and Italy have actively participated as



• Floor curling at World Winter Sports (Beijing) Expo 2019

well. And Switzerland, Austria and Finland were consecutive guests of honour at the Winter Expo. In 2021, the host of the 2026 Milan Cortina Olympic Winter Games was invited to be the guest of honour, which further boosted the exchanges and communication between the two host countries of the Olympic Winter Games.

A platform to communicate achievements and legacies of Beijing 2022. The Winter Expo is also a window for the public to learn more about the Beijing 2022 and light up their Olympic dreams. Exposition areas dedicated to the Beijing 2022

Organising Committee and the Beijing, Yanqing and Zhangjiakou Competition Zones were set to showcase the progress of the preparations for the Games and the role of the Games in driving the development of the host city. The Olympic City Development Forum offers a platform to discuss the development opportunities provided by the Olympic Winter Games, city planning of host cities, post-Games use of the Olympic venues, the international cooperation and exchanges among host cities and the promotion and development of Olympic legacies. It also offers a channel to

call for suggestions conducive to the sustainable development of Beijing as a dual (summer–winter) Olympic city.

The Winter Expo is sponsored by the Beijing Olympic City Development Association and International Data Group, with the support of relevant international sports organisations, the Chinese Olympic Committee, the municipal government of Beijing and the Beijing Organising Committee for the 2022 Olympic and Paralympic Winter Games.

After six-year development and innovations, the Winter Expo has played an instrumental role in promoting winter sport development in the world, the exchanges in the global ice and snow industry, the rapid growth of domestic ice and snow businesses and the public engagement in winter sports. It has continued to gain influence, developed connections with more than 600 ice and snow brands over the world and become the first and foremost ice and snow expo in the world in terms of both scale and class.



Free Perspectives: A Broadcasting Technology Innovation

Editor's note: To ensure a successful Olympic Winter Games, the strategy of using technologies to empower Beijing 2022 was set forth from the very beginning. A Science and Technology Steering Group for the Games was established at the national level to implement the Action Plan for Science and Technology Based Beijing 2022 and therefore to stage a high-tech Olympic Winter Games. By October 2021, a total of 78 core projects were approved and launched under the Plan, covering a series of technologies including improvement of venue construction, operation and maintenance, meteorological forecasts, optimisation of athlete abilities, broadcasting technologies, and ensuring snow availability for sporting events. The interactive multi-dimensional broadcasting technology (aka Free Perspective) is one of the essential technologies developed not only to improve client experiences of the Games but also to be used in relevant fields after the Games as a legacy of the high-tech Olympic Winter Games.

The development of the interactive and multi-dimensional broadcasting technology and system, as a key project of the High-tech Beijing 2022, made a successful debut on April 2, 2021 at the ice hockey test events “Meeting in Beijing” held at National Indoor Stadium and Wukesong Sports Centre. The initiative was led by Peking University with the participation of concerned national laboratories, enterprises and other institutions of higher education.

Mr. Chen Baoquan, head of the interactive multi-dimensional technology development project (also called Free Perspectives) explained, “The free perspective technology makes watching games from multiple perspectives possible. Instead of watching changing images from a single perspective, with the ‘free perspectives’ technology, viewers can pick perspectives of their own choosing and shift their view point continuously so that they can watch the same match from different perspectives.”

The “free perspective” technology allows viewers with the right apps in a 5G smartphone or a VR helmet able to watch games from any perspective they like and experience amazing visual

impacts. And digitally created content once added organically to the scenes of the games can reinforce the substances of the event. The information that can only be shown in single-page interstitials in traditional broadcasting can now appear in real-time scenes: the trajectory of the movements of a ball is shown as a red line and the names of players appear instantly above their heads.

Real-time high-resolution broadcasting images

Multi-perspective video transmission can transmit data several times as large as the traditional single-perspective transmission and sometimes it can be a difference of magnitude. It is more exacting in its demand for data synchronisation,

Internet latency and bandwidth speed. With the support of 5G, a match streamed with the multi-perspective transmission technology can keep the latency down to 30 seconds with images of 1080P resolution.

The multiple perspectives and the consequent greater volume of data transmitted at each given moment raise the requirements for resolution. The multimedia linkages and codec transmission facilitated by the “free perspective” technology require an 8K resolution. The project team invented a series of fast coding mode decision-making technologies and parallel coding technologies based on AVS3 (video coding standards), successfully developed the 8K real-time video encoder,



● The interactive, multidimensional event-viewing and broadcasting equipment at the National Indoor Stadium



● The interactive, multidimensional event-viewing and broadcasting equipment at the National Indoor Stadium

and combined with the self-adaptive transmission technology operating from the main perspective greatly improved the resolution and clarity of videos viewed from “free perspectives”.

Free and fantastic viewing experiences

Obviously, an end-to-end solution is needed to do everything from collecting stadium images and data to enabling real-time viewing from any place, which is the Holy Grail of the whole project.

Pictures of what is happening at the venue are taken and sent to the cloud, information about the venue and the games is reconstructed in 3D and then the

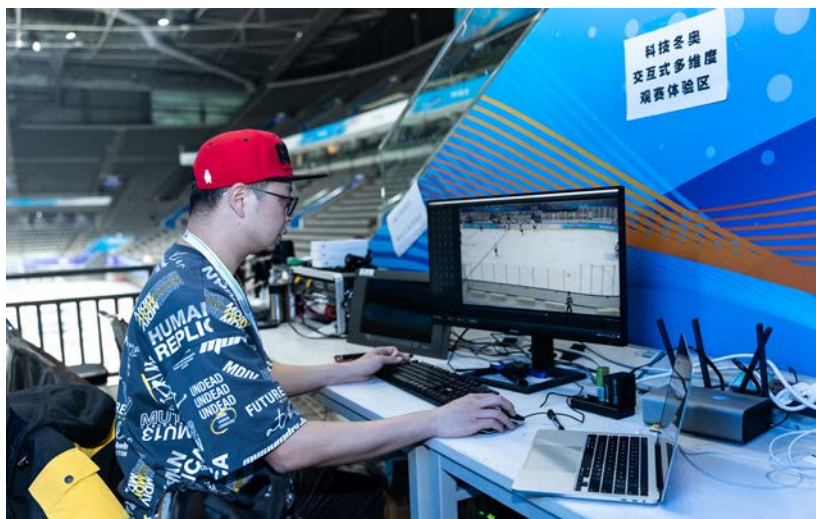
3D pictures through coding and decoding can be viewed by the audience from “free perspectives”. However, with only about 40

cameras scattered around the 210-meter U-shaped field, each two five meters apart, how can free perspectives be provided to cover the whole stadium?

The project team designed a “smart brain” for the “free perspective technology”. First, 3-D reconstruction technology is used to create new perspectives. Then, the self-adaptive coding and transmission technology can predict which perspective users will shift to base on their intentions and carry out targeted computing and data transmission activities accordingly. Professor Chen said, “Such real-time predictions avoid random computing and data transmission and ensures that the efficient



● Volunteers at the National Indoor Stadium appreciating the interactive, multidimensional event viewing



• The interactive, multidimensional event-viewing and broadcasting platform at the National Indoor Stadium

supply of 8K data can be used as much as possible to maximise the smoothness of the viewing experiences, which is the top priority for viewers.”

In addition, where free perspectives are possible, scenes of fantastic scores and impressive scenes will be shown even before they have actually happened. That is because, before the broadcast of the event, the system predicts the scenes according to the characteristics of the competition, and presumes a trajectory for the shots for example during ice-hockey matches. The system will calculate the effective trajectory for the change of perspectives and construct what can be

seen from each perspective in an unpredictable ice hockey game, and then it will do some calculations and present the most exciting shots of the game to the audience in real time.

Convenient access to the technology

The technology can present the multi-angle and clear details of the previous scenes through 3D reconstruction. It not only helps referees make rulings faster and more accurately, but also allows players and coaches to visually review the details of what happened from multiple angles.

The technology will be displayed and promoted at Beijing 2022.

And efforts will be made after Games to create national or international standards in the area of free-perspective videos to promote the development of the high-resolution VR technology and industry.

Thanks to the implementation of the High-tech Beijing 2022 project, we have mastered some key essential technologies, piloted some cutting-edge technologies and introduced pilots of comprehensive applications of the relevant technologies, which will continue to provide strong support for hosting a simple, safe and spectacular Olympic Winter Games. Since the launch of the project, a total of 112 new technological achievements resulted from 37 projects have been put into use in test events for various purposes related to venue, operation, command and control, security, medical service, meteorological forecasts, transport and broadcasting. They will have roles to play during the upcoming Winter Olympic Games as well. Once improved after tested and applied in various use scenarios during the Games, they can be better used to promote economic and social development and the operations of cities as important legacies of Beijing 2022.



Beijing 2022 Propels ANTA's Development

Editor's note: The Beijing Olympic Winter Games attract private sector capital and participation and offer a platform for Chinese businesses to strengthen themselves and reach out to the world. The brand value of the Olympic Winter Games can be combined with the development needs of businesses to achieve mutually beneficial development for both.

On October 27, 2021, Anta Sports released uniforms it designed for the Olympic and Paralympic Winter Games Beijing 2022, including those for technical officials, staff and volunteers. The designs combine winter sports and traditional Chinese aesthetics.

Thanks to the boost given by Beijing 2022 positive image, Anta Sports realised strong growth in the past years. Its 2020 financials show that it reached a market valuation of 279.48 billion yuan in 2020 with a revenue of 35.512

billion yuan, an increase of 112.8% over the 16.69 billion yuan in 2019. It ranked No.1 and No.3 respectively in the Chinese and the global market in terms of revenue.

Since the year of 2009, Anta Sports has been a partner of the Chinese Olympic Committee for four consecutive Olympic cycles, keeping providing the Chinese Olympic Delegations with self-developed sportswear for competition, medal ceremony and leisure time. In September 2017, it

became the official sports apparel partner of the Olympic and Paralympic Winter Games Beijing 2022. In 2019, it also became the official sports apparel supplier of the International Olympic Committee till the end of 2022.

Brand value of the enterprise increased. Over the years, Anta Sports, with serving professional sports as its core mission, has designed sportswear for 28 Chinese national teams, more than any other domestic sport brand. These sports teams include



● Anta Sports' Beijing 2022-themed flagship store



● Anta Sports' Beijing 2022-themed flagship store

gymnastics, weightlifting, judo, swimming, short track speed skating and speed skating teams. For Beijing 2022, the enterprise will provide 12 Chinese national teams with sportswear, implying much more design load than any other sports brands. At the same time, it also sponsors five Canadian national teams. By sponsoring the world's top sports events such as the Olympic Winter Games, its brand will be further enhanced.

Scientific and technological strength of the enterprise enhanced. In recent years, Anta Sports has focused on researching and developing new materials, technologies and industrial processes for everything from

single components of a pair of shoes to every piece of fabric of a sports uniform. The enterprise's R&D efforts covers everything from materials to structures, from designing things from scratch to putting parts together to create new ones. Gradually, it has built six platforms for innovative research in an effort to create a unique tech ecosystem, including a sport science lab, a testing lab, an advance shoe materials lab, a professional gears lab, a shoe innovation lab and a smart manufacturing lab. It now has global design and research centres in China, the US, Japan, Republic of Korea and Italy with more than 200 designers and researchers it has recruited from 18 countries and areas from all over the world.

So far, the enterprise has applied for more than 1,400 technology patents, head and shoulder among its industry peers. In April of 2019, it established the Beijing 2022 Preparation Support Office to pool global resources in service of research and design for the Olympic Winter Games.

In addition, Anta Sports has stepped up its R&D investment. To tackle the difficult subjects in the area of sports technologies, it partnered up with leading universities and academic institutions, such as setting up the "Tsinghua-Anta Joint Research Centre" to focus on basic science research and strive to replace imported sportswear and equipment technologies

with its own. The enterprise's R&D expenses increased from 308 million yuan in 2015 to 871 million yuan in 2020, an increase of 183%.

In the year of 2019, Anta Sports joined hands with an investor consortium and acquired the international sporting goods company Armer Sports Group for 4.6 billion euros. It was not only an important step in implementing the company's internationalisation strategy but also a critical chance in creating technological and research synergies to help ANTA provide more professional sportswear to all the sports teams it assists.

Contributing to the development of ice and snow industry. Anta Sports is committed to making contributions to achieving the goal of engaging 300 million people in winter sports. To that end, Anta

is making efforts in following three aspects: firstly, providing winter sports equipment that meets the needs of different people engaged in winter sports; secondly, creating a platform for winter sports communities to share information, provide training and experience winter sports; and thirdly, organising public ice and snow experience activities by consolidating all the resources under the umbrella of Anta Sports.

In September 2020, the Anta Winter Olympics Exhibition Centre was established in Beijing to showcase winter sports to the public. Anta Sports became the first domestic sports brand to promote ice and snow sports in China.

In October 2021, Anta Sports joined hands with the Beijing 2022 Organising Committee to launch

the public benefit programme under the theme "Beijing 2022 and Me", offering training courses, winter sports camps and campus sports experience events to effectively improve the conditions for teenagers to experience and practice winter sports.

Anta Sports is a typical example of how enterprises can benefit from building connections with Olympic Games and is a vivid case of legacies created by Beijing 2022. There are many Chinese enterprises that by supporting and sponsoring the Olympic Games have succeeded in improving brand image, expanding their international market and writing wonderful stories of how preparations for Olympic Games and business development can go hand in hand.



Case Studies of Social Legacy



Promoting Ice and Snow Sports on Dry Land

Editor's Note: Following Beijing's success in the candidature for hosting the 2022 Olympic Winter Games on July 31, 2015, national campaigns have been launched to introduce ice and snow sports to schools. Dianchang Road Primary School in Shijingshan District, Beijing, sets the target of promoting Olympic education through ice and snow sports. To this end, the school has explored a method to practise ice and snow sports on 'dry land', so availability of ice/snow venue would not be an issue to sharpen students' ice and snow sports skills. The target of engaging all students in ice and snow sports has been realised and their "Dreams of Ice and Snow" came true.



● Participated in cross-country roller ski competition at the 2019 National Ice and Snow Sports Games for Schools

Established in July 1984, Dianchang Road Primary School in Shijingshan District, Beijing (“Dianchang Road Primary School” or the “School”) is a public school that provides 6-year education. By September 2021, there were 329 students in 12 classes and 35 teachers at the School. It was selected as an **Olympic Education Demonstration School** in 2019, and a **School with Winter Sports Programme** in 2020.

The winter season in Beijing is short due to its geographic location and climate conditions. When there is no ice and snow, the School organises simulated ice and snow sports and promotes ‘dry land’ winter sports.

‘dry land’ winter sports were introduced to Dianchang Road Primary School in 2018 when nearly 90% of its students had no experience of real snow and ice sports. After more than 3 years’ training and practice on ‘dry land’, the students have mastered relevant winter sports skills. By the end of 2021, 100% of them have engaged in real ice and snow sports. This method has removed natural restrictions and created an exemplary model to popularise ice and snow sports in schools.

Innovative ‘dry land’ ice and snow sports

While retaining the key features and fundamental principles of ice

and snow sports, this innovative method breaks natural restrictions, and prepares students for real ice and snow sports by sharpening their skills in terms of balance, body movements, movement memories etc.

‘Dry land’ ice and snow sports have been practiced to promote winter sports training at Dianchang Road Primary School by four approaches:

I. ‘Dry land’ winter sports programme

Each class has one lesson per week and each student has about 40 hours of lessons per year. Through



● Participated in the FIS China Beijing Roller Ski World Cup 2019.



● Dryland bobsleigh course



● Dryland roller ski course

‘dry land’ practice, students gain proficiency in winter sports skills and laid a solid foundation for starting to practice ‘real’ ice and snow sports.

II. Innovative equipment

Meanwhile, equipment similar

to those used in ice and snow sports are created, partly using waste material, e.g. installing rollers underneath a wood plate to produce a simulated skeleton on which a student lies while using hands and feet to slide forward; wearing helmets and Dry Land

The school has developed a series of ‘Dry land’ winter sports courses such as:

‘Dry land’ curling or floor curling: played with similar equipment and rules to curling, but with a lighter stone and three additional rollers underneath for ground sliding; it can be played on indoor and outdoor smooth surface (concrete, plastic etc.) such as school halls, squash courts, badminton courts etc. where a 9.7 x 1.6m track can be accommodated

Roller-skiing and roller-biathlon: also known as ‘dry land’ rollerblading or cross-country roller-skiing, is similar to cross-country skiing and is therefore practiced by many athletes during the off-snow period; the skis are mounted on wheels

Floorball: –originated in Sweden in the mid-1970s; the cost of the equipment used being low, players only need ordinary sportswear, sports shoes and a ball and a stick to play. With no restriction on venue, any place, indoor or outdoor, grass or a concrete floor will do. The playing surface measures 20m x 40m, with a baffled perimeter. The ball used is a hollow plastic ball with 26 holes.

Roller ice-hockey: –originated in Canada in 1995; players wear roller skates; the playing surface is a rink—a flat, hard concrete, wood, plastic or brick floor measuring 20m x 40m or 15m x 30m. The rules are similar to those of ice hockey; the roller ice-hockey puck has several plastic “bumps” on both sides to reduce the area of contact with the ground in order to cut friction drag. No collision is allowed during the game.



● ‘Dry land’ curling course at Dianchang Road Primary School



● Floorball course at Dianchang Road Primary School

skis (composed of pedals and rollers) while holding sticks like ski poles, the children play "Dry Land ski" on the ground to simulate and practise skiing.

III. Setting up 'dry land' winter sports clubs

The school has set up eight 'dry land' winter sports clubs, including floorball, 'dry land' curling, roller skiing, 'dry land' skeleton and roller skating, to encourage students to use their spare time to play 'dry land' winter sports according to their personal interests and to form competition teams to improve their competitive level.

IV. Participating in 'dry land' winter sports events

Since May 2018, the school students participated in a number of international, national and municipal 'dry land' winter sports events to enrich their experience.

In July 2019, when the FIS China Beijing Roller Ski World Cup was held at the Bird's Nest, Mr. Xue Dong, the headteacher, took 37 young athletes from the school to take part in their first international competition in life. Participating in such a high-level international competition and successfully completing it allowed the children to experience the charm of fierce competition on the field and to build up the spirit of striving to win. Year 5 student Yuan Zixuan, who came 16th in the amateur category, became a great inspiration to the children.

Watching ice and snow sports competitions.

Since 2015, the School has been taking the children to watch various snow and ice events to increase their knowledge of competitive winter sports. For example, when organising students to watch the FIS CC Skiing China City Sprint Capital Group 2019, they were asked to do their homework in advance. What is cross-country skiing? Where did the sport originate? Who are the competing athletes? A range of knowledge points were taught to the children, who learn about the sport in addition to classroom lessons. Watching winter sports competitions on site increases their interest in the winter Olympic sports.



● Dryland biathlon course

◎ Dryland Ice and Snow Competitions Participated and Results

Level	Time	Competition	Result
International	July 2019	2019 FIS China Beijing Roller Ski World Cup	16 th place for the amateur group
National	December 2019	Roller Skiing at the National Ice and Snow Sports Competition for School Students	Champion for Women's 3 × 100m Relay; runner-up for Men's 3 × 100 Relay; 4 th and 6 th place for Men's 1,000m Mass Start
Municipal	May 2018	Beijing NHL Roller ice hockey Tournament	Champion
	January 2019	Roller ice hockey at the 4 th Public Winter Sports Open in Beijing	Champion
	January 2020	Roller ice hockey at the 5 th Public Winter Sports Open in Beijing	Champion

Practicing on real ice and snow

After building a foundation through “dry land” training, the children needed an opportunity to practise and enhance their skills on real ice and snow.

