



SUSTAINABILITY FOR THE FUTURE

Beijing 2022 Pre-Games Sustainability Report



**Beijing Organising Committee for
the 2022 Olympic and Paralympic Winter Games**
January 2022

SUSTAINABILITY FOR THE FUTURE

About This Report

This Pre-Games Sustainability Report is published by the Beijing Organising Committee for the 2022 Olympic and Paralympic Winter Games. It describes the actions taken by Beijing 2022 and the host city governments to honour their sustainability commitments, the progress on the implementation of the Sustainability Policy of the Olympic and Paralympic Winter Games Beijing 2022 and the Sustainability Plan of the Olympic and Paralympic Winter Games Beijing 2022. This report details the relevant activities by Beijing 2022 alone or together with the host city governments and stakeholders, as well as the host cities' consequent accelerating development while preparing for the upcoming Games. The Post-Games Sustainability Report, due to be completed in 2022, will comprehensively summarise the achievements made in the area of sustainability before and during the Games.

Abbreviations

The Olympic and Paralympic Winter Games Beijing 2022 are hereinafter referred to as the "Beijing 2022 Games" or "the Games", and the Beijing Organising Committee for the 2022 Olympic and Paralympic Winter Games as "Beijing 2022".

Time Horizon

This report covers the period from the establishment of Beijing 2022 on 15 December 2015 to 30 June 2021. In order to fully reflect the preparatory work, it also includes select relevant items from the bidding phase. Because of the monitoring and statistics cycle, some data are valid as of the end of 2020.

Preparation Basis

This report has been prepared with reference to the core disclosure requirements of the Sustainability Reporting Standards issued by the Global Reporting Initiative (GRI).

Preparation Process

While preparing this report, we referred to the requirements of the GRI standards, and followed the steps of investigations, expert discussions, information collection, report writing, information review, reviews by senior officials and the final review, to ensure the integrity, accuracy, authenticity and balance of the content.

Report Access

The electronic version of this report is available for download on the official website of Beijing 2022 (<https://www.beijing2022.cn/>) in Chinese and English, whereby the Chinese version shall prevail in case of any discrepancy.

Contact Us

For questions or suggestions regarding this report, please feel free to email us at bjsus@beijing2022.cn. Your feedback would be highly appreciated.

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Message from the President of Beijing 2022



On 31 July 2015, Beijing, won the right to host the 2022 Olympic Winter Games, making Beijing the first city in history to stage both the Summer and Winter Games. Since that exciting day, we have been adhering to the vision of staging a "green, inclusive, open and clean" Games, working closely with all stakeholders in China and abroad, conquering various difficulties and challenges, and advancing the preparatory work in a well-coordinated manner.

Sustainability is one of China's major strategies and also one of the three key pillars of the *Olympic Agenda 2020*. Over the past six years, we have formulated and implemented a number of fundamental sustainability policies and plans, put in place sustainability management systems and achieved fruitful results, fulfilling our bid commitments on sustainability.

We have given particular priority to ecological conservation and made full use of the existing venues and facilities. We are very proud to confirm that all venues have achieved green upgrading. We continue to fully implement wide-ranging ecological restoration in the two mountain competition zones, ensure that all venues are powered by renewable energy. Furthermore, we have been using carbon dioxide as a refrigerant in

the ice sports venues. We spare no effort to improve the water and air quality in the region, which has seen notable improvement in key environmental indicators. This also represents our commitment to contributing to a beautiful China through our Games preparations.

We put special emphasis on integrated development and fully utilise the Games in advancing the coordinated development of the Beijing-Tianjin-Hebei Region and promoting transport connectivity, environmental improvement and coordinated industrial development. The Shougang Park, once an abandoned steel plant, is now a new landmark of urban regeneration in Beijing. Yanqing is working to build an all year round destination and Zhangjiakou is shaping itself to become a well-known and popular winter resort in Asia.

We embrace the concept of collaboration and work to create a festive Olympic culture fostering favourable social atmosphere. We carry out activities to promote the Games throughout schools and disseminate the Olympic values, vigorously popularise winter sports for all and advocate for a healthy lifestyle, thus contributing to the building of a healthy China. Our goal of engaging 300 million people to participate in winter sports is becoming reality.

This Report summarises our successful efforts in staging a green Games. The sustainability achievements already demonstrate and also provide an overview of the progress in terms of our vision, objectives, measures and outcomes. The Beijing 2022 Post-Games Sustainability Report will provide comprehensive and valuable information for those interested in the final outcomes of the Beijing 2022 Games.

With the opening of the Games only 22 days away, we are ready! Under the strong leadership of the Chinese government and with generous support from our friends and partners across the globe, we have every confidence in staging a "simple, safe and splendid" Games that will leave a deep impression and fond memories to the whole world. We also have every confidence in passing on the sustainability legacy of our Games delivering lasting benefits to the people.

蔡奇

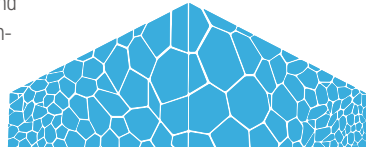
Cai Qi

President of the Beijing Organising Committee
for the 2022 Olympic and Paralympic Winter Games

Sustainability Highlights of the Beijing 2022 Games

Venues for both the Summer and Winter Games (See p.29)

As the world's first city to host both the Summer and Winter Games, Beijing makes full use of the legacy of the Beijing 2008 Games, including the use of the existing 2008 venues for the Beijing 2022 Games to reduce resource consumption and adverse environmental impact.



Green venues (See p.32-35)

All newly-built