❖ The school used the curling

site in the Gaojing Road Community, the ice and snow venues of nearby ice and snow clubs to achieve the goal of having all students engage in real ice and snow sports.

❖ The School has made arrangement for its children to

take part in events such as the winter camp for primary and secondary school students in Beijing, Olympic Experience Day, and Ice and Snow Carnivals to increase their knowledge about winter Olympic sports and give them the opportunity to get close to ice and snow.

◎ Partial Ice and Snow Competition Watched on Site

- ◆ 2015 IIHF Women's World Hockey Championship in Group B
- ◆ 2017 ISU Grand Prix of Figure Skating
- ◆ 2018 KHL World Games
- ◆ 2018 NHL China Games
- ◆ 2018 Air+Style Beijing FIS Big Air World Cup
- ◆ 2019 FIS China City Sprint Beijing (Shougang)
- ◆ 2019 FIS China City Sprint Beijing (Bird's Nest)
- ◆ 2019 National Curling Championship
- ◆ 2019 IIHF Women's World Hockey Championship in Group B
- ◆ 2019 Women's Curling World Cup

❖ The School organises training for all students on real ice and snow once each school year (by renting local ice & rinks for these occasions).

In September 2020, the first real ice curling venue in Shijingshan District was opened at Dianchang Road Primary School. The School now offers a continuous curling programme, with one curling lesson per class per week.

Meanwhile, the School's curling team trains on this venue every day.

Wang Xinmo from Class 2, Grade 4, said, "As a member of the curling team, I feel particularly happy because I can play curling right here on campus. I will keep learning about curling, actively participate in training and inspire more fellow students to participate in Olympic winter sports.

Participating in winter sports events

The School also strives to have students participating in ice and snow sports competitions so that they can learn and improve further.

By selecting the best players from its 'dry land' winter sports clubs, the School set up four school teams, for ice hockey, curling,



● Participated in the 2018 Beijing Floorball Competition for Primary and Middle School Students



● Dryland cross country skiing course cross-country skiing and biathlon. Using students' spare time to carry out training, the teams have enabled the players to participate in national and municipal competitions to improve their skills.

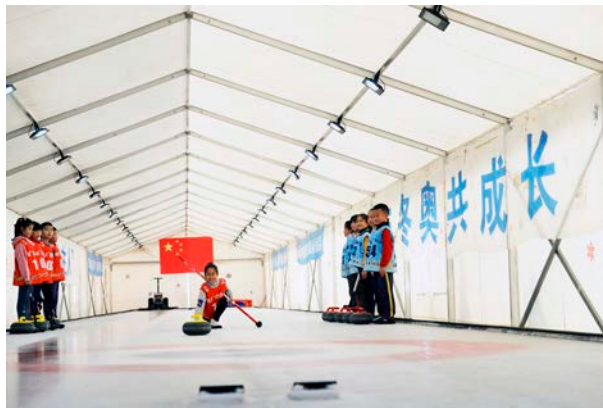
Zhang Bojun, a Year 5 student, said, "I started playing 'dry land' hockey in Year 3 and was then selected for the School's ice hockey team because of my skills. For over a year, through 'dry land' training, our teachers taught us technical moves of ice hockey. 2019 saw us realising our dream of participating in matches organised by the Beijing Inter-school Ice Hockey League and play real ice hockey for the first time.

Many parents watched the game. When we scored our first goal, our parents applauded us and we were very, very happy."

The School has also been offering cross-country skiing courses since 2018, and Chen Sanbao, a Year 3 student, started his cross-country skiing training at the end of 2019. He took part in the 4th Beijing Winter Games for Primary and Middle Schools and finished 16th. Dissatisfied with this result, he continued to train hard and challenge himself. Through efforts, he won the fourth place and third place respectively in the 5th and 6th editions of the competition held consecutively in 2020 and 2021.



- Participated in the cross-country roller ski competition during the 2019 Beijing Winter Sports Competitions for Primary and Middle School students



- The first real-ice curling venue in Shijingshan District is put into use at Dianchang Road Primary School

© Ice and Snow Competitions and Results for Dianchang Road Primary School

Level	Time	Competition	Result
National	March 2019	2019 FIS Point Race of Cross-country Skiing (Teenager Group)	The 4 th , 5 th and 7 th place for women's group The 7 th and 8 th place for men's group
Municipal	December 2019	Cross-country Skiing of the 4 th Beijing Winter Games for Primary and Middle Schools (traditional skills)	The 6 th and 8 th place for women's group The 4 th and 5 th place for men's group

Through repeated training and competing, the children have gained skills, learnt about the rules, respect, friendship and fighting spirit. The children gained the joy that comes with ice and snow sports.

In 2020, Dianchang Road Primary

School was named a national model school for the promotion of winter sports. Its innovative introduction of winter sports to students has not only spread the knowledge about the Olympic Winter Games among young people, but also promoted

more students participation in winter sports. This will play a significant demonstration role in the promotion of ice and snow sports in schools for the post-Games period, and has become a great Olympic education legacy of Beijing 2022.



Gaojing Road Community

Editor's Note: By establishing a Beijing 2022 Community, expanding its space for public activities, upgrading its sports facilities and improving the living environment for its residents, the Gaojing Road Community in Beijing's Shijingshan District has improved the life of its residents significantly.

As part of the Guangning Residential District located in the western part of Beijing, the Gaojing Road Community covers a total area of 1.06 square kilometers. At the end of 2020, the Community had a resident population of 5,032, of which 921 were over 60 years of age, accounting for 18.3% of the total population, making it an ageing community^[1], plus 184 people

[1] An ageing community refers to a community that has 10% of its total population above 60 years of age, or 7% above 65 years of age.

with impairment. The residents had a high demand for accessible outdoor leisure facilities. With little public space for outdoor activities, there was no place for residents to do physical exercise and relax, and paths were occupied or obstructed, the community environment was in urgent need of improvement and its landscape needed to be upgraded.

On May 11, 2019, when there were 1,000 days to go before the official opening of Beijing 2022, the Community was named the

first “Beijing 2022 Community” and launched its renovation and upgrading project, to expand the Community’s public space and enhance the facilities for the fitness and leisure activities of the local residents.

Building the community’s new cultural and fitness plaza.

By renovating and expanding the Gaojing Road Community’s existing central square, a new Cultural and Fitness Plaza, with a total area of 4,350 square meters, was completed and put into use in



● Iceberg Land at Gaojing Road Community



● Fitness walkway at Gaojing Road Community

May 2021. With a much-enlarged space for public use, the plaza provides a venue and facilities for the residents to carry out fitness and leisure activities. The following facilities are installed in the plaza.

- (a) Table tennis tables and other fitness facilities;
- (b) A children's playground with swings and sandpits, etc;
- (c) Wheelchair ramps and low-level handrails, which improve accessibility and create conditions for people with impairment and the elder to participate in physical activities;
- (d) A large LED screen to meet the

needs of residents to watch the broadcast of Beijing 2022, which will be retained after the Games;

(e) A publicity board, which provides a platform for spreading the knowledge of Olympic Winter Games and winter sports.

Laying a fitness walkway. A 4.2km closed-loop fitness walkway was laid on both sides of the Gaojing ditch in the Gaojing Road Community and put into use in October 2021. The walkway is brightly decorated with ice and snow sports patterns, and installed with smart light poles, solar-powered seats, intelligent rubbish bins, mobile phone charging stands and other

convenience facilities, providing a venue and facilities for residents to do sports and leisure activities such as jogging and walking.

Building an culture centre.

Located in the middle section of Gaojing Road, an 2,450 square meters culture centre has been built at the end of 2021. With full consideration of the needs of people of all age and abilities, the centre creates an indoor public space for the residents, featuring a library, a study-room, a ballroom, a classroom, a gym, and a number of activity rooms, making it a cultural hub of the Community.

Creating a winter sports centre for the Community.

Being an important ecological part in water network system in Shijingshan District, the Gaojing ditch serves as a flood drainage system during flood season. Since 2019, the Gaojing Road Community has converted the Gaojing ditch into a winter sports centre, which covers a total area of about 5,000 square meters and comprises three main functional zones:

- ❖ First, the snow sliding zone, which is 6 meters high, 28 meters wide and 60 meters long. In this zone, tracks for skiing and snowboarding can be set or used as a venue for children to play snow sliding on

sledges.

- ❖ Second, the play zone, which features an ice and snow maze and an ice and snow playground for younger children.
- ❖ Third, ice sculpture zone, which features ice sculptures on the theme of ice and snow sports, with which visitors can take pictures for souvenir.

Every year during the snow season, the centre is open to the public for free. Visitors can book admission via the WeChat account of the Community.

Community resident Luo Jingping is delighted. “It’s the first time we’ve seen a skiing site in our community,” he said. “Our children can learn skiing 40 or 50 meters away from home and it’s free, which is something I wouldn’t have thought of.”

Ice- and snow-related cultural activities

Since 2019, the Community has held more than 100 events, to promote winter Olympic culture and boost the popularity of winter sports, such as:

- ❖ Interactive Lectures Online;
- ❖ Knowledge of Winter Olympic Games Lectures Online,



● Guangning Cultural Fitness Square of Shijingshan District, Beijing

- ❖ Community Games, and
- ❖ Community Ice and Snow Carnival,

The Community has supported the founding of a dozen clubs, including a floor curling club, a floorball club, and the Yifeng roller skating club.

On September 21, 2020, the Community celebrated the 500-day countdown to Beijing 2022 and organised the first Community Cup Roller Skating Competition.

By the end of 2020, the number of residents of the Community taking part in cultural activities and ice and snow sports had reached about 2,800, accounting

for 55.6% of the Community’s total population.

Improving the ecological environment

Since the founding of the Community, it has adopted a series of projects to renovate its infrastructure and improve its ecological environment.

- ❖ Completed the Gaojing ditch ecological restoration and river landscape enhancement project, to improve the ecology of the river;
- ❖ Completed 3,000 square meters of green vegetation planting and demolishing over 3,600 square meters of

illegal buildings and structures, significantly beautifying its surrounding landscape.

- ❖ Installed the permanent sculptures of Beijing 2022 mascots Bing Dwen Dwen and Shuey Rhon Rhon as part of its effort to add Beijing 2022

elements to its landscape.

The Gaojing Road Community, an example of how Beijing 2022 has accelerated the change of urban life. Through a series of efforts, the Community has been able to bring a sense of gain, satisfaction and achievement to its residents,

thus successfully bounding with the goal of making a better life for the residents by staging the Games. Being a model for other communities to follow suit in their drive to be Beijing 2022 communities, it has become a vivid case of the social legacy of Beijing 2022.



● Cultural Wall for Beijing 2022 in Gaojing Road Community



Volunteers for Beijing 2008 and Beijing 2022

Editor's Note: Volunteerism is a shining aspect of every Olympic Games. At the Olympic and Paralympic Games Beijing 2008 (“Beijing 2008”), the smiles of Zhao Dan, Wang Lei, Li Ju and many other Olympic volunteers became part of the highlights of the Games. Today they are again engaged in voluntary service for the Olympic Winter Games Beijing 2022 (“Beijing 2022”)



• Zhao Dan was a volunteer at Beijing 2008

Following Beijing 2008, volunteering has become a nationwide trend. The number of real-name registered volunteers at the Beijing Volunteer Service Federation (BVF) has risen from 3 million in July 2015 to 4.489 million in November 2021, an increase of nearly 1.5 million in more than six years, indicating the booming trend of volunteer service. And since the launch of the global volunteer recruitment of Beijing 2022, the number of applicants has exceeded 1,150,000. Zhao Dan, Wang Lei and Li Ju are three of them.

Zhao Dan

A faculty member of the Beijing University of Posts and Telecommunications (BUPT). At

Beijing 2008, Zhao Dan was an ordinary volunteer. Now, as a manager of volunteer services for Beijing 2022, she is a volunteers team leader in charge of the volunteer services provided in the Olympic Green.

Back in 2008, Zhao Dan was a second-year student at BUPT. She became a volunteer for spectator service for the Fencing event at the China National Convention Centre, responsible for developing and implementing the volunteer service operation plan and managing contingency issues. For her excellent work, she was complimented by the CPC Beijing Municipal Committee, the Beijing Municipal People's Government and the Beijing 2008 Organising

Committee as an outstanding volunteer for Beijing 2008. Her experience in 2008 familiarised her with the volunteering work and deepened her love for it.

Leveraging on this volunteering experience at Beijing 2008, Zhao Dan was employed by BUPT after graduation and served as Secretary of its Youth League Committee and Deputy Director of its Student Work Department. She encouraged students to register as city volunteers so that they could participate in various volunteering activities. Under her leadership, the student volunteers from BUPT have successfully completed volunteering for a series of major events, including

- ❖ Beijing Summit of the Forum on China–Africa Cooperation in 2018,
- ❖ Second Belt and Road International Cooperation Summit in 2019,
- ❖ Celebration of the 70th anniversary of the founding of the People's Republic of China in 2019,
- ❖ China (Beijing) International Trade Fair for Services in 2020, and
- ❖ Celebration of the 100th anniversary of the founding of the Communist Party of China

in 2021.

Since the global call for volunteers for Beijing 2022 was released, more than 7,000 students from BUPT have applied for registration.

In December 2020, Zhao Dan joined the volunteering service for Beijing 2022, and is working at the Beijing Olympic Green. During the “Experience Beijing” test events of ice sports held in April 2021, Zhao Dan headed a volunteer team which fulfilled their jobs successfully, including guiding spectators, tickets checking and sports presentation.

In July 2021, Zhao Dan was appointed as a venue volunteer services manager of the Beijing Olympic Green. With long years of volunteering experience, Zhao Dan developed and implemented several innovative approaches to improving Games volunteering service for Beijing 2022, such as:

- ❖ Setting up a mental health hub in the Volunteers’ Home during Games time, inviting psychologists to provide mental health and psychological counselling onsite, to help volunteers relieve psychological stress;
- ❖ Publishing a Volunteer Daily to establish a communication channel and experience



● Capacity building of volunteers



● Speech at the 70th National Day celebration at Beijing University of Posts and Telecommunications

exchange platform among volunteers to enhance their sense of belonging and honour.

- ❖ Setting up a nine goals incentive method for volunteer service, to motivate volunteers

do their best for their jobs. The nine goals namely:

- a sense of ritual,
- a sense of attainment,
- a sense of mission,

- a sense of compassion,
- a sense of security,
- a sense of satisfaction,
- a sense of responsibility,
- a sense of belonging
- and a sense of honour,

Wang Lei

A senior engineer of Sinopec. In 2008, Wang Lei participated in the Games volunteer service and has since then been involved in volunteering. He later became an engineer at Sinopec and participated in volunteering at Sochi 2014, IAAF World Championships Beijing 2015, 2019 Beijing Horticultural Expo and the celebration of the 70th anniversary of the founding of the People's Republic of China in 2019. Today volunteering has become a part of his life.

Li Ju

A faculty member of the Central University of Finance and Economics, another volunteer at Beijing 2008. At London 2012, she was a representative of the Beijing volunteers and participated in the volunteer services related to the torch relay. Outside of work, she often leads students to provide volunteer service at residential homes for the elderly, schools for migrant children, and community homes for people in needs. She also takes advantage of long summer and winter holidays to lead students to support local school education in her home county of Wenchuan, Sichuan Province. Volunteering has been something inseparable in her life.

When the global call for volunteers for Beijing 2022

was launched, Wang Lei and Li Ju immediately signed up to apply for volunteering service. During the Games, Wang Lei will serve as a volunteer and event service supervisor at the Capital Gymnasium; and Li Ju will serve as a city volunteer and provide accommodation-related services at the Capital International Airport.

Zhao Dan, Wang Lei and Li Ju share a common identity as volunteers for both Beijing 2008 and Beijing 2022, inspiring many others like them to actively participate in voluntary services for the city and Beijing 2022. Promoting personal development and forming a good social culture through volunteering will be an important social legacy of Beijing 2022.



● Test events volunteers



Ice Hockey

Our Big Dream

Editor's Note: Inspired by the preparations for Beijing 2022, four editions of the “Olympic City Cup” Beijing World Minor Hockey Invitational Tournament have been held in Beijing since 2016. These tournaments contributed to the international exchanges among young people from many countries, raised the level of youth ice hockey in Beijing, prepared technical officials for Beijing 2022, and promoted the extensive participation of young people in winter sports. The tournament has become a significant legacy of Beijing 2022.

Jointly initiated by the Beijing Olympic City Development Association and the Beijing Ice Hockey Association, the Olympic City Cup is held every spring with two age groups, U12 and U15. By 2019, four consecutive tournaments had been held (suspended since 2020 due to the pandemic), attracting the teams from nearly 20 youth hockey clubs in nine countries. The number of participating

teams gradually increased, the scale of the tournament expanded year by year, and its reputation and influence grew at home and abroad steadily, making it one of Asia's top international youth ice hockey tournaments.

Promoting ice hockey and raising competition skills

Since the founding of the Olympic City Cup, renowned ice hockey clubs from the United States,

Sweden, Russia, Germany and other countries advanced in ice hockey and the host cities of previous Olympic Games have sent their teams to compete. The Beijing Ice Hockey Association has selected the top players in the 12- and 15-year-old age groups from clubs across the city to form the Beijing team.

As the host team, the Beijing team saw the tournament as a good



● “Olympic City Cup” Beijing World Minor Hockey Invitational Tournament 2018

◎ List of “Olympic City Cup” Beijing World Minor Hockey Invitational Tournament

No.	No. of Countries	Participating Countries	No. of Teams
I (2016)	5	USA, Finland, Sweden, Czech Republic, Russia	7
II (2017)	8	USA, Finland, Sweden, Czech Republic, Russia, Germany, Latvia, Canada	15
III (2018)	8	USA, Finland, Sweden, Czech Republic, Russia, Germany, Latvia, Canada	12
IV (2019)	8	USA, Finland, Sweden, Czech Republic, Russia, Germany, Latvia, Belarus	14

opportunity to raise the athletes’ skills by competing with the strong European and American teams.

“Competition skills need to be improved bit by bit through such high-level competitions.”

—— Liu Zihao, one of the team members

In 2019, for the first time, the Olympic City Cup had its 10 exciting games and the All-Star Skills Competition webcast live, which reached nearly 70,000 viewers, effectively promoting the sport of ice hockey and driving more people to participate in winter sports.

Through the four consecutive

editions of the tournament, a large number of outstanding young ice hockey players have emerged. Among them, Zhu Qizhang, Chen Kailin and Zhu Yunfei, who have participated since the first invitational tournament, have now been selected for the Men’s and Women’s National Youth Teams under 18 years of age.

Driving the development of youth ice hockey, the Olympic City Cup has made a positive contribution to raising the level of youth ice hockey competition in Beijing.

More than a competition

The Olympic City Cup is not only a sporting event, but also a great opportunity for young people from different countries to develop cultural exchanges and practice the concept of “friendship,

respect, and excellence”.

During the tournaments, a wide range of cultural activities were organised under the theme of “International Ice Hockey Ambassadors”, including, among others, Experience Traditional Chinese Culture, Cultural Tours of Beijing, Parents’ Salons, and school visits, forming an important part of the tournaments.

- ❖ Experience Traditional Chinese Culture: Young people from all over the world climbed the Great Wall, went to the zoo to see pandas, dressed up in Han Dynasty costumes, listened to ancient music, practiced ancient rituals, and learned Kung Fu;
- ❖ Parents’ Salon: Chinese and foreign parents and team coaches shared their experience



● “Olympic City Cup” Beijing World Minor Hockey Invitational Tournament 2019

in training young ice hockey players;

- ❖ Cultural Tours of Beijing: Youngsters from all over the world visited the Forbidden City and the Temple of Heaven, and enjoyed the unique scenery and charm of Beijing.

Kaplan, a player from the California Golden Bears in Los Angeles, USA, who participated in the 2018 Olympic City Cup, made no secret of his love for China and Beijing.

“Before, we only learned about China from books and media reports, the Olympic City Cup has been an eye-opener.”

—Kaplan, a player from the California Golden Bears

Many of the youngsters said they would definitely love to come to Beijing again to watch Beijing 2022.

Preparing technical and volunteer staff for Beijing 2022

The four consecutive Cups have allowed the tournament organisers to gain experience in hockey event organisation and event services, and to train a group of professionals who can directly serve Beijing 2022.

In terms of the event management, from 2018 onwards, a group of technicians trained

to use the IIHF Real Time Input System have emerged from the tournament, who can enter and process competition data in real time, allowing the hockey tournament to be run in a more professional and standardised manner. At the 2019 IIHF Women's World Championships, the 21 off-ice referees responsible for technical matters had previously gained refereeing experience through the Cup.

In terms of event service, the organisers of the Cup have recruited multilingual volunteers from the Beijing Second Foreign Language Institute every year (39 and 30 recruited in 2018 and 2019 respectively). Working as a communication link between players, referees and organisers from different countries, these volunteers have not only successfully completed their translation tasks, and but have also learned about ice hockey and its rules, getting prepared for the ice hockey events at Beijing 2022.

During her time with the Slavia Prague team from the Czech Republic, Wang Mingyihan, the volunteer interpreter, was touched by the stamina, unity, optimism and vitality of the young athletes.



● "Olympic City Cup" Beijing World Minor Hockey Invitational Tournament 2019

"The ice hockey competitions were an uncompromising challenge and hone for my guts and language skills. I would like to appear at the tournament again next year if I have the chance."

—— Wang Jinmeng, a volunteer interpreter

After 2022, the Olympic City Cup will continue to be held annually as a popular youth event in Beijing, to promote winter sports, raise the level of youth ice

"One young player told me that he was very happy to come to China to play and that his goal was to learn 200 Chinese characters before the tournament starts next year."

—— Wang Mingyihan, a volunteer interpreter

hockey competition, and improve international youth exchanges. The tournament has left a rich legacy for the social development of the host city.



Case Studies of Cultural Legacy



“Meet in Beijing” International Arts Festival

Editor’s note: Seising the opportunity of staging the Olympic and Paralympic Winter Games Beijing 2022 (Beijing 2022), the “Meet in Beijing” International Arts Festival (Arts Festival) integrates elements of the Olympic Winter Games Beijing 2022 and winter sports into artistic communication and performances. The Arts Festival aims at building up the world’s expectations for Beijing 2022 and promoting the communication and learning between the diverse world cultures and China’s traditional culture. The Arts Festival is also bringing people from around the world together in order to make the world more mutually-understanding and inclusive.



● 2020 New Year Countdown in Beijing, an event of the “Meet in Beijing” International Arts Festival

The Arts Festival generally takes place in spring and lasts about 40 days, comprising performances of symphony, ballet, folk dancing, plays and pop music. It has been successfully held for 21 years, drawing a total of over 30,000 artists from over 120 countries and regions to perform in front of 4.3 million audiences in Beijing.

The Arts Festival began integrating elements of Beijing 2022 in 2020. Today, it has become a cultural highlight of Beijing and the largest spring-season arts festival in Asia. The Arts Festival aims to further develop into a famous world-class international cultural and art event after Beijing 2022.

Promoting Olympism since Beijing 2008

To support the staging of Beijing 2008, the 8th Arts Festival was once incorporated into the “Meet in Beijing – 2008” Olympic Cultural Event during Beijing 2008 to enhance the artistic atmosphere of the Games.

The “Meet in Beijing – 2008” Olympic Cultural Event was launched in May 2008 and invitations were extended globally at the launching ceremony. With nearly 10,000 artists from 110 art troupes from over 80 countries and regions and an audience of over 3 million people, the event lasted five months and concluded

in September 2008. Over 200 rich and colourful cultural activities showcased the diversity of world cultures and arts and presented a cultural celebration of world harmony and cultural Olympics.

As a part of culture legacy of the Beijing 2008 Games, the Arts Festival has been held every year after the Games, becoming an annual international arts and cultural event which brought a world-class artistic feast to local residents each year.

Incorporating Olympic winter Games elements for Beijing 2022

After Beijing 2008, as the cultural legacy of the Olympic Games, Olympic elements have been presented at the Arts Festival annually. To cooperate with the Beijing 2022 Cultural Programme, the annual Arts Festival held between 2020 and 2022 has integrated the Olympic Winter Games elements, and the time for event has been moved to winter, in order to add an artistic touch to Beijing 2022.

The 20th Art Festival in 2020 saw intensified collaboration with the Beijing 2022 Organising Committee and the “Meet in Beijing Olympic Winter Games Event Series” was launched.

This edition of the Arts Festival comprised two parts, namely the host city cultural events and the international cultural activities held overseas.

The host city cultural events included 2020 Beijing New Year's Eve Countdown Celebration, "Meet in 2022" Ice & Snow Cultural Festival, Yanqing Ice Lantern Festival and Zhangjiakou Ice and Snow Forum. These events included presentation of ice and snow art, learning of ice and snow cultures and experience of winter sports, allowing the public to personally enjoy the appeal of ice and snow activities and immerse in the cultural atmosphere of Beijing 2022.

Centring around the theme of Beijing 2022, the international cultural activities included the Hello Panda Festival at the Citi Field in New York City in the U.S., the "Happy Chinese New Year" cultural promotions and "Light up 2022" Beijing 2022-themed overseas cultural-exchange events in Saint Petersburg, Sydney, Lausanne and other cities around the world. Traditional Chinese art performances and Spring Festival culture were presented at these events held abroad to showcase China's culture.

Meanwhile, to echo and extend the best wishes to Tokyo 2020, the Arts Festival in 2020 specially invited Japan as the guest of

honour to give a panoramic presentation of the diversity Japanese traditional and modern culture and arts.

Due to the pandemic, the 21st Arts Festival in 2021 mostly took place online. With the theme of "Passionate Ice and Snow, Cloud Culture and Art, Century-Old Classics", 42 shows from 24 countries were presented, among which 31 took place online (meetinbeijing.org.cn) and 11 in theatre. Six art exhibitions along with themed forums were also held.

Showcasing works of arts from home and abroad

Since it was launched 21 years ago, the Arts Festival has been focusing on three forms of arts, namely music, dance and drama. With the main objective to embrace diversity and foster mutual learning among cultures, the Arts Festival has brought together the classic arts from around the globe in Beijing, where multilateral cultural communication is carried out and splendours of the world cultures displayed. Equally, a grand stage has been provided by the Arts Festival for showcasing and promoting the Chinese Culture as well as for the creative and innovative development of



● 2020 New Year Countdown in Beijing, an event of the "Meet in Beijing" International Arts Festival



● Swan Lake show at the 15th “Meet in Beijing” International Arts Festival

arts in China.

Music. National and international musicians and troupes, including China National Traditional Orchestra, Berliner Philharmoniker and French Pianist Richard Clayderman, have indulged the audiences in classic music, modern music, pop music, rock music, jazz music and orchestral music.

Dance. The artists from the National Ballet of China, China Ethnic Song & Dance Ensemble and performers from countries such as France, Spain and the U.S presented dancing performances to the audience. The passionate steps and the mesmerising music of classic dance, modern dance, contemporary dance and ballet showcased the beautifully

integrated world cultures and arts. World dances have also lent colour and beauty to the stage of the Arts Festival.

Drama. Famous performance groups and performing artists, including Beijing People’s Art Theatre, the National Theatre in London and the renowned Peking opera artist Zhang Huoding, presented the audience with a rich variety of performances, such as stage plays, operas, dance dramas, musicals and puppetry.

One member of the audience of “The Seagull”, a classic stage play by Chekhov, produced by Macedonian National Theatre commented: “I’ve seen many versions of ‘The Seagull’, but such a poetic, refined and detailed

version from a contemporary viewpoint is a rarity. It’s a new rendition of the classic play.”

The Arts Festival has extended a global invitation to “Meet in Beijing” in 2022 and is promoting Beijing 2022 through a wealth of artistic works. The opportunities presented by the grand stage of the Olympic Games have further enhanced the influence of the festival. It is a vivid legacy example created through the integration and mutual promotion of culture and art events and major sports events. It also fits within the Beijing 2022 concept of “green, inclusive, open and clean Olympic Games”. The festival will continue to take place and expand after Beijing 2022, and its contents will also become more diverse. It will leave Beijing, the “dual Olympic city”, with a top international arts and cultural event, as it becomes a major cultural legacy of Beijing 2022 and drives Beijing’s development as a national and international cultural centre.

The “Meet in Beijing” International Arts Festival was originally launched by the former Ministry of Culture, the State Administration of Radio, Film and Television and the People’s Government of Beijing Municipality in 2000.



“Dream to Glide” Ice Show

Editor's note: “Dream to Glide” is the first original ice show to feature figure skating in China. It tells a moving story of how Chinese ice skaters fulfil their youthful ambition to shine on ice and pass down their skills. The show combines performance art with competitive sport to present to the audience a visual feast on ice while getting people to follow and participate in winter sports, thus truly driving the initiative of “engaging 300 million people in winter sports”. It also encourages the staging of more ice shows, promoting the integrated development of the winter industry, culture, tourism, science and technology. The show is driving the promotion of winter sports in China, giving rise to unique and influential legacies of Beijing 2022.

With Liu Zheng, a director of contemporary cross-over theatre, as the chief director;

Yao Bin, China's figure-skating "godfather", as the chief artistic director;

and world champions Zhang Dan

and Zhang Hao as well as many famous former national figure skaters, including Gao Chongbo and Zhang Min, as the performers,

"Dream to Glide" tells the great dream of a girl pursuing figure skating and how she overcomes difficulties with her father and

teammates before eventually standing on the winner's podium at the Olympic Winter Games.

"Dream to Glide" debuted at the Workers' Stadium in front of an audience of nearly 10,000 in Beijing on July 5, 2019 with a seat occupancy rate of 95%.

Due to the pandemic, no live shows were staged in 2020. However, a number of fragments from the show were performed on cctv.com and "Dancing on Ice" of Heilongjiang Broadcasting Television and at the "Three Year Anniversary Event of China Unicom Collaboration with Beijing 2022". It reached one million viewers on television and the Internet.

These shows have played an active role in popularising winter sports and in driving the development of the ice and now events and performance industries.

Filling in the gap in original ice shows

Ice shows remain popular on the international ice and snow market. "Disney on Ice", the U.S.-created ice show, has been performed in over five-dozen countries on six continents over the last four decades and still attracts over 30 million audiences each year.

China has no shortage of



● Dream to Glide

outstanding figure skaters, many of whom are also world champions. However, due to the short history of figure skating in the country, there had never been a locally produced ice show.

Following Beijing's election to host the Olympic Winter Games, public enthusiasm for winter sports bubbled over. "Dream to Glide", China's first original ice show, was born as a result, filling in the gap in original Chinese ice shows.

"Dream to Glide" combines figure skating with traditional stage performances, such as dance, dramas and acrobatics. It is a crossover between figure skating and Chinese art performance. Its creation is based on the Chinese national culture and winter sports. With dramatic music, the show presents to the audience the tireless efforts of generations of Chinese winter sports athletes. The audience is immersed in an ice world filled with culture and sportsmanship as they enjoy an extraordinary artistic experience.

A member of the audience commented: "I used to only watch stage productions, but after seeing 'Dream to Glide' I think I've fallen in love with ice shows. The elegant yet powerful dancing of the performers are truly amazing and

unlike other stage productions. It's most definitely a must-see!"

Encouraging the public to engage in winter sports

The show combines performance art with competitive sports. In

addition to fully showing four styles of figure skating, namely singles, pairs, synchronised skating and ice dancing, the show integrates different types of performances, including ice acrobatics, street dancing and



● Dream to Glide



● Dream to Glide

modern dance. The audience gets to enjoy both a spectacular show and the ice art and culture, which encourage them to learn more about it and take part in figure skating.

The show has also a figure-skating experience programme, which encourages parents and children to bring their own skating equipment and personally experience skating guided by the performers and professional trainers after the show.

On the evening of July 31, 2021, 30 children joined world champion

Zhang Dan in the performance of “Dream to Glide”. They held one another’s hands and formed concentric circles. With their runners, they carved out the shapes of their dreams. While promoting and popularising figure skating, ice shows are inspiring more people to engage in winter sports.

Booming the ice and snow events industry

As the first originally created ice show in China, the trial run of “Dream to Glide” achieved a huge success on January 27, 2019, with

independent coverage by over 70 media outlets. When it debuted at Workers’ Stadium in Beijing in July 2019, “Dream to Glide” was well received and a box-office hit. It was praised as the best stage production on ice of the year and received the highest audience satisfaction – with over 95% of tickets sold on its debut. As the pandemic eased in 2020, “Dream to Glide” took this chance to revamping. It is expected to tour the country with 16 shows in front of an audience of about 200,000 between 2021 and 2022. The show has breathed new life

into the markets of winter sports events and performances.

Diversifying the post-Games use of Beijing 2022 venues

The staging of Beijing 2022 drove the renovation and upgrade of Beijing 2008 venues into winter-sports venues as well as the building of new ice and snow venues. These include the National Aquatics Centre, National Indoor Stadium, National Speed Skating Oval, Capital Indoor Stadium and Wukesong Sports Centre. In addition to staging ice sports

and fitness-for-all activities and events, the ice facilities of these venues may be used for cultural events on ice.

Seising the opportunity of Beijing 2022, “Dream to Glide” has contributed to the use of Beijing 2022 venues. In 2022, the show will debut at Wukesong Sports Centre before going on a national tour. Shows are planned in all the ice competition venues of Beijing 2022, which will become an example of the integrated development of Beijing 2022

competition venues, ice and snow shows, and the cultural and leisure industry.

“Dream to Glide” was born out of Beijing’s successful candidature for the Olympic Winter Games. It presents the audience with a unique experience that combines art and winter sports. It will drive the prosperous development of the market of ice and snow shows, as well as the popularisation of figure skating in China, thus giving rise to a unique legacy of Beijing 2022.



Beijing 2022 Documentary Channel of Beijing Radio & Television Station

Editor's note: The Beijing 2022 Documentary Channel of Beijing Radio & Television Station was born out of Beijing 2022. It is the official publication platform of the Organising Committee that also drives and documents how millions of Chinese engage in winter sports. Furthermore, it is a communicator and spreader of the winter Olympics and the ice and snow culture, as well as the witness and promoter of the development of a "host city for both Summer and Winter Olympic Games". It will become a major legacy of Beijing 2022 in the radio and television fields after the Games. The channel will play a critical role in promoting winter sports, popularising the Olympic culture and facilitating the post-Games development of the host city.



● Beijing 2022 Documentary Channel

To better promote the preparations for Beijing 2022 and further popularise winter sports and the Olympic culture, Beijing Radio & Television Station formally merged its Sports Channel with its Documentary Channel to create the Beijing 2022 Documentary Channel for satellite broadcasting on May 10, 2019.

The Beijing 2022 Documentary Channel is the first provincial 4K ultra high-definition (HD) channel to broadcast via satellite in China. It broadcasts around the clock, showing Beijing 2022-themed and sports programmes for between 18 and 20 hours. In addition to showing ten Beijing 2022-themed programmes and two documentaries, the channel livestreams and relays many spectacular sports events. To date, it has covered all 31 provinces, municipalities and autonomous regions on the Chinese mainland, reaching nearly 410 million television audiences.

Focusing on winter sports and telling Beijing 2022 stories

Themed programmes: The Beijing 2022 Documentary Channel has launched a number of Beijing 2022-themed programmes which vividly showcase winter sports and promote the Olympic Winter Games, including:

- ❖ “2022”, a daily news programme that provides coverage of the preparation progress for Beijing 2022;
- ❖ “The Olympics and Me”, a programme that interviews influential Olympians, who tell engaging Olympic stories;
- ❖ “Let’s Talk about Beijing 2022”, a commentary programme

offering insights into the information released by the Beijing 2022 Organising Committee and sharing the public’s new life experience brought about by Beijing 2022;

- ❖ “Olympic Stories”, a programme that shares exclusive Olympic stories and spreads sportsmanship;
- ❖ “Winter Events Classroom”, a programme that popularises winter sports knowledge, explains the rules of events of the Olympic Winter Games and imparts winter sports skills.

Documentaries: “A City with both summer and winter Olympic Games” is the first of its kind in China to focus on winter sports



● Map of Beijing 2022 Documentary Channel’s provincial coverage

and the preparations for Beijing 2022. It is also a key component of the video programme of Beijing 2022. The programme documents the preparations for Beijing 2022 and the urban changes and cultural-landscape improvements that Beijing, a “dual Olympic city”, has undergone as a result of the Games. It also records the stories of the public taking part in winter sports, the passing on of the Olympic spirit and the protection of the Olympic legacies. The programme contents will become invaluable cultural legacies of Beijing 2022.

Sports events: The Beijing 2022 Documentary Channel has vigorously continued to develop its resources of winter sports events. It has broadcast nearly 1,000 events, covering football, basketball, table tennis, curling, ice hockey, figure skating, speed skating, bobsleigh and skeleton, luge and skiing. The channel has provided live coverage of many top international sports events and national leading sports events, some of which are exclusive, such as:

- ❖ World Curling Championships,
- ❖ FIS Ski World Cups and World Championships
- ❖ FIS Freestyle Ski Moguls World Cup



● “Olympic Stories” on Beijing 2022 Documentary Channel



● “The Olympics and Me” on Beijing 2022 Documentary Channel

- ❖ Pacific–Asia Curling Championships
- ❖ Curling World Cup Grand Final
- ❖ National Ice Hockey Championships
- ❖ National Curling Tournaments and Championships

Through the broadcasting of

these events, the channel has amassed its own experience and developed its own unique sports broadcasting style. It has won the National 1st Prize for the broadcasting of the dual–moguls events of the FIS Freestyle Ski Moguls World Cup.



● “The Olympics and Me” on Beijing 2022 Documentary Channel



● “Let's Talk about Beijing 2022” on Beijing 2022 Documentary Channel

The efforts made by the channel have ushered in a new phase of the winter sports events promotion and coverage, and contributed to the popularisation and development of winter sports in China.

Giving play to media communication to enhance the influence of Beijing 2022

Growing coverage. The Beijing 2022 Documentary Channel's coverage continues to expand from the initial 26 provinces, municipalities and autonomous regions to 31 and from 136 prefecture-level cities to 224 by May 2020. Its number of viewers of the programmes has grown from 260 million to 410 million.

Exploring the development of

converged media^[1]. The Beijing 2022 Documentary Channel has been collaborating intensively with other network platforms, including in areas such as co-production, which has effectively enhanced the standard of television- and digital-media integration. Meanwhile, digital platforms have been developed, including apps, public social-media accounts and microblogs, which distribute short videos with

[1] Converged media refers to **a new way of media operation that** uses media carriers to integrate the human resource, programme contents and publicity approaches of radio, television, and newspapers that are same in nature and complementary to each other, in order to achieve the full integration and sharing of resources, contents, approaches and benefits among all media.

simplified contents. Viewers may learn more about the Olympic Winter Games and winter sports via their mobile phones and tablets anytime and anywhere, be it on the bus or train or outdoors.

Media-communications technology to improve viewer experience

Adoption of the 4K ultra-HD technology. The 4K ultra-HD Beijing 2022 Documentary Channel was formally launched on December 30, 2020, offering viewers a higher-quality viewing experience. The technology features high definition, high-dynamic range, wide colour gamut and high-quality audio signals. The Beijing 2022 Documentary Channel will provide a high percentage of original 4K ultra-

HD contents, which will become an important direction of the channel's development.

The integration of 5G technology and 4K ultra-HD live coverage will be promoted. 5G technology provides 4K programmes with a more practical and rapid communication channel, while the latter drive the application of the former. The application of 5G and 4K technologies together to the live coverage of sports events will not only bring the audiences a new viewing experience, but also allow them to appreciate finer details of the events, thus partly making up for not being able to watch the events on site.

Fostering communication professionals for winter sports and enhancing the production and broadcasting capacities

Through the production of programmes and documentaries

as well as the live coverage of winter sports events, the Beijing 2022 Documentary Channel has improved the production standard of winter sports programmes. It has consequently fostered the development of a group of communication professionals for winter sports.

In 2018, Beijing Radio & Television Station had a total of 18 audio-visual programme employees engaged in the coverage of the Olympic Winter Games. Following the launch and development of the Beijing 2022 Documentary Channel, the station has enhanced the training for the media professionals working on the Olympic Winter Games. By December 2019, the number of media employees directly or indirectly involved in the coverage of the Games had increased to 186, among whom 44% were editors, 12% were hosts, 17% were event broadcasting crew and 5%

were marketing staff. Today, the number of employees engaged in the communication of the Games keeps growing.

Working as the official communication platform of the Beijing 2022 Organising Committee, the Beijing 2022 Documentary Channel spreads of the voice of Beijing 2022 and tells another amazing “Chinese story” in the Olympic history. Being a major legacy of Beijing 2022 in the radio and television fields, the channel will continue its operation after the Games, broadcasting more winter sports events and further promoting the development of winter sports. It will keep on working as a platform to tell the Games stories, publicise the Games achievements and facilitate the spread of the Olympic culture, documenting the future development of the “Dual Olympic City”.



Beijing 2022 Ambassadors Tour

Editor's note: The Beijing 2022 Ambassadors Tour tells winter Olympics stories, updates the public on the preparation progress, popularises Olympic Winter Games knowledge and communicates the Olympic values. It plays a critical role in spreading the Olympic spirit, promoting the Olympic culture and popularising winter sports, leaving behind a legacy of Beijing 2022.



● First event of Beijing 2022 Education Tour

The Beijing 2022 Ambassadors Tour was launched in 2017. Ambassadors were selected from those involved in the preparations for Beijing 2022, who tell the stories of the preparations for Beijing 2022 from their perspectives. They spread the Olympic spirit, promote the winter Olympic culture and show the achievements of the Games. The tour has travelled across China and visited institutions, enterprises, military units, schools, neighbourhoods and rural villages, as well as museums and memorial halls, fully covering all three Competition Zones. Over 300 promotional sessions were held by September 2021, reaching over 130,000 audiences onsite and over 100 million viewers online.

Ambassadors telling colourful Winter Olympic stories

The ambassadors are selected from among the tens of thousands of people involved in the preparations for Beijing 2022. They uphold the principle of “small stories with great significance, ordinary individuals with big hearts and personal perspectives reflecting the great times”. With true and touching stories, personal feelings and experiences told by real people, they have demonstrated the achievements in the fields of venue construction, winter sports popularisation, environmental improvement, urban renewal, scientific and technological innovation, service support and assistance for the people with impairment during

the preparatory process of Beijing 2022.

The tour consisted of only seven ambassadors upon its establishment, but the number has now grown to 50 after four years of development. The tour has also continuously expanded and revised the contents of the promotion, and the ambassadors have become very popular. The ambassadors have done a good job in spreading winter sports knowledge and the Olympic ideas and demonstrating the preparatory progress and achievements of Beijing 2022. Some of them are:

- ❖ Wang Yong, a sports reporter at Xinhua News Agency. He has been fully involved in the coverage of Beijing 2008 and Beijing 2022 over the last two decades.
- ❖ Liu Yuanjie, a constructor of the roof of the National Speed Skating Oval, also known as the “Ice Ribbon”.
- ❖ Zhang Jia, an employee at China Unicom. He and his colleagues have worked at the venue for Beijing 2022 alpine skiing events, laying 5G optical fibre cables on the Xiaohaituo Mountain.
- ❖ Hou Kun, an active promoter of the Olympic culture. He has

visited all the Olympic host cities around the world.

- ❖ Sun Xu, a trauma orthopaedist at Beijing Jishuitan Hospital. He has become China's first skiing doctor.
- ❖ Liu Boqiang, who has worked at Shougang Steel Plant all his life. He started off as a steel rollerman and is now an ice maker at a training venue of Beijing 2022.
- ❖ Guo Dandan, a world champion of freestyle-style aerials.
- ❖ Liu Yukun, China's Paralympic champion...

With their respective experiences at the Games posts, they tell China and the world about their contributions to the preparations for Beijing 2022 while conveying the preparatory work updates as well as the Olympic knowledge and culture.

Let the youth pursue their Olympic dreams

By December 2021, the ambassadors tour events had taken place at 100 universities and colleges, and a total of 450 primary and middle schools in 32 provinces, municipalities and autonomous regions as well as in Hong Kong. Such events were also held at over 100 Chinese-language schools abroad and over

100 Chinese societies overseas, covering 40 countries and regions and playing a positive role in “engaging 300 million people in winter sports”.

“Youthful Passion for Beijing 2022”, an event of the ambassadors tour targeting at institutions of higher learning in China, kicked off in November 2020. It is an effective means to encourage the public,

particularly university students, to pursue their Olympic dreams by supporting Beijing 2022 and actively engaging in Beijing 2022 volunteering services.

For the promotional event series held at the universities and colleges, the 52 ambassadors of the tour had visited over 60 institutions of higher learning in the Beijing-Tianjin-Hebei Region by September 2021, including



● Special 6th Anniversary Event of Beijing 2022 Education Tour



● Beijing 2022 Education Tour at Tsinghua University in Beijing

Tsinghua University, Peking University, Nankai University and Hebei University. Their presentations were warmly received by the teachers and students. The events were attended by an audience of 20,500, and many universities also held online sessions in line with requirements of pandemic prevention, which reached out to over 1.1 million viewers. The events have inspired the students, who expressed their interest in contributing to the staging of fantastic, extraordinary and

excellent Beijing 2022.

A student from Tsinghua University commented in an interview that: "I hope to contribute to Beijing 2022 in my own ways like the ambassadors."

Building public platforms for promoting Beijing 2022

To meet the requirements of pandemic control and prevention, ambassadors tour has had their ways of promotion innovated. Online and offline events held simultaneously, a new form

that combines onsite seminar with livestreaming, has been adopted to expand the scale of communication and influence. For the first time, China Unicom livestreamed the events via its 5G network, assisting the ambassadors tour with the cloud technology. The Beijing Municipal Committee of the CPPCC set up extra meeting rooms at district committees for the local members to watch the livestream sessions. Sponsors such as Anta Group, China Three Gorges Corporation and Hylink Digital Solutions

Co., Ltd. also set up sub-venues for their staff members across China and overseas. The online presentations have helped the ambassadors tour reach a larger audience.

The means of communication have also been innovated to reduce the impact of the pandemic. 100 short videos with the theme of “My Winter Olympic Stories” have been produced. A “100 short videos in 100 days” cloud campaign also took place in

public spaces, which were shown on 18,000 buses, 23 metro lines and over 6,000 televisions in public buildings and large outdoor screens downtown, as well as squares and exits of train stations in Beijing. The videos were also screened on nearly 3,000 trains that travel to over 1,000 stations across China as well as on over 450 airplanes that fly to 187 cities in 43 countries and regions. Bilingual short videos were produced for the promotion of Beijing 2022 on board of international flights.

The tour is a joint initiative by Beijing 2022 Organising Committee and the Publicity Department and the Educator Group of the CPC Beijing Municipal Committee.

The tour has extensively spread the Olympic spirit across China and has widely popularised winter sports and Olympic knowledge. It encourages more youth to take part in winter sports and mobilises the public to visit ice rinks and ski venues.



第九届北京国际体育电影周闭幕式
The Closing Ceremony Of The 9th Beijing International Sports Film Week

华贸万豪杯 Huamao JW Marriot Cup

“我的梦” 体育短片十日竞赛展映



Beijing International Sports Film Week

Editor's note: The Beijing International Sports Film Week (the “Film Week”) is a sports– cultural legacy of Beijing 2008. During the preparations for the Olympic and Paralympic Winter Games Beijing 2022, continuous innovation and development of the Film Week have led to the creation of more ice and snow–themed films and TV productions, igniting enthusiasm of the public for the ice and snow events and promoting the winter sports and the Olympic Culture by means of videos and films.



● Special Forum at the 11th Beijing International Sports Film Week

Fest, which is also known as “the Oscars of sports”. Since then, the Film Week has evolved into not only a channel to import good international sports films and TV productions, but also a critical bridge for the internationalisation of the Chinese sports film and television culture. Over the past decade, the Film Week has screened 1,386 works, of which 167 were submitted to the Sport Movies & TV – Milano International FICTS Fest, and 54 have won awards of the Fest.

The Beijing International Sports Film Week, as an international cultural-exchange event involving sports films and TV productions, was founded in 2005 during the preparations for Beijing 2008. By

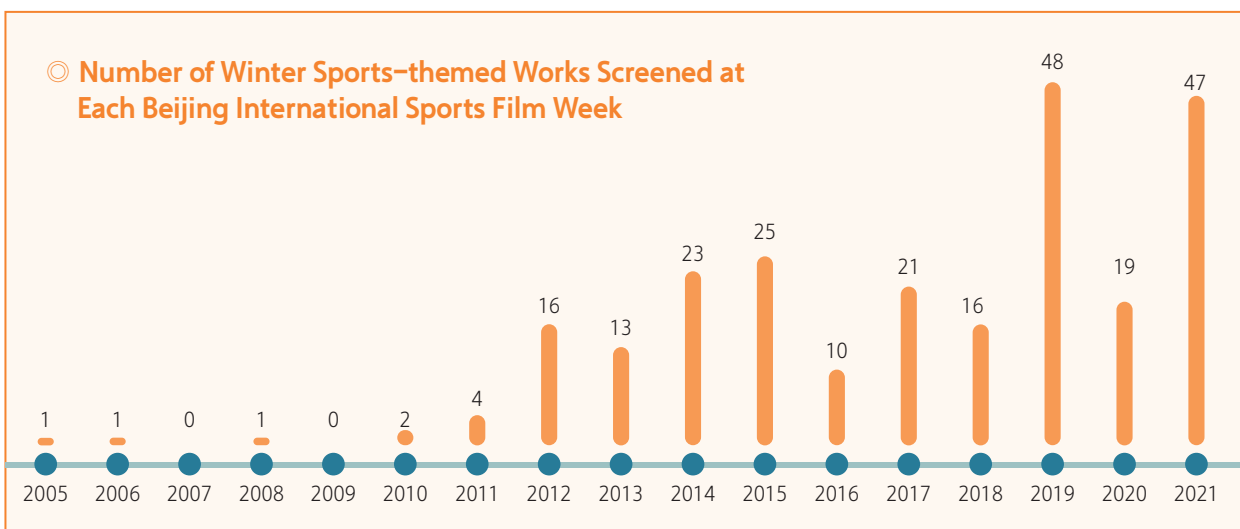
2021, a total of 17 editions of the event have been held successfully.

Starting from its fifth edition in 2009, the Film Week became an important part of the Sport Movies & TV – Milano International FICTS

Encouraging creation of winter sports films and TV productions

The participating films and TV productions fit into eight categories, namely:

◎ Number of Winter Sports-themed Works Screened at Each Beijing International Sports Film Week



◎ Guirlande d’Honneur Award–Winning Productions

Name	Category
Joyful Rendezvous upon Pure Ice & Snow – Promotional Feature of Beijing’s Bid for Winter Olympic Games	Sports Short Film
A Date with Snow and Ice	Short Documentaries
Promotional Feature of Emblems of Beijing 2022 Olympic and Paralympic Winter Games	Sports Adverts
The Olympic Dreams in a Rural Primary School	Olympic Spirit
Promotional Feature of Torches of Beijing 2022 Olympic and Paralympic Winter Games	Olympic Spirit

- ❖ Olympic Games and Olympic Spirit,
- ❖ Documentaries,
- ❖ Sports and Society/Sports and People with Impairment,
- ❖ Feature Films,
- ❖ Sport Adverts,
- ❖ Television and New Media,
- ❖ Winter Sports/Football Films and TV Productions,

❖ Students’ Productions.

After the successful candidature for the Olympic Winter Games, along with the promotion of the Olympic Winter Games culture, the enthusiasm of the Chinese people for telling their own winter sports stories has been growing. The number of winter sports productions has been increasing, with the themes becoming more

diverse and the overall quality improving significantly.

Quantity of participating works. After Beijing’s successful candidature for the Olympic Winter Games, the category of “winter sports” was added to the Film Week. From there, the number of winter sports-themed films and television productions have increased dramatically. Prior to the candidature, there were only 38 winter-themed films and television productions screened at the Film Week. However, after Beijing’s election as the host city of the Olympic Winter Games, the accumulated number has risen up to 209 by 2021. As to the 17th edition of the Film Week in 2021 alone, the works themed in winter sports total 47, accounting for a quarter of the participating works.

Themes of participating works. As Beijing 2022 approaches, winter sports have become increasingly popular in China and the themes



● The 7th Beijing International Sports Film Week

of the submitted works more diverse, covering seven Olympic winter sports. Topics of the works do not only focus on professional winter sports athletes, but also reflect the youth's participation in winter sports, the people involved in Games construction, and the changes seen in the host city. For instance:

“Mountain Children’s Ice Hockey Team” tells how Beijing 2022 has influenced the youth and how sports foster talents.

“China’s Ice Makers” tells how the special construction demands of Beijing 2022 drove China’s acquisition of new ice-making technologies and the building of ice-making teams from the perspective of the country’s first ice-making team for bobsleigh and skeleton and luge venue.

“Bask in the Olympic Movement” shows the influence the successful candidature for the Olympic Winter Games has on the small town of Chongli. It reflects how the preparations for the Games tremendously propel regional development and improves people’s life.

Quality of participating works.
Up till the 17th edition of the Film Week in 2021, a total of 247 winter sports-themed works have been

submitted, among which 26 have been sent to Sport Movies & TV – Milano International FICTS Fest, and nine have won awards. Five of the films were granted with the Guirlande d’Honneur award, the highest honour.

Screening of sports films and TV productions

In recent years, in addition to main events of the Film Week, outstanding films and TV productions have been screened via other platforms, including cinemas and online digital media, to provide watching opportunities for a wider audience. The screening of the works have played an active role in popularising winter sports, spreading the Olympic Winter Games culture, and promoting the preparations for Beijing 2022.

In 2018, the Film Week set up public screening cinemas at Olympic venues in Beijing, including the National Aquatics Centre, Beijing Olympic Museum and National Stadium, where about 20 screening activities were organised and over 3,000 viewers were attracted.

The event “Welcoming Beijing 2022, Sports Film Panorama in Rural Areas” also kicked off, and over 40,000 free screenings of

sports films have been presented at about 4,000 screening sites by 2019.

The Film Week has also worked with cinemas to screen the official Olympic films and the latest award-winning, films and television productions of the Sport Movies & TV – Milano International FICTS Fest.

In 2017, a “Joint Public Benefit Screening” event was held across the country, during which over 30 domestic and foreign sports films and television productions were shown in 30 institutions of higher learning, cultural organisations, communities and villages in over ten provinces and cities, including Beijing, Shanghai, Nanjing, Sichuan, Shandong, Jiangsu, Guangdong, Shaanxi, Shanxi and Gansu.

As digital media develops, the population of online viewers is also increasing drastically. In 2019, the Film Week screened for the first time some films through online platforms, including Tencent Video, Tencent Movie, iQiyi video, iQiyi sports, Btime and Bilibili. Viewers thus were able to watch these good films and television productions online via mobile phones, computers and streaming televisions. Due to the

pandemic, the Film Week was fully online in 2020, and 58 good films and television productions were shown via online platforms, which were viewed over 1.3 million times.

As an Olympic legacy of Beijing 2008 and Beijing 2022, the Film Week will continue after the Olympic Winter Games. Serving

as a stage that showcases Chinese sports films to the world, the Film Week is expected to keep elevating its brand and extending its influence, so as to promote the development of sports in China.

The Beijing International Sports Film Week was founded in 2005 during the preparations for Beijing 2008, by the former State

Administration of Radio, Film, and Television, Beijing Organising Committee for the Games of the XXIX Olympiad and General Administration of Sport of China. After 2008, the Film Week has been organised by the Beijing Olympic City Development Association.



Beijing Olympic City Sports and Cultural Festival

Editor's note: The Beijing Olympic City Sports and Cultural Festival (the “Festival”) is a fitness-for-all urban sports and cultural event created by Beijing Olympic City Development Association in 2010. Up till the year of 2021, it has been held for 12 consecutive years. In collaboration with relevant municipal departments the Festival has organised different public sports and cultural experience and interactive events, and thus has been playing an active role in passing on the Olympic spirit, spreading the Olympic Culture, promoting the fitness for all, and facilitating the preparations for Beijing 2022. Since the Festival was launched, a total of over 12 million people have taken part in different events staged by the Festival.

Passing on the Olympic spirit and promoting the fitness for all

Over recent years, favourable conditions have been created for public participation in fitness activities by setting up temporary fitness-for-all equipment at venues such as Beijing Olympic Green. In addition, interactive activities, including fitness demonstrations, training and experience, have been introduced to encourage the public to conduct training and physical exercise, so as to improve their fitness and health conditions.

Moreover, other events such as Olympic-themed exhibitions and open-air theatres have been staged during the Festival, which have enriched cultural and artistic content of the Festival.

In conjunction with the Festival, more events have been staged each year, including the Beijing Olympic City Development Forum, Beijing International Sports Film Week and “I love sports, I am healthy and happy” Olympic Education Activities at many primary and middle schools. Accordingly, a favourable atmosphere has been created for the fitness-for-all activities and public sports events.



● Olympic City Run of Beijing Olympic City Sports Culture Festival

The Festival has also been actively introducing emerging international sports activities to the public, particularly the youth, so that these activities are becoming popular in China and enriching people's sports and cultural life. These activities include not only extreme sports and 3x3 basketball which are loved by the youth, but also include:

- ❖ The Swamp Soccer World Cup, which made its debut in China at the 2nd Festival in 2011;
- ❖ The air-volleyball competitions, which are suitable for the elderly;
- ❖ The “youth new-energy formula car racing”, which highlighted technology and environmental friendliness.

- ❖ The fixed-gear bicycles, which were showcased at the 5th Festival in 2014,
- ❖ The teqball game, which was officially introduced at the 11th Festival in 2020, has been popularised since then. To date, 56 teqball tables have been available in Beijing, and 40 teqball popularisation bases created. The Beijing Teqball Challenges have also been organised.

Promoting winter sports to welcome Beijing 2022

To support the candidature and preparations for Beijing 2022 and to popularise and promote winter sports, Beijing 2022-themed events have been organised since the 5th Festival

in 2014. The Festival encourages the public to take part in winter sports by organising winter sports training and experience activities, promoting Olympic Winter Games knowledge, and holding Beijing 2022 cultural exhibitions and winter callisthenic training.

In addition to setting up an ice and snow sports experience area and an area of “painting my 2022”, the 7th Festival in 2016 provided events for the public to appreciate the appeal of winter sports through technologies such as skiing simulators, downhill motion sensors and 4-dimensional virtual reality. The staging of interactive activities, such as fun curling, ice hockey and ice ball game, encouraged the public to take part in winter sports and follow Beijing 2022, bringing them closer

to the Olympic Winter Games. The painting contest allowed the youth to develop a better understanding of winter sports and the Olympic spirit.

A special ice and snow sports area was set up with a 500 m² simulated ice rink in the central area of Beijing Olympic Green at the 8th Festival in 2017. A senior skating trainer from Canada was engaged to instruct the public for free and 5,000 young people took part in the experience events. Meanwhile, a roller skating day was created where roller skaters learned ice skating, helping them transit from roller to ice.

The “Joy of Winter” winter callisthenics promotional events were organised for the first time during the 10th Festival in 2019.

A total of 76 such events were organised at primary and middle schools, kindergartens and local neighbourhoods across nine districts and counties in Beijing, which attracted about 32,230 participants. The events were also widely covered by the media and reached over 1 million people.

The revised version of “Joy of Winter” winter callisthenics events took place at the 11th Festival in 2020, which had more upbeat music and a faster tempo, and adopted the movements adapted to suit people of all ages, making it easier to popularise.

Innovating the forms of the Festival events in response to the pandemic. In order to address the negative impacts of the pandemic on large-scale events, the Festival has been actively innovating the forms of events, including separating the time of offline events and staging more online events.

The 11th Festival in 2020 focused on the 100 walking and running event of “Distance 2022”, which was held in “1+N” pattern, that is, one kick-off ceremony plus multiple walking and running events. The kick-off ceremony was launched on September 22, 2020, at the time of the 500-day



● Olympic City Run of Beijing Olympic City Sports Culture Festival



● Roller skating at Beijing Olympic City Sports Culture Festival

countdown to Beijing 2022; it was followed by 100 walking and running events organised in such a way that all participants registered for the events online via an app and then ran or walked a total distance of 2022 km separately in 500 days to welcome Beijing 2022. The events fully followed the new concept of “Internet + Sports”, allowing the participants to take part anytime, anywhere. By 2020, a total of 35 online walking and running events with nearly 50,000 participants were completed. The

12th Festival in 2021 attracted more people to take part in the walking and running events by intensifying promotional efforts and expanding the online platform.

Moreover, an “Online Olympic Sports and Culture Promotional Event Series” was also launched at the 11th Festival in 2020. Through the collecting of short videos on Olympic legacies, holding Olympic Winter Games mobile games, practising “Joy of Winter” ice and snow callisthenics and

making fitness-for-all short videos, Olympic knowledge and culture were actively spread and promoted.

Building the Beijing sports and cultural exchange platform

To promote sports and cultural exchanges among international youth, an international theme day was added to the 8th Festival in 2017, during which exhibitions of traditional sports from around the world were organised together with interactive activities. Nearly



● A foreign visitor trying out the diabolo, a China's traditional sport

500 youth from 11 countries were invited, including Australia, Russia and Kazakhstan. Under

the guidance of professional instructors and staff, the youth took part in traditional Chinese

sports events.

The exchange events between Chinese and foreign youth continued at the 9th Festival in 2018. Youth from 11 countries, such as Egypt, India and Indonesia, experienced different traditional Chinese sports together with the youth from China.

The Festival will continue in future, to be organised in a way that integrates online and offline activities, includes summer and winter sports, and features diverse sports, cultural and art events.



Case Studies of Environment Legacy



● Yanqing National Alpine Skiing Centre in summer

Innovating in Standards for Green Snow Sports Venues

Beijing made a commitment that all newly built venues would meet the Chinese three-star standards for green buildings when elected to host the 2022 Winter Olympics. To this end, all newly built indoor venues for the Olympic and Paralympic Winter Games Beijing 2022 (hereinafter, “Beijing 2022 Games”) have met the three-star standards in the Chinese

Assessment Standard for Green Building (GB/T 50378–2014), and all renovated existing venues have achieved the two-star standards in the Chinese Assessment Standard for Green Retrofitting of Existing Building (GB/T 51141–2015). Faced with a lack of national and international green building standards specific to snow venues, the Beijing Organising Committee

for the 2022 Olympic and Paralympic Winter Games (“Beijing 2022”) collaborated with relevant authorities in Beijing, Tianjin and Hebei to compile and publish the Chinese Evaluation Standard for Green Snow Sports Venue, which stipulates evaluation standards for ecological conservation, such as fauna and flora protection, topsoil utilisation, and earthwork



● Yanqing National Alpine Skiing Centre

reduction, to improve the sustainability of snow sports venues for the Beijing 2022 Games through standardisation.

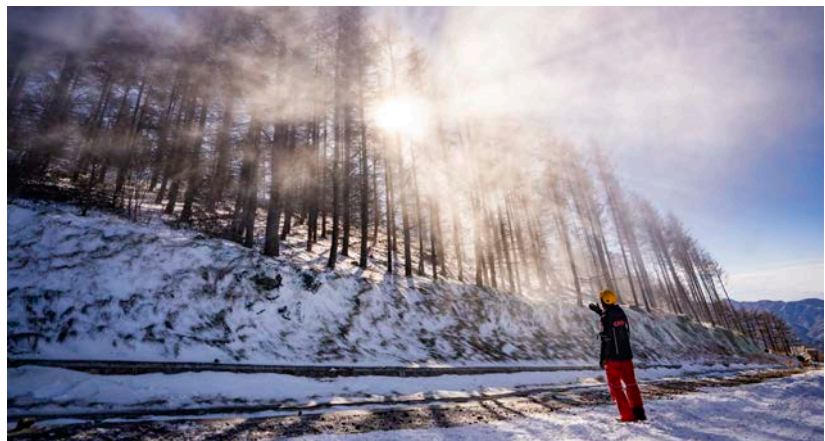
A pioneering standard

The snow sports venues of the Beijing 2022 Games are mostly located in mountainous areas, and thus play a more critical role in ecological conservation compared with urban venues. To urge venue constructors to adopt more effective measures to protect and restore the local ecology, 12 relevant departments, including Beijing Municipal Commission of Planning and Natural Resources, Housing and Urban–Rural Development Departments of Beijing, Tianjin and Hebei, and relevant scientific research institutes jointly developed the

Evaluation Standard for Green Snow Sports Venue (DB11/T 1606–2018, hereinafter “Evaluation Standard”) under the guidance of Beijing 2022. The Evaluation Standard has been used as the first Beijing–Tianjin–Hebei collaborative engineering

construction standard since January 1, 2019. The Evaluation Standard is China’s first standard for evaluating green snow sports venues. It fills the gap in national and international standards in this realm and is a legacy of the Beijing 2022 Games.

The Evaluation Standard emphasises that factors pertaining to resource conservation, environmental protection, and humanistic culture preservation are implemented, which will be validated by Beijing 2022. The Evaluation Standard differentiates from other green building standards in the following points. First, the standard focuses on requirements for ecological conservation based on the specific conditions of snow sports venues, especially for fauna



● Slope at Yanqing National Alpine Skiing Centre



● Zhangjiakou National Biathlon Centre of Guyangshu Venue Cluster

and flora conservation, topsoil utilisation, earthwork reduction and utilisation and ecological restoration. Second, the standard puts forward a series of measures and requirements for maximising resource efficiency and reducing carbon emissions based on the construction features of mountainous buildings. Third, the standard considers that the venues, besides delivering basic functions as sports venues and contributing to better health and comfort, should also pay attention to the popularisation of ice and snow sports and provide the appropriate spaces and amenities to facilitate the practice of these sports by the general public. Fourth, new green technologies, products, materials and techniques are to be used during venue construction. Fifth, the

Evaluation Standard is applicable to both newly built and renovated venues.

Applications of the standards

Chinese evaluation standards for green buildings and green snow sports venues were adopted throughout the design and construction of the Beijing 2022 venues, comprehensively improving the sustainability across all of them. By the end of June 2021, all seven snow sports venues of the Beijing 2022 Games, namely the National Alpine Skiing Centre, National Sliding Centre, Big Air Shougang, Genting Snow Park, National Cross-Country Skiing Centre, National Ski Jumping Centre and National Biathlon Centre, had been certified as three-star green buildings; the highest level of the Evaluation

Standard. The five newly built venues i.e., the National Speed Skating Oval, Wukesong Ice Hockey Training Hall, Yanqing Olympic Village, Zhangjiakou Olympic Village and the Main Media Centre, had been certified as three-star green buildings, the highest level of the Chinese Assessment Standard for Green Building. The Beijing Olympic Village has received confirmation to have successfully achieved three-star green building certification and is currently awaiting certificate issuance. Amongst the existing renovated venues i.e., the National Aquatics Centre, the National Indoor Stadium, and the CTS venues (including the Capital Indoor Stadium, the CTS Figure Skating Training Hall, and the CTS Short Track Speed Skating Training Hall) all have been certified as two-star green buildings according to the Chinese Assessment Standard for Green Retrofitting of Existing Building. This exceeds Beijing 2022's original sustainability objective of "all newly-built venues to meet the three-star green building standards."

Green measures

The two snow sports venues in the Yanqing Competition Zone, the four in the Zhangjiakou

Competition Zone, and Big Air Shougang in Beijing, have all integrated green construction designs that conform to the Chinese Evaluation Standard. Ecological context surveys in the Yanqing Zone were conducted to support appropriate plans and designs of the National Alpine Skiing Centre and the National Sliding Centre to avoid ecologically sensitive areas and minimise impacts on the permanent and temporary construction areas. Wild plant protection areas have been established for in-situ and ex-situ conservation of wild plants, and indigenous and native plants were selected for afforestation. Artificial nests were installed and animal corridors were created to protect wildlife and their habitats. Topsoil, where the highest concentration of organic matter

and microorganisms is located, was stripped and stored for greening projects in the mountain competition zones. The ecological restoration project and the main project are designed, constructed and accepted at the same time to meet the requirements of ecological protection indicators. Guyangshu venue cluster in Zhangjiakou Zone uses sand-based water permeable bricks with micro-scale pores to ensure infiltration effect. It has built snowmelt recycling facilities, and has installed underground silica beehive rainwater self-cleaning systems, so as to use unconventional water sources^[1] for artificial snow making and thereby reducing the amount of potable

[1] It mainly includes reclaimed water, rainwater collection, desalination, brackish water, mine water and so on.

water used in snow making. The Big Air Shougang uses ambient lighting systems in the square and spectator area to create special event experience for the audience. The venue will continue to serve the public as a tourist attraction and leisure and fitness location after the Beijing 2022 Games.

The Chinese Evaluation Standard enriches the evaluation system for green snow sports venues of Winter Olympics and has improved the green and standardised development of the Beijing 2022 venues. It has provided examples in green snow sports venue construction and provides a conducive reference for China and the international community in improving the standardised evaluation system of green snow sports venues.



● Relocated-vegetation conservation base of Yanqing Competition Zone

Protecting Plants in the Competition Zones

Yanqing Zone is one of the three competition zones of the Beijing 2022 Games, located in an area with high mountains and dense forests, picturesque scenery, deep valleys and complex terrains, which provides limited land for construction.

Yanqing Zone will host competition in 3 sports (Skiing,

Bobsleigh and Skeleton as well as Luge), which will result in 21 gold medals for the 2022 Olympic Winter Games i.e. one fifth of the total gold medals, and 30 gold medals for the 2022 Paralympic Winter Games, i.e. three eighths of the total gold medals. Yanqing Zone covers an area of 799.13 hm², with a construction area of 76.55 hm² and a gross floor area

of 269,000 m². The Yanqing Zone has two competition venues, the National Alpine Skiing Centre and the National Sliding Centre, and two non-competition venues, i.e., the Yanqing Olympic/Paralympic Village and the Yanqing Mountain Media Centre.

Yanqing Zone aims to become a world-class alpine skiing centre,



● Buttercups in Beijing

bobsleigh centre and national snow sports training centre, and a model engineering project that champions the development values of green, eco-friendly and sustainable development. It aims to become a regional service space within relevant close proximity to Beijing that integrates mountainous ice and snow sports, leisure tourism, and Yanqing Competition Zone.

As several events will be hosted in mountainous areas with dense vegetation, it was a critical issue in the Yanqing Zone to properly protect the local flora. Owners of the venues in Yanqing Zone formulated protection schemes based on scientific research, and implemented the schemes

effectively. Upholding the principle of “respect nature, follow its ways, and protect it,” they implemented measures such as planning for avoidance and in-situ, near-situ and ex-situ conservation throughout the process of venue planning, design and construction, thereby mitigating negative impacts and effectively protecting the ecological resources of the Zone.

Formulating protection scheme based on background investigation. The Yanqing Zone has relatively abundant natural resources. Before the competition zone was constructed, the government of Yanqing District invited experts of the Beijing Forestry University in 2017

to conduct a baseline survey on the types and distribution of plants in and around the Yanqing Zone covering about 20 square kilometres (with the targeted area of about 16 square kilometres). On the basis of the results of the baseline survey, Beijing 2022 invited experts to prepare the responsibility matrix for environmental protection measures in the Yanqing Zone, put forward 54 specific measures in the aspects of ecological environment, water environment, atmospheric environment, acoustic environment, solid waste, and economic and social sustainability, and assigned relevant tasks to relevant departments of the Beijing Municipal Government, the Yanqing District Government, and the Beijing Enterprises J.O Construction Co., Ltd. (constructor). The matrix also specified the lead units and timetables for each measure for environment protection.

Implementing in-situ conservation of rare plants. Five in-situ conservation areas are built within the Yanqing Zone for the forests of *Juglans mandshurica*, *Ulmus lamellosa*, *Dioscorea nipponica*, and *Batrachium pekinense* that are usually in the low altitude areas; and *Fructus*

Schisandrae Chinensis growing in patches in the middle and higher altitude areas and *Rhodiola dumulosa*, *Rhodiola kirilowii* (Regel) Maxim. and *Primula maximowiczii* Regel in the alpine meadow areas.

Measures like twining ropes on tree trunks and building tree pools have been adopted to label plants in the competition zone, conduct in-situ conservation of valuable trees, and avoid the impact on plants caused by construction. For key protected wild plants in Yanqing Zone, including *Batrachium pekinense* and *Sorbus alnifolia*, in-situ conservation sites were established, and boundary markers set up to protect the plants from the impacts of construction. During the construction of the Yanqing Olympic/Paralympic Village, 127 native trees were protected in-situ as a landscape.

Implementing near-situ conservation. The near-situ conservation areas were established in the ecological regions which have similar habitats at the foot of mountains with minimal human disturbance. One near-situ conservation site was established outside of the competition zone, with more than 11,000 shrubs and

herbaceous plants transplanted. And one near-situ site has been established inside the competition zone, with 28 protected plants, including *Ulmus lamellose* and *Macrothela gigas* transplanted.

Constructing near situ conservation neighbourhoods.

Some protected wild plants grow at specific altitudes and in specific environments, so transplanting them in areas with similar habitats is necessary. In the surrounding area of the Yanqing Zone, two near situ conservation sites for key wild plants were built to host 11,027 rare shrubs and grasses transplanted from areas within the competition zone. Following the construction of these near situ conservation sites, dedicated personnel were assigned to take charge of related management and protection work, which helped ensure the survival rate of the protected plants transplanted and avoid human interference.

Research into the technology for the propagation of *Batrachium pekinense* by division continued, and three *Batrachium pekinense* ex-situ conservation and return sites were constructed in a conservation neighbourhood not affected by construction and with clear waters and pools of appropriate sizes, effectively



● Large-flowered cypripedium

facilitating the protection of *Batrachium pekinense*.

Building ex-situ conservation bases. Ex-situ conservation was applied for trees that could not be bypassed and had no conditions for near situ transplantation. An ex-situ conservation base of about 20 hm² has been built in Shangbanquan Village, Zhangshanying Town, Yanqing District, which hosts more than 24,000 trees transplanted from the competition zone. Before the construction of the ex-situ conservation base, the builders organised the registration of trees and identified the species of trees to be transplanted and the transplantation plan. With the technical support of the

expert team from Beijing Forestry University, the construction company adopted multiple methods, such as increasing the area for root excavation, wrapping the trunk, and trimming the crown according to the species and size of the transplanted trees, to minimise the damage to the transplanted trees.

Transplanting trees in a scientific manner and carrying out tree maintenance carefully. In the first three years following the transplantation, transplanted trees should be watered regularly, tree trunks should be painted white to prevent the invasion of bacteria in the soil, and pest control measures should be introduced. The “one

tree, one file” management method should be applied for meticulous tree maintenance, recorded information on tree transplantation and conservation. After the transplantation was completed, rooting powder and nutrient solution were used to ensure the survival rate of transplanted trees. The acceptance

- Flora relocation and conservation area of Yanqing National Alpine Skiing Centre



inspection showed that the survival rate of transplanted trees reached 90.72%.

Breeding rare plants and animals.

During the construction of the competition zone, professors from Beijing Forestry University researched into the breeding

system of key protected plant species in the competition zone, such as *Batrachium pekinense*, *Platanthera chlorantha*, *Juglans mandshurica*, *Tilia amurensis*, *Eleutherococcus senticosus*, *Ulmus lamellose*, *Schisandra chinensis*, *Sorbus alnifolia*, *Lilium pumilum*, *Lilium concolor* var. *pulchellum*,

etc. The expert team has bred more than 5,000 seedlings of rare plants by collecting mature seeds, speeding up seed germination, sowing seedlings, etc., of which some seedlings have been transplanted back to the competition zone and are growing well.

Insights

For infrastructure projects built in mountainous areas with many species and rich land resources, vegetation protection methods including in-situ conservation, near-situ conservation, and ex-situ conservation are feasible, as they can minimise the impact of infrastructure construction on the local ecological environment and protect local plants and biodiversity.

The integration of plant protection measures before the start of the construction project and into the design process can reduce the environmental impact from the source, and effectively avoid the interference and damage caused by infrastructure construction. At the construction site, plant protection should be the goal, and effective protection methods based on local conditions should be formulated. Ex-situ conservation of trees is demanding in terms of climate, environmental and soil conditions. Therefore, in carrying out this task, it is necessary to strengthen tree management. The “one tree, one file” management method is an effective guarantee of improving ex-situ conservation of trees.



● Ecological rehabilitation using topsoil in Yanqing Competition Zone

Stripping and Reuse of Topsoil Resources Rich in Organic Matter and Microorganisms

The National Alpine Skiing Centre is a newly-built facility located in the Yanqing competition zone. During the construction of the Centre, ecological preservation and restoration activities were conducted, including, in appropriate places, the removal of topsoil. The Yanqing Zone, with its venues located in a high-altitude (700–2198.4m)

area, boasts subalpine meadows with abundant species, and the topsoil there provides an excellent soil seed bank. Prior to construction the sensitive ecological context in the local area was extensively studied and actions were identified and planned so as to minimise the impact of construction. One of these actions was to strip, collect

and conserve topsoil resources, then utilise the stripped topsoil for land reclamation within the competition zone for ecological restoration and landscape reconstruction. This helps avoid the loss of rich topsoil affected by venue construction.

The topsoil layer refers to the uppermost layer of the soil



● Topsoil reuse in Yanqing Competition Zone

profile. It is rich in humus and seed resources and is a precious natural resource. In accordance with Beijing 2022's objective to "remove and restore as much as possible," more than 300,000 cubic meters of topsoil was stripped and reused in the two competition zones i.e. Yanqing and Zhangjiakou. This reduced the costs of purchasing and transporting soil from external sources, reduced the risk of biological invasion and contributed to energy conservation and emission reductions. It is noted that the germination rates of seeds is higher in areas where the soil has been restored through topsoil reuse and the vegetation growth is much better (than areas without

topsoil reuse).

In the Yanqing Zone topsoil was collected both manually and mechanically using bags made of biodegradable materials, and were stored at high altitude locations to ensure the vitality of seed resources. Those soil bags were supported at the bottom and covered on top, which prevented topsoil erosion caused by rain as much as possible. The stripping and reuse of topsoil was an important process of the ecological restoration in the two competition zones.

Developing a work plan in advance. In 2016, prior to venue construction, Yanqing Zone organised a detailed survey of

local plants and the composition of existing topsoil to be conducted by recognised experts. The analysis of the results showed that there were 447 vascular plant species in Yanqing Zone, including 19 fern species under 12 families and 15 genera, and 426 seed species under 73 families and 264 genera. The densities of soil seed banks in soil layers with different thicknesses in different areas also vary.

Through manual surveys and three-dimensional modelling, the project team developed a high-precision map with a grid system, which recorded the thickness of the topsoil within each grid based on detailed surveys of the sections of excavated soil. Research on and analyses of the topsoil seed banks, topsoil stripping conditions, and gravel content in the topsoil, supported by the high-precision topographic map, clarified the area and thickness of the topsoil to be stripped. Based on this, the amount of stripped topsoil could be calculated, and a rational topsoil stripping plan could be developed simultaneously.

Stripping topsoil meticulously.

Based on detailed surveys, a precise grid system, and careful operations, the construction team realised layer-by-layer

topsoil stripping within the entire competition zone. During the stripping process, to determine the sizes and thicknesses of the removed turfs was the key, and the thickness of the topsoil in different areas was decided based on the survey of gravel content at each site and the characteristics of topsoil seed banks within each area. The snowmobile trails that traverse the zone have mild slopes and low gravel content, and as girds within these areas share similar topsoil conditions, a uniform thickness of 10 cm was applied in topsoil stripping. The National Alpine Skiing Centre however has an important altitude difference (with the snowmobile trails), so the thicknesses of topsoil turfs to be removed ranged from 5 to 18 cm. When stacking the stripped topsoil, construction

was carefully coordinated to avoid waste caused by extra transportation. The topsoil was stacked on a gentle slope without meadow vegetation at the shaded side of the mountain. The topsoil was then covered with thick non-woven fabrics to prevent dust and rain. From March 2017 to April 2018, a total of 81,848 cubic meters of topsoil was stripped in Yanqing Zone.

Reusing all topsoil resources. All topsoil resources were reused for ecological restoration following the principles of prioritising the same zone, prioritising demands, and timely use, and realising in-situ backfilling to restore the original state.

Prioritising the same zone. The stripped topsoil in different



● Removal of topsoil at Yanqing Competition Zone

project zones should be used locally first to avoid cross-use. This is conducive to the growth and restoration of vegetation in the corresponding environment, and to the germination of seeds contained in the topsoil.

Insights

The case provides insights into construction projects and concurrent environmental protection in mountainous areas, and also offers a technical reference for topsoil stripping in construction projects in other regions. Before construction projects in mountainous areas start, surveys of the sites' ecological environment should be carried out as much as possible, and construction plans tailored to local conditions should be developed according to the survey results. You should pay attention to the protection of soil rich in biological seeds, strip and store the topsoil, and reuse all the stripped topsoil in the ecological restoration project in accordance with the principles of giving priority to the same area, giving priority to the demand, early utilisation and reducing the use of guest soil, while reducing the risk of invasion of foreign organisms.

Prioritising demands. After satisfying the principle of prioritising the same zone, prominence was first given to the use of stripped topsoil in the construction of protected areas and ecological corridors, as well as the conservation of rare plant resources. The second was the supply of topsoil to the

slope restoration project, and the last consideration was given to landscaping. By prioritising demands, rare plants species were given the best protection, and the efficiency of ecological restoration projects was improved.

Timely use. The topsoil was used in time after the construction was

completed, through measures such as environmental protection, slope restoration, and landscape construction in spring and summer. The meadows that grow on the topsoil are integrated with the original vegetation, becoming the key to the rapid restoration of the original ecology of Haituo Mountain.



● A ring-necked pheasant in Yanqing Competition Zone

Combining Avoidance and Protection to Reduce the Impact on Animals in Yanqing Zone

Reptiles, amphibians, fish, as well as a variety of rare birds and small and medium-sized mammals inhabit the mountain Yanqing Competition Zone of the Beijing 2022 Games and its surrounding areas. Therefore, it was important that measures were taken to reduce the impact of venue construction on wildlife, so as to better protect the ecological

environment of the competition zones.

The Beijing 2022, local government departments, venue owners and venue construction units cooperate in animal protection. Specific protection measures targeting different groups of animals were introduced to reduce the impact on their living

environment during construction and the future operations of the facilities. Before construction, a wildlife conservation and habitat construction plan, as well as an Ecological Protection Manual for Construction Workers were formulated. Regular environmental protection training was conducted to provide construction staff

with information on the flora and fauna within the zone and the importance of animal protection awareness. During venue construction, protection measures were implemented. Strict red lines were set for the construction sites to prevent any materials and liquids from entering and polluting rivers which would negatively affect the habitat of amphibians. During night-time construction, shields were fixed on lights to reduce the adverse impacts on insects, birds, and other phototactic wild animals. In addition, a foot patrol was established to offer timely assistance and treatment to injured animals and any animals



● Goral

who, by inadvertence, found themselves in and around the construction sites.

Building facilities to facilitate animal movement. To facilitate the free movement of medium- and large-sized animals from the impact of new roads and bridges within the competition zone, 11 passage-ways were installed by making use of newly built and/ or existing bridges and culverts. At the same time, the environment of the passage area was restored to attract amphibians, reptiles, and small mammals to pass through or live in culverts. The three reservoirs built in the competition zone provide a source of water for animals and habitats for aquatic flora and fauna.

Since the beginning of construction, artificial bird nests have been set up within the



● Fledglings in a manmade nest

competition zone to facilitate and maintain normal breeding patterns.

Creating original habitats for animals. In the Yanqing Zone, stones of a certain size and weight were placed in the reservoirs, water landscapes, and near river junctions to meet the needs of amphibians for spawning and overwintering. Stone-based habitats for reptiles (mainly snakes) were built near water sources to improve the quality of natural habitats and ecological capacity.

Monitoring the survival of wild animals in the competition zone.

By the end of 2018, Yanqing Zone had built and put into operation an ecological environment monitoring station which was equipped with individual DNA measurement so as to be able to monitor the movement of animals, their numbers and other information. More than 200 infrared-triggered cameras were installed in the competition zone. The monitoring results (of the cameras) confirmed that during venue construction, key protected animals such as gorals continued to move around the competition

zone. As the construction project came to an end and produced less disturbance, the activities of gorals gradually returned to normal.

Yanqing Zone introduced practical and feasible measures in its planning and construction periods to protect wildlife in and around the competition zone, effectively supporting the sustainability ambitions of the Beijing 2022 Games and showing the efforts of Beijing 2022 to make the Games a model for green Olympics. The case will also provide an example for similar projects in other countries and regions.



● Ecological rehabilitation in Yanqing Competition Zone

Restoring the Ecology and Integrating the Venues with Nature

Ice and snow sports put forward strict requirements on the altitude and slope of sports venues. Yanqing Zone, one of Beijing 2022's two mountain competition zones, with its highest altitude of 2,198 meters, has steep slopes, and its average temperature in winter is -5.0°C . Zhangjiakou Zone, another mountain competition zone, is

characterised by a cold and dry climate. Therefore, Beijing 2022 created green landscapes to avoid soil erosion, overcame climatic and environmental problems, and restored the ecology of the competition zone to promote the integration of the venues with nature.

Restoring the ecology in the competition zones. Chongli

District of Zhangjiakou, aiming to achieve a long-term favourable environment of the core area of the Winter Olympic Games, completed the ecological landscape planning and designing of the Taizicheng core area and the ecological corridor, and implemented the phase I and phase II greening projects of the ecological corridor from Chongli

to Taizicheng together with the greening projects of the core area of Taizicheng. Venue construction and ecological restoration in Yanqing Zone were implemented simultaneously, and holistic measures were taken for the protection and restoration of waters and vegetation. Experts were hired to guide vegetation restoration. Following the principles of combining trees, shrubs and grass, planting coniferous and broad-leaved trees alternatively, and setting up natural planting points, native or domesticated foreign plants were introduced. Key restoration standards, such as planting multiple tree and grass species, with native ones in the dominant position, were put into practice. Seasonal ecological restoration plans for ski slopes were developed to prevent soil erosion. The four restoration techniques of subalpine meadow stripping, topsoil stripping, ecological restoration of slopes, vegetation restoration and maintenance for ski slopes were adopted to achieve close-to-nature restoration, so that the restored areas and their surroundings had similar vegetation.

At the same time, soil and water were conserved. Yanqing Zone combined water and soil



● Zhangjiakou Genting Sports Park

conservation with greening measures and selected rubble retaining walls, gabion barriers, active protection nets, lattice beams, eco-bag stacking, honeycomb cells, and hanging net external soil spraying seeding, plant fibre blankets, and other water and soil conservation measures according to the types of slopes. Greening measures such as planting climbing plants on retaining walls and spraying seeds on protective nets were taken to conserve the soil. The seedlings used for soil consolidation were local species, which were mixed with trees and shrubs and planted appropriately to prevent soil erosion.

Restoring temporarily occupied land.

The ecology on slopes affected by venue construction was restored. Yanqing Zone created conditions for plant growth by clearing slopes, strengthening the slope structure, and digging holes to plant seeds to guarantee the normal growth of plants in spring, summer, and autumn on the slopes. In the restoration process, construction materials, such as rubble and topsoil on the site, were leveraged as much as possible to help prevent the invasion of foreign species, contribute to the sustainable use of resources, and promote slope biodiversity. Zhangjiakou Zone restored the

damaged mountains along the Genting Snow Park, forming a green landscape belt along the road composed of Wutong Avenue, North Olympic Road, and Genting Branch.

Restoring the ecology around the venues. Based on the concept of sustainable forest management, close-to-nature restoration was conducted. For example, around Zhangjiakou Zone, a multi-tree and multi-grass compound

corridor was built in a garden-like style, creating a forest and grassland ecosystem with regional characteristics. In barren hills suitable for the growth of trees, a close-to-nature style that integrated mountains, meadows, forests, and margins (mountain slopes) was created based on the environment.

Ecological restoration of snow sports competition zones of the Beijing 2022 Games was

implemented hand in hand with venue construction. The restored area in Yanqing Zone reached 2.14 million square meters, and the restoration had been completed by the end of June 2021. The Games core area of Zhangjiakou Zone had a large area of around 3.5 million square meters for plants to form a complete ecological green space. The restored landscape is harmoniously integrated with that of Xiaohaituo Mountain and the Chongli District.



● Zhongdu direct-current converter station in Zhangbei County

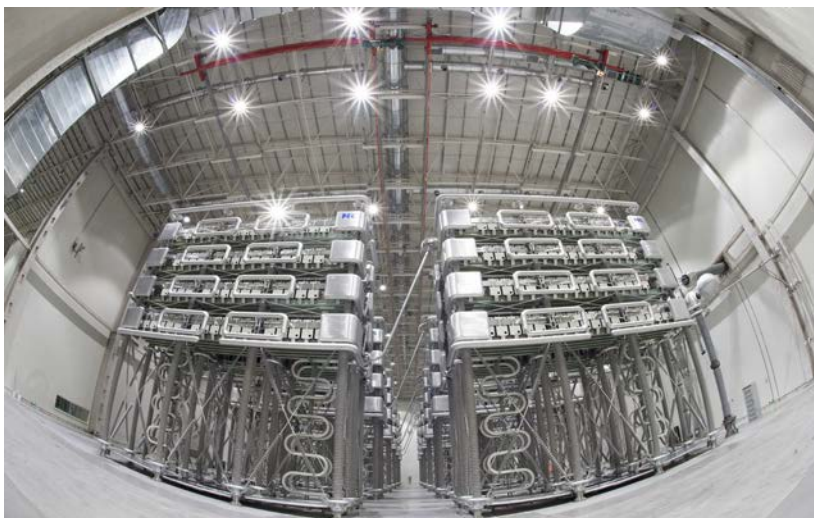
Realising 100% Green Electricity Supply for the Beijing 2022 Games through Innovation

“The wind blows in the dam area from spring to winter” is an old saying that describes the harsh environment and rich wind resources in Zhangbei County. As the host city for the Beijing 2022 Games, Zhangjiakou boasts rich renewable energy resources, such as wind and solar energy, though they are not utilised efficiently due to the weak power grid structure. Beijing 2022 innovated

by building a green power trading platform and adopting the market-oriented direct purchase of green power, and actively promoted the use of renewable energy in the venues of the Games. Besides, relying on the Zhangbei renewable energy flexible DC grid test and demonstration project, Beijing 2022 realises 100% green electricity supply for all venues for the first time in the Olympic

history with a designated cross-regional green electricity trading mechanism. It will serve as an example for the extensive utilisation of renewable electricity after the Games and leave behind invaluable legacy.

State Grid Corporation of China, an Official Partner of the Beijing 2022 Games, has built a “green power highway” – the Zhangbei



● The valve hall of Zhongdu Converter Station of Zhangbei's flexible direct-current project

500-kV flexible DC power grid test and demonstration project, newly built four converter stations in Zhangbei, Kangbao, Fengning and Beijing, with a rated voltage of ± 500 kV, a rated transmission capacity of 4.5 million kilowatts, and a transmission line length of 666 kilometres. Among them, the converter stations in Zhangbei and Kangbao form the power transmission terminal and are connected to wind farms and photovoltaic power stations in Zhangjiakou; the converter station in Fengning is the mediation terminal, which is connected to the power grid and pumped storage facilities; the converter station in Beijing is the receiving end, which is connected to the load centre of the power grid of

Beijing. The project, which was put into operation in June 2020, connects the abundant wind power, solar energy and other energy sources in Zhangbei, and uses the complementarity among energy sources, including wind power, solar energy, and stored energy, thereby overcoming the instability in renewable energy power generation. It has realised the transmission of clean energy from Zhangbei, effectively supporting the sports venues of the Beijing 2022 Games in achieving 100% green electricity supply. The project, which is estimated to transmit about 14.1 billion kWh of clean energy to Beijing annually, equivalent to approximately 10% of the electricity consumption of Beijing.

It has also greatly increased the proportion of consumption of electricity generated from clean energy in Beijing, promoting the capital's high-quality energy development. Furthermore, the project has tremendous overall benefits and strategic significance in leading scientific and technological innovation, as well as in driving the transition and upgrade of manufacturing of electrical-engineering.

Beijing 2022 has worked with the government of the host city, the power trading centre, and the power company in jointly establishing a green power trading working group, aiming to explore the establishment of a cross-regional green power trading model. The model provides clean energy for sports venues and supporting facilities through market-oriented direct purchase of green power, creating a path for the realisation of green power supply for all venues and facilities. As of June 2021, the 12 competition venues of the Beijing 2022 Games achieved 100% green electricity supply ahead of schedule. According to estimates, 93,000 tons of CO₂ emissions would be reduced by the end of the 2022 Paralympic Winter Games.



Case Studies of Urban and Regional Development Legacy



Smart Games Enabling Zhangjiakou to Pioneer the 5G Era

Editor's Note: As one of the first pilot cities in China for 5G development, Zhangjiakou takes the opportunity of holding the Olympic and Paralympic Winter Games Beijing 2022 ("Beijing 2022" or the "Games") to advance 5G New Infrastructure, especially the application of 5G technologies in smart spectating, smart organisation of and smart participation in the Games, as well as in smart industry, smart medical services and smart transport. The technology provides opportunities to the city in restructuring and upgrading its traditional industries, and therefore establishing a new modern industrial structure.



● Beijing–Zhangjiakou High-Speed Railway

Zhangjiakou, one of the three competition zones of Beijing 2022 Games, has accelerated its intelligent development since 2015 and was enlisted into the first batch of pilot cities for 5G development. The efforts in promoting infrastructure construction and demonstrative application of 5G will rapidly upgrade its relevant industries, concretely improving people's life and making it a pioneer in the new 5G era.

With 5G New Infrastructure taking the lead, foundations for 5G application and industrial development have been consolidated. By the end of 2020, Zhangjiakou had built 1,606 5G stations, effectively covering the airport, Beijing–Zhangjiakou High

Speed Railway and other transport hubs, together with its downtown and Chongli District. In May 2021, the core region of the Games in Zhangjiakou was also fully covered by 5G network whose equipment boasts the best technology, the acutest sensors and the highest energy efficiency. Mobile

telecommunication services with large capacity, high speed and low latency will be provided and secured for working staff, officials and athletes during the Games.

Intelligent Games are embodied in three scenarios: smart spectating, smart organisation and smart participation. As long as a 5G mobile phone is in their hands, one will be visually shocked by real-time images of ski jumping in Chongli with no latency the moment their finger touches screen to open the app. No matter where they are, they can actually feel and view the Games with much more freedom than the spectators onsite. If they wish, athletes inside the stadium can rely on 5G technologies to request first-aid, test smart clothing, and receive AI training and other



● Full Wi-Fi coverage inside Beijing–Zhangjiakou High-Speed Train

services. This contributes to the delivery of high-quality Games.

5G turbocharges smart medical services.

“We had a successful operation”, shouted surgeons in excitement in No. 7 operation room for the Second Hospital of Zhangjiakou on August 27, 2019. This was the first 5G remote surgery in China long before which this Hospital had established and deepened cooperation with a telecommunication company, thus laying a solid foundation for developing smart medical treatment. In recent years, online consultation and diagnosis, in-depth integration of 5G and medical treatment as well as the promotion of technological applications have not only guaranteed provision of medical services to athletes and working staff during the Games, but also enabled the public to experience

generated convenience.

5G galvanises high-speed trains.

As a demo project of 5G high-speed trains, Beijing-Zhangjiakou High-Speed Railway runs through various landscapes along the way including platforms in stations, tunnels, large-scale bridges, mountainous areas and rivers. Innovative application of smart technologies has made the dream of “Intelligent High-speed Railway” come true. Despite the fleeting speed, passengers could still enjoy smooth connection for video calls and online games. Real-time monitoring, dynamic advertisement, VR live streaming, HD videos and many other 5G commercial services available inside the train bring the Games to passengers. Beijing-Zhangjiakou High-Speed Railway has set a unique mobile news centre, a wagon dedicated to media,

which is connected to super-fast network to broadcast the Games. As a result, what can be viewed when a passenger sits inside is no longer only scenery along the journey. High-speed train is also a mobile game centre or a mobile office of super-fast speed.

Driven by 5G, digital economy in Zhangjiakou keeps expanding out: a big data industrial base in Huailai, a cloud computing base in the north of Zhangjiakou, an IT industrial park based on Internet in Jingkai District together with many other core industrial parts have been born. By August 2021, 12 data centres including those of Alibaba, Chindata and Tencent had been located here, and all together 900,000 sets of servers were commissioned. On the side of hardware manufacturing in the industrial chain, Envicool and Huizhi were introduced while on the application side, Toutiao, Douyin, Ixigua, Amazon, Huawei, Microsoft and many other famous data applications have been activated as operational services to be subscribed for by users. In the first 8 months of 2021, the core industry for digital economy in Zhangjiakou registered an added value of RMB 6.99 billion, a YoY increase of 43.8%, accounting for 4.4% of its GDP, and contributing 38.3% to GDP growth.



● A 5G intelligence experience store in Xuanhua District, Zhangjiakou



One Day for a Person with Impairment

Editor's Note: Taking the Olympic and Paralympic Winter Games Beijing 2022 as an opportunity, Beijing has further developed accessible facilities and improved accessible environment related to city functions of transport, accommodation, commerce, medical services, tourism, sports and fitness, cultural and entertaining activities. It has not only created favourable conditions for the Paralympic Winter Games but also greatly improved experience of the people with impairment in travelling and daily life. The story of a representative Mr. Sun tells about the improvement in Beijing's accessible facilities which honours their autonomy and makes the city more friendly.



• Accessible gates for rail transit at Daxing Airport



• Accessible toilet at Daxing Airport

This was a sunny morning in Beijing. When a bus for Line 1 stopped at the terminal, Mr. Sun sitting in a wheelchair pressed a red button close to backdoor of the bus. As it rang in driving chamber, Mr. Lu, the driver, switched on a button and lowered down chassis to the right from 20cm to 10cm. Mr. Lu then placed a slope board to the ground on which Mr. Sun could self-propel the wheelchair onto the bus. Right where Mr. Sun got onboard was a sign indicating a dedicated space for wheelchair parking.

When the bus arrived, Mr. Sun transferred to Line 400 to go to Beijing Sijiqing Hospital which provided one-on-one voluntary services for the person with impairment. Accessible reception

was specifically designed for those in wheelchairs just like Sun for consulting and information. In accessible toilet, Sun could experience friendly facilities in his wheelchair. He found in medical consultation that after renovation, the hospital became more friendly to not only physically impaired people, but also patients with hearing disorder, due to providing sign language for orientation. This “simultaneous interpreting” accompanies patients with dysaudia for registration, treatment, testing and medication collection.

In the afternoon, Sun planned to go to an accessible bookstore in Dongcheng District. He made an appointment of accessible car service online in advance. In

2017, Beijing started to provide accessible cars retrofitted from commercial vehicles whose trunks were equipped with electrical elevators with which those sitting in wheelchairs could roll their wheels to get on board easily. Beijing Disabled Persons' Federation has granted accessible online car-hailing with subsidies so that those in need could pay equal price for transport as people without an impairment do.

Sun went to Shanyuan Book Chamber located in Dongcheng District on an area of more than 300 m². Demands of the people with impairment are fully considered from the whole design to details, e.g., there are different heights of bookshelves so that a reader in wheelchair

can easily pick up a book; edges of bookshelves, desks and chairs are rounded in the friendly designing principle that every corner and angle should be rounded and every bump evened. This prevents the people with impairment, the elderly and the young from getting hurt. Knees are comfortably placed underneath desks and counters, and wheelchairs can easily exit or

enter the space and be well placed and fixed. Apart from design free of barriers, there are many braille books in the store and more than 300 sound films donated by Communication University of China for the benefits of the visually impaired.

Sun decided to take the subway back home after purchasing some books. He first dialled the hotline number of 96165 to make

reservation for assistance. Then, some working staff members were waiting for him at the entrance as scheduled and escorted him to the platform via accessible facilities (elevator, lifting platform or stair-climbing devices). They helped Sun purchase a ticket too. When he arrived at the destination station, a working staff member was also well prepared to facilitate him to get out of the station smoothly.

Several years ago, Sun passed the test and obtained his driver's license. He bought a car and retrofitted it. He planned to drive to the Human Resources Exchange Centre in Zhongguancun the next day all by himself and remarked that: "Ever since accessible facilities are built in Haidian District, large public places such as hospitals, shopping malls and supermarkets are equipped with accessible parking lots with clearer signs and instructions. Wherever you go, we the person with impairment can rapidly figure out which is the specific parking lot for us and parking becomes so much easier. Besides, we can park for free."

By organising the Games, the host city has its improved accessible facilities and enhanced social inclusiveness. Since the Games preparation started, accessible



● Accessible car parks in Beijing



● Accessible toilets equipped with emergency buttons inside a shopping mall in Beijing

facilities of high standards in the Olympic stadium have served as a template for the improvement in a favourable environment for the people with impairment. Governments in Beijing and Zhangjiakou have introduced special action plans in making the environment more accessible including urban road planning, public transport, public service places and information sharing in a bit to make the city friendlier in terms of being accessible.

Starting from the end of 2019, Beijing has launched a special campaign of building an accessible environment. As of July 2021, 125,100 problematic spots had been rectified and improved. By the end of 2020, 462 public service halls had

been transformed in terms of accessibility with 378 windows opened to provide dedicated services to special groups and 528 guides offering accessible services among which 210 can use sign language. Accessible facilities were installed over 93.5% of the public toilets in Beijing, and 12,000 buses for 615 itineraries equipped with accessible guide plates (accounting for 78.12% of buses running in urban districts, or 51.54% of all bus services). There are 535 accessible taxis. Press releases for pandemic prevention and control in Beijing lead China in being equipped with interpreters of sign language. What's more, 300 rail transit stations have set up hotline services to make appointments.

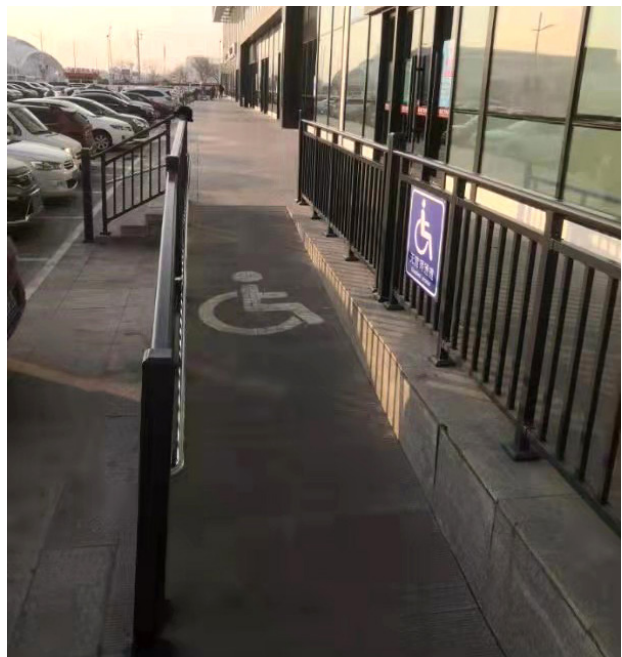
From 2018 to July 2021, Zhangjiakou had newly built and renovated 358.58 km of sidewalks for the blind, 4,422 sites of curb ramps, 680 accessible toilets, 101 friendly elevators and lifters, 805 accessible parking lots, 148 accessible seats in public places, 176 reception facilities of low height in service areas, 83 rooms friendly to the people with impairment in hotels and restaurants, and 38 network stations of accessible public services.

In the accessible environment, the people with impairment could feel more autonomous and enjoy much more convenience in daily life. This also makes the city more caring and friendlier.

● Accessible ramp at Binhe Park, Chongli District



● Accessible ramp at the Residents Centre, Zhangjiakou





Beijing–Zhangjiakou High-speed Railway

Editor's note: The Beijing–Zhangjiakou High-speed Railway is an important part of the Beijing–Lanzhou High-speed Rail that China intends to build under the *National Medium- and Long-Term Railway Network Plan*. The preparations for Beijing 2022 have expedited the construction and operation of the High-speed Railway, which provides transportation support for Beijing 2022 and a quick access to the capital city for people from northwestern China, western Inner Mongolia and northern Shanxi Province as well as facilitate exchanges between northwestern China and the Beijing–Tianjin–Hebei Region.

Overview

The Beijing–Zhangjiakou High-speed Railway connects the city of Beijing with the city of Zhangjiakou in Hebei Province. The main line runs from the Beijingbei Railway Station to the Zhangjiakou Station with 8 stations in between over a distance of 174 kilometers. Its

highest design speed is 350 km/h. The Chongli branch line of the railway extends from the Xiahuayuanbei Station and ends at the Taizicheng Station at the Chongli District of Zhangjiakou City with a total length of 53 kilometers and a design speed of 250 km/h. And its Yanqing branch line starts off at the Badaling Great Wall Station and ends at

the Yanqing Station with a total distance of 9.33 kilometer and a design speed of 160 km/h. The construction of the Beijing–Zhangjiakou High-speed Railway was launched in December 2015. On December 30, 2019, the main line of the high-speed railway and the Chongli branch line were put into operation. On December 1, 2020, the Yanqing branch line opened to traffic.



● Badaling High-Speed Railway Station has the world's highest number of escalators



● A high-speed train travelling between Beijing and Zhangjiakou passes the grand bridge of Guanting Reservoir

Preparations for Beijing 2022 accelerating the construction of the railway

As early as in 2008, China's railway authority conducted a feasibility study on the construction of an inter-city high-speed railway connecting Beijing and Zhangjiakou. In 2013, China made the official announcement that Beijing, together with Zhangjiakou, would candidate for the 2022 Olympic Winter Games. As a critical infrastructure project for the Games, the high-speed railway construction was accelerated as China started to prepare for the Games. In April 2014, the China Railway Corporation agreed to undertake the unified planning, construction and management of the Chongli branch line and the main line of the Beijing–Zhangjiakou High-speed Railway. To provide better

service for the Games, the design speed of the high-speed railway was raised from 250km/h to 350km/h.

A passenger-friendly, smart and innovative high-speed railway

A passenger-friendly high-speed railway. The Beijing–Zhangjiakou High-speed Railway provides innovative services for the passengers in their whole journey, such as electronic tickets, boarding reminding, facial recognition, smart-phone way-finding, self-service rides, robot-provided services and seamless transfer. All these services work together to create a smooth journey for the passengers. Intelligent interactions, 5G WiFi coverage, wireless charging, automatic-adjusted lighting and photochromic windows provide passengers with value-added on board experiences. The Olympic competitions are going to be livestreamed in the media carriages of the train and places are reserved at the junctions between carriages for athletes and ski lovers to store their ski gears.

An intelligence-based high-speed railway. It is the first autopilot high-speed railway in the world with a speed limit



● Qinglongqiao Station

of 350 km/h. With the support of satellite navigation systems and at a speed range of 120km/h to 350km/h, it uses intelligent algorithms to simulate the best mode of operation, automatically raising or lowering the speed in the way that passengers can not feel while ensuring smooth operation of the train.

The railway uses Beidou satellite system and GIS system which act like a full-time “smart brain” that takes care of the operation, scheduling, maintenance and emergency response of the railway. Thanks to the “brain”, railway operators are able to learn about the conditions of every bridge, every meter of steel rail, every chunk of roadbed along the railway line through the sensors that work round-the-clock. They

have everything from the aging of components, the conditions of roadbeds to problems with the signaling under their control every minute from the control centre.

In addition, a total of 64 intelligent technologies are used on the high-speed railway including the centralised dispatching system, the intelligent electric traction system and the earthquake early-warning system. Thanks to these features, trains are able to perform the functions of automatic departing from and running between stations, automatic traveling in emergencies, self-sensing the state of operation, self-diagnosing equipment failures, self-defining running safety, precise positioning and stopping and synchronised door-opening.

A high-speed railway with minimised disruptions to the environment.

To protect the natural and cultural sceneries along the way, the high-speed railway uses various innovative techniques and approaches to minimise disruptions to the environment.

To avoid any negative impact that the construction of the

badalingchangcheng railway station might have on the Great Wall, the globally leading and domestically developed technology of “electronic detonator micro-damage control blasting” was adopted. To ensure that Guanting Reservoir, an important water source for Beijing, stays unpolluted, the “incremental launching construction technique” was used in the construction of Guanting Reservoir Mega-bridge,

The steel beams of the bridge were first assembled on the bank like building blocks, and then gradually moved forward into the water until eight rainbow-shaped structures were settled in place. In the construction of Zhangjiakou Station of the high-speed railway, the concrete canopy column was constructed with the one-time structure molding method without doing any chiseling, tinkering, plastering work or using any chemical coating materials, which has reduced the impact on environmental.

Classic designs of railway stations

Beijingbei Railway Station. The Beijing–Zhangjiakou High-speed Railway traverses several major development zones in the northern part of Beijing through tunnels to avoid causing disturbances to local residents and urban development. The 6,020 meters-long Tsinghuayuan Tunnel runs underground from the south side of Xueyuan South Road and crosses beneath several main urban roads and three subway lines. In November 2018, the tunnel was completed, which meant that people living in the areas along the railway line no longer have to put up with trains blaring through anymore and



● Beijingbei Railway Station



● Qinghe Railway Station



● Beijing–Zhangjiakou High-speed Railway

that a solution was found to avoid the difficulties caused by railway development in urban planning.

Qinghe Railway Station. Covering a floor area of nearly 140,000 square meters, the Qinghe Railway Station is the largest station on the railway line. The station features excellent design for the transfer between different means of transport including high-speed rail, subway, public buses and taxis and helps divert some traffic flows away from the Beijingbei Railway Station. Moreover, it is the only high-speed railway station on the new Beijing–Zhangjiakou High-speed Railway that stands right next to an over-100-year-old train station on the old Beijing–Zhangjiakou Railway. This plain-look station building located on the old railway is Internet-

famous and among the first stations built 115 years ago under the instruction of Tianyou Zhan, the father of Chinese railway. In the construction process of the Qinghe High-speed Railway Station, the old station building was moved horizontally to the side for protection and moved back close to the new station after the construction was completed. Such preservation efforts were an application of the full-cycle BIM (an architecture information model) technology used to build the new Qinghe Station and the second case of old station preservation in the country and the first case in Beijing. Now the whole old station building rests south to the new station and has been refurbished as a museum.

Badalingchangcheng Railway

Station. It is located below the Qinglongqiao Station of the old Beijing–Zhangjiakou Railway. More than 100 years ago, Tianyou Zhan used the ingenious zigzagging design to make it easy for trains to climb up the steep slopes at such a high-altitude area. Given the even higher topographical requirements on slope and route curvature for high-speed railway construction, a tunnel had to be built to accommodate the high-speed railway. Meanwhile, the Station has to receive a lot of passengers due to its proximity to the Badaling Great Wall, so the designers deliberately blended the Station into the surrounding mountains for the part above the ground and used stacked passageways and circular rescue corridors for the part under the ground to make the most use of the underground space.

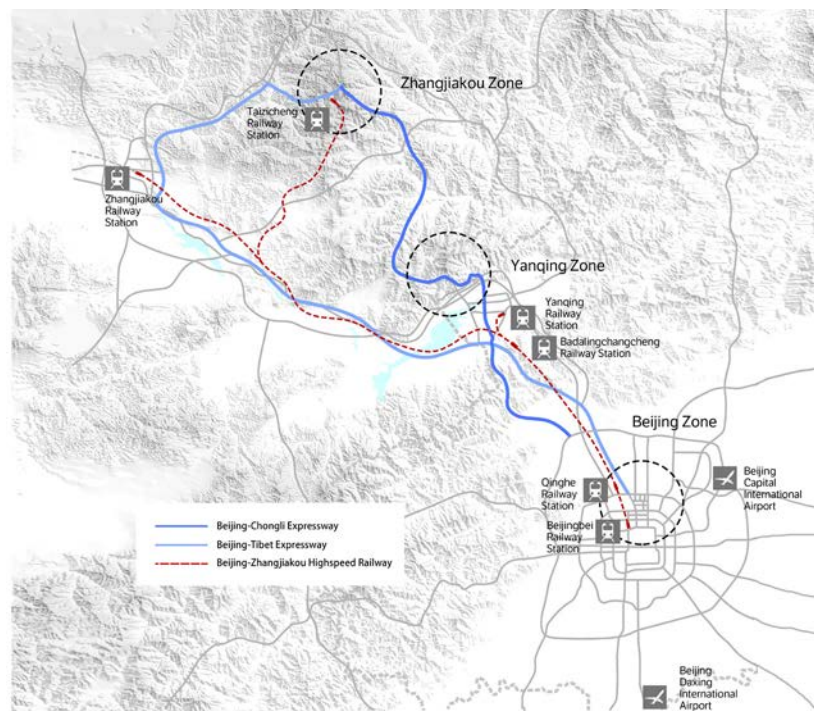
The Badaling tunnel for the new Beijing–Zhangjiakou High-speed Railway totals 12.01 kilometers, or more than 10 times longer than that for the old Beijing–Zhangjiakou Railway, which is 1091.20 meters long. At a depth of 102 meters, the Station is the world's deepest and largest underground railway station, equivalent to burying a 30-story building in a mountain. The

underground structure covers 39,800 square meters, an area equivalent to six football fields. It is worth mentioning that the station's escalator is 82 meters long, as tall as a 14-story building. The escalator has also become an Internet-famous one that tourists are most eager to take pictures with.

Long-term benefits from Beijing-Zhangjiakou High-speed Railway

With the Beijing-Zhangjiakou High-speed Rail, the travel time between the Qinghe Station and the Yanqing Station and between the Qinghe Station and Taizicheng Station has been brought down respectively to just 26 minutes and 50 minutes respectively, making it much faster to travel back and forth among the three competition zones.

The Beijing-Zhangjiakou High-speed Railway has boosted the development of Yanqing District and Zhangjiakou City. It has reduced the travel between Beijing and Zhangjiakou to just a one-hour ride and is acting as an important corridor to connect Zhangjiakou with the capital city, a market with more than 20 million potential customers. The shorter travel time for residents in Beijing to take part in ice



and snow sport events and go sightseeing at the Great Wall and the grassland has brought a great boom to the development of ice and snow sports, cultural and tourism industries in Zhangjiakou and Yanqing. By the end of 2020, one year after the high-speed railway was put into service, a total of 6.806 million passengers had traveled by the high-speed train to Yanqing and Zhangjiakou from Beijing.

The Zhangjiakou-Hohhot High-speed Railway and the Zhangjiakou-Datong High-speed Railway that started operation at

the same time with the Beijing-Zhangjiakou High-speed Railway have thus cut down the travel time between Beijing and Hohhot and between Beijing and Datong to 2 hours and 20 minutes and 1 hour and 40 minutes respectively. It is instrumental in facilitating the construction of the passenger transport network connecting Beijing with Northwest China, West Inner Mongolia and northern Shanxi and plays an significant role in enhancing the communication between and coordinated development of Northwest China and the Beijing-Tianjin-Hebei Region.



Peking University Third Hospital Chongli

Editor's note: Beijing and Zhangjiakou took the opportunity presented by Beijing 2022 to enhance the co-development in the area of public services. Beijing uses its advanced healthcare resources to support Zhangjiakou. The Peking University Third Hospital Chongli, which was established jointly by Beijing and Chongli, will serve the Games as well as enhance the general healthcare capacity of the Chongli District especially in terms of the treatment of sports injuries. After the Games, the Peking University Third Hospital Chongli will continue to serve local communities as a healthcare centre while facilitating the development of the ice and snow sport industry in the area.



● Helipad of Peking University Third Hospital Chongli

Beijing 2022 accelerating the establishment of regional healthcare centres

The Zhangjiakou Competition Zone is located in the Chongli District of Zhangjiakou City, where the skiing industry has been developing for more than 20 years. But the Chongli District People's Hospital, the largest one in the district, was short in servicing capacity, providing little beyond regular internal medicine and surgical care, and having not performed major surgeries in years, thus inadequate in providing medical support for the Games. In September 2018, the Peking University Third Hospital

took over the Chongli District People's Hospital and turned it into a branch in Chongli. The goal of establishing the branch hospital is to make the hospital a diagnosis and treatment centre focusing on sports injuries to serve Beijing 2022. The brand, technologies, professionals and advance managerial expertise of the Peking University Third Hospital would be used to improve the medical resources and build a fully-function network to deliver fast and stable air and ground emergency healthcare services for the Games and eventually improve the healthcare services in the district.

A regional medical centre is shaping up

In December 2018, the construction of Peking University Third Hospital Chongli completed. In January 2019, the hospital was entitled the Designated Hospital for Beijing 2022. In October 2019, the branch hospital became one of the national pilot district medical centres and the only trauma-focused medical centre. In December 2020, it was awarded the designation of "Medical Base for Chinese Winter Sport Athletes" by The Winter Sports Management Centre of the General Administration of Sport of China.

The hospital has 200 beds, and about 270 employees on the payroll including 2 with senior professional titles, 17 with associate senior professional titles and 21 with middle-level professional titles. It has 14 clinical departments, 7 wards, 6 medical technology departments and 13 functional departments. It is equipped with Siemens CT machines and other large medical equipment as well as 8 ambulances. It has HIS (hospital information Management System) and other information systems.

It is worth mentioning that the

trauma centre, the first phase of the project, started operation at the end of 2020. The centre is equipped with a nuclear magnetic examination room, a hybrid operating room, a blood transfusion department, a rehabilitation centre and rooftop helipad, etc. The second-phase construction is currently on going, which will have 500 beds and a teaching, research and innovation commercialisation centre.

Co-development producing encouraging results

To maximise its role of the Regional Medical Centre, particularly in the field of sports injury diagnosis, treatment and rehabilitation, the Third Hospital of Peking University has continued to send renowned doctors to the Chongli Branch to strengthen its professionalism. By the end of 2020, the Peking University Third Hospital has dispatched 1,821

people with intermediate or above professional titles to the branch hospital to provide professional guidance. In 2020 alone, a total of 17 experts in sports medicine, emergency treatment, cardiology and orthopedic medicine were sent to the Peking University Third Hospital Chongli who made more than 120 medical visits to patients, accounting for 33.5% of the of total visits. In particular, after the sports medicine department was officially



● Peking University Third Hospital Chongli

established on July 20, 2020, a first-class surgical team led by the director and deputy-director of the hospital has performed knee replacement, meniscus repair, loose body removal, anterior cruciate ligament reconstruction, meniscus cyst removal and other operations in the hospital. These operations marked the beginning of the sports medicine development of the hospital and represented a milestone in the healthcare development of the district.

As a result of the continuous improvement of medical capacity, the number of patients treated in the Peking University Third Hospital Chongli in 2020 increased by 24% compared with the same period in 2019, the rate of local patients with severe conditions being referred outside the district decreased by 20%, and the

number of patients from outside the district but receiving medical treatment at the Peking University Third Hospital Chongli increased by 30% year-on-year.

Providing long-term service for local communities

Since 2018, the Peking University Third Hospital Chongli has provided medical support for 19 international ice and snow sports events. As the nearest hospital to the Zhangjiakou Competition Zone, the medical staff are able to arrive at the scene in four minutes and transport injured athletes back to the hospital in 15 minutes. After landing on the rooftop helipad, the patients can be moved by lift directly to the hybrid operation room or the emergency room, greatly reducing the rescue time.

Statistics show that Peking University Third Hospital Chongli has completed more than 60 cases of knee, shoulder, ankle and other minimally invasive surgeries and orthopedic trauma operations, including 4 such operations on professional athletes, creating many medical firsts in the district. The hospital has expanded its reach and enabled local patients in this district and even in nearby provinces to access the best medical services available in the country without having to travel long distances and paying exorbitant costs. After Beijing 2022, the Peking University Third Hospital Chongli will continue to service the skiing resorts nearby as an international medical centre and provide support for the sustained and sound development of ice and snow sports in Chongli.



Rapid Development of Homestay Industry in Yanqing

Editor's note: In recent years, the Yanqing district has made great efforts to develop the homestay industry especially a premium homestay cluster to support the Games. With guidance and support from the government, social organisations have made active efforts to develop the new innovative form of homestay industry. The development has created jobs and raised income of local farmers and boosted the growth of other related industries. It can offer more accommodation options for tourists during the Olympic Winter Games and important support for the Yanqing District to develop into an all-in-one tourism destination (which means the integration of the tourism resources and industries of the entire region or combining different scenic sites into one holistic tourist destination for joint management and operations, so as to achieve the integrated and coordinated development of tourism in the region as a whole).

Developing a premium homestay industry

Considering various factors including the demand for

accommodation during the upcoming Olympic Winter Games, and the long-term development of the all-in-one tourism and

the homestay industry, Yanqing launched the “Homestay” project to develop premium homestay clusters.

Government’s strategy for sound development of service industries

Supporting the homestay industry. Yanqing was the first district in Beijing to have adopted policies to support the development of homestay industry. Over recent years, with special incentives, homestay insurance products, concessional loans and financial assistance for low-income villages, 1.9 billion yuan from private sectors capital was attracted to promote the fast development of the homestay industry across the district.

Developing homestay enterprise in association with major events. Building on the existing “World Horticulture Exposition Homestay” enterprises, the district launched the building of 100 “Homestay” enterprises, 100 “Great Wall Homestay” enterprises and 100 “Mountain and River Homestay” enterprises. Four well-known homestay brands have come into being in the district. In addition, a homestay cluster named “Homestay—Yaoguanling”, has formed in the Yaoguanling Village



● A unique Homestay in Yanqing

in Yanqing.

Actively response to the impacts of the pandemic. As a response to the temporary distress the pandemic caused to the homestay industry, the government of Yanqing District was the first to offer financial services and introduce policy incentives to encourage OTA platforms and distributors to step up their marketing and sales efforts. As a result, Yanqing was the first district in Beijing to have reopened the homestay industry and accumulated a lot of useful experiences in pandemic control and economic reopening. Since the resumption of operation, Yanqing's homestay industry realised a revenue of 56 million yuan, a year-on-year increase of nearly 20%.

Organising regular training courses. The district government surveys high-end homestay enterprises on their demand for training, collect orders for training services and develop tailor-made training protocols for different homestay enterprises in line with international standards. The training is focused on three types of services, namely, cooking, catering and room service. A combination of theoretic studies, hands-on practice and field trips is provided in the training



● Sugar-painting performance at the 1st Bed and Breakfast Music Festival in Yanqing District, Beijing

programmes.

Public engagement in the development of the industry

By establishing a joint-meeting system in the homestay industry, Yanqing created the first homestay coalition in the city of Beijing to guide the development of the industry. Moreover, it has also initiated and helped establish the Northern China Homestay Union consisting of 13 homestay associations in 6 provinces and municipalities and 21 homestay enterprises.

With the help from the government, the first homestay management training school in northern China was established

in Yanqing, the Northern China Homestay Academy, which will act as an incubator to promote standardised development of the industry in northern China through knowledge transfer and experience sharing.

Yanqing also built the first district-level homestay platform to promote online marketing of all premium homestays.

The Northern China Homestay Conference has been held in four years in a row where experts, scholars, homestay enterprises and experienced industry insiders gathered in Yanqing to discuss topics related to homestay development.

Homestay enterprises exploring the ways of development

All homestay enterprises have also been actively exploring “Homestay +”, a new form of developing the industry. To promote the transition of homestay towards an “all-in-one” and experiencing consumption for the customers, homestay enterprises are actively collaborating with event organisers to offer the customers diverse and colourful local events, including cultural performances, intangible heritage experiences, fruit harvesting, night jogging and swimming as well as ice and snow tourism, and combine with other tourism products including the Great Wall tour,

local farming and handicrafts making. With accommodation as their core product, the homestay enterprises intend to create a “co-living” industrial community, which contains diverse business scenarios and promotes coordinated development of downstream and upstream industries. In addition, they also have intensified the efforts to improve their service capabilities. For example, they have enhanced the training on passport identification, foreign languages and other standard service skills.

Developing homestay industry to raise farmers’ income

Located in Houheilong Village, Zhangshanying Town, the

“Hidden World · Beijing 2022 Town” is only 5 kilometers away from the Yanqing Competition Zone, and currently the largest homestay cluster in the Yanqing District. As an exemplary story of the homestay industry, it was established right after the Beijing’s election to host the Winter Olympic Games. After years of development, it now has 19 homestay farmyards of different styles with an annual occupancy rate of about 70% and the capacity to accommodate 300 tourists at one time. It sees more than 20,000 tourists come and go in an average year.

The homestay industry has not only achieved development for itself but also driven the advancement of related industries. The homestay staff are all hired locally, undertaking the jobs of housekeepers, cleaners, security personnel and other relevant posts, which has contributed to the increase in the employment rate and income of local communities. In addition to putting idle houses in the villages to productive uses to increase the villagers’ income, these homestay enterprises have also partnered up with some local ski resorts to offer packaged ice and snow tourism activities. Moreover, tourists can also experience activities



● Locals from Yanqing become housekeepers of bed and breakfasts

of growing and harvesting traditional Chinese herbs, grapes and other fruits and vegetables in the homestays, which has helped boost the development of other local traditional industries like the grape industry. Thanks to the grape growing and harvesting activities organised by the homestays, farmers now have a tremendous increase in their annual income.

The “Hidden World” Homestay has showcased the potential of the entire homestay industry. After years of development, the homestay industry in Yanqing has contributed to poverty alleviation and income growth projects as

well as the development of a branded homestay cluster in the district. In 2019 alone, thanks to the development of the industry, more than 400 idle houses in the district were reused; property income of villagers increased by more than 7 million; over a thousand jobs were created, providing an additional labor income of 215 yuan for each villager; 85 jobs were given to low-income villagers, bringing them an income of 2.15 million yuan in total; and the total income of village cooperatives increased by more than 3 million yuan.

In 2018, Yanqing became one of the first national demonstration

districts for homestay development. By the end of 2021, homestay clusters like the “Homestay”, “World Horticulture Exposition Homestay”, “Great Wall Homestay” and “the Mountain and River Homestay”, a total of four homestay clusters, and over 100 premium homestays, 376 homestay farmyards and nearly 4,000 beds are available in the 15 villages and towns across the district. The Yanqing homestay industry not only provides important accommodation support for tourism during the Games but also builds a solid foundation for the development of the all-in-one tourism in Yanqing.



Haituo Farmers' Skiing Team

A Transition from Farmers to Skiing Coaches

Editor's note: The Haituo Farmers' Skiing Team was established out of the passion for skiing and the enthusiasm to support the Olympic Winter Games. The transition from farmers to skiing coaches has completely changed team members' life, and they have become pioneers and role models of fellow farmers. Several years after its establishment, the team has become an important force in promoting ice and snow sports and encouraging active public participation in the preparations for the Olympic Winter Games.



● Haituo farmer–skier team demonstrates skiing techniques

A skiing team established by farmers in Yanqing

As the head of the skiing team, Lang Enge was a shepherd in the Zhangshanying town in Yanqing with 300 sheep under his care. When learning that his hometown Zhangshanying had been selected as the place where the Alpine Skiing, Bobsleigh, Skeleton and Luge events will take place during the Beijing 2022 Olympic Winter Games, he developed an idea to establish a skiing team to teach more people to ski and turn his hobby into a profession. With the support of fellow villagers and the village head, he sold the sheep and together with 18 other experience amateur skiers

established the first farmers' skiing team in Beijing and even the whole country on July 11, 2017. Now the team has 26 members whose average age is 29 and average years of skiing is around 10. Most of them are farmers from different villages across Yanqing.

Promoting ice and snow sports

After finishing the training given by the Swiss Ski Instructors' Alliance, the team members got licensed as professional ski instructors. They began promoting ice and snow sports in primary and middle schools in the district in the 2017–2018 snow season. The first skiing class they taught

was at the Zhangshanying School where they coached students in dry skiing. In December, the team went to Yaojiaying Primary School to teach the students skiing knowledge. And in January, the team coached students from the Jinjiapu Primary School at the Wanke Shijinglong Ski Resort. More than 1,000 students in these three schools have received training from the team. By July 2021, the team has carried out snow and ice sports training sessions for more than 4,000 primary and middle school students.

In addition to promoting the ice and snow sports among teenagers, the team members also have worked as social sports instructors or referees in sports events to help popularise winter sports. One of the team members has received the Award for Best Social Sports Instructors; two have been elected as recognised as accomplished skiers. Moreover, two team members took part in the National University Students' Skiing competition as referees, and one of them won the Award for Best Referees. In addition, the team participated in the MV production of the song "Striving to carve out a future" for the Spring Festival Gala hosted by the Beijing

TV Station. Lang Enge, the team leader, established a studio named after himself, where he tells the stories of his own experiences with ice and snow sports, spreads knowledge about the Olympic Winter Games and promotes ice and snow sports.

Boosting the development of the ice and snow industry

The team members make the most use of their skiing skills to provide training services to various groups, facilitate the development of the local ice and snow industry and help more people in the local communities to live on ice and snow industry. During the snow seasons between 2017 and 2020, the team took a group of over 100 young and middle-aged farmers to the ski resort to teach them skiing skills and it also gave training to the Blue Sky Rescue Team, medical rescue teams and many other volunteer groups to improve their skiing skills. A total of around 16,900 people have received training from the team during the four previous snow seasons and their fellow farmers and other folks have been inspired to engaged in ice and snow sports. Since 2019, 42 person/times of coaching has been provided for 1,500 young people from the district. And team members took



● Skiing-team training

part in trail skiing for the tracks at skiing venues and the skiing events at celebration of the World Snow Day.

Enhancing skiing skills to support Beijing 2022

The team members have kept improving their skills and capabilities and actively participated in the preparations for the Olympic Winter Games. In 2018, the team members took English training courses to improve their English language skills. Since 2019, one member finished the NTO (National Technical Officials) training programme for the skeleton event and passes the test; 10 members were admitted into the Beijing

2022 Skiing Team of the Yanqing District; two were selected as volunteers for the first test events of the Games and took part in the volunteers' training course; 5 members volunteered in the 14th National Winter Sports Games; and five members participated in the extensive Beijing 2022 training programme held at the district-level.

A brighter future for the skiing team

The Haituo farmers' skiing team, established initially by a few farmers out of their love for skiing, has transformed their passion into a cause of promoting ice and snow sports and the contribution to the development of ice and snow

industry and preparations for the Games. What they have been doing has not only encouraged the public engagement in winter sports, but also brought about great changes in their own life. Through years of hard working to improve themselves, 11 of them have obtained international

qualifications for ski instructions; one got national professional certification; two were certified as 3rd-grade alpine skiing referees and one as a 2nd-grade alpine skiing referee. Some of the team members are employed in the Beijing Enterprise Group Company Limited and the Swiss National

Ski School with good salaries. They have become role-models in farmers' employment transitions. We believe, with the staging of Beijing 2022 and the flourishing of ice and snow sports, the skiing team has a very bright future ahead.



Beijing 2022 Boosts Women-run Micro and Small Enterprises

Editor's note: VISA, a global partner of the International Olympic Committee, joined hands with China Women's Development Foundation and Beijing Sports University to launch the public benefit project *Beijing 2022 and Women*. The project aims to take the preparations for the Olympic Winter Games as a good opportunity to promote the development of women-run micro and small enterprises, promote gender equality and employment for disadvantaged groups as well as propel the inclusive, harmonious and sustainable development of the region.



● Launch of Beijing 2022 and Women

Ms. He Yulin comes from the Gui River of Yanqing. She started her business in 1995 from scratch. After going through many failures and hardships, she finally set up a company involved in catering, tourism and cultural services; she is one of the few female entrepreneurs in her region. After learning that Beijing was elected the host city of 2022 Olympic Winter Games, she seized this great opportunity to further develop her business. She rented 20 vacant farmyards in the Shixia village at the foot of the Badaling Great Wall and had them renovated. She created the first homestay business in Yanqing. In addition to running the homestay, she also incorporated tourism elements into her business, such

as Great Wall culture, intangible heritage handicrafts and traditional folk arts, as well as the sales of local agricultural produce and other agricultural tourism products, which has also brought wealth to the local villagers. As the Games approaching, Ms. He began to think about how to find a way to meet the demands of domestic and foreign tourists, step up the growth of her business and create more job opportunities for local communities especially the women. But this is a hard nut for her to crack. It is right at this point that the project of *Beijing 2022 and Women* was launched, so she signed up. After finishing the first training session, she felt greatly inspired. She said, “the training course was immensely

helpful to women entrepreneurs of micro and small businesses in the cultural tourism industry, especially the course on brand operation and precision marketing. They have answered our questions precisely. I hope micro and small businesses in Yanqing can seize the opportunities presented by Beijing 2022 to improve influence and visibility. And as a homestay service-provider, I hope to receive more tourists during the Games and provide them with satisfying experiences.”

Now Ms. He is setting her greater vision. She wants to promote the food and culture of Yanqing to the world and attract tourists from all over the world with the charm of Yanqing, thus making her contribution to the success of Beijing 2022. At the same time, she also wants more women entrepreneurs of micro and small businesses to improve themselves and make progress together with her, give full play to the advantages of women in running business and offer more tourism products to the world, so as to bring prosperity to the villagers and women-run enterprises in Yanqing.

The *Beijing 2022 and Women* project was launched specially for Beijing 2022. The project

offered three training sessions for women—run micro and small enterprise in the Beijing–Tianjin–Hebei Region in three years and trained a total of 4,256 women from around 2,100 enterprises. It provided a variety of various training courses on topic of basic corporate management such as brand management and marketing, business communication, professional image–creation, finance, taxation and human resource management, as well as courses on the development of ice and snow industry, cultural and tourism industry, and the development of innovative cultural products. The teachers were all accomplished industry professionals and professors from leading universities. A total of 20 lecturers taught for 200 hours, and experts in relevant fields were invited to provide targeted lectures and training to address the needs of women micro and small business owners.

The project, with its practical and



● The 2nd Survey of Micro and Small Enterprises in Yanqing of “Beijing 2022 and Women”

informative training materials, flexible and interactive ways of learning and teaching, a diverse–resource platform and a multi–level incentive mechanism, has helped the enterprises solve the problems they have encountered in their development process, accelerate the post–Covid 19 reopening of micro and small enterprises in the cultural tourism industry and

enabled them to seize the growth opportunities created by the integrated development of the Beijing–Tianjin–Hebei Region and the development of Beijing–Zhangjiakou Sport and Cultural Tourism Belt. The project will continue to be carried out after the Games, as the legacy of Beijing 2022 to further support the development of micro and small enterprises in the region.



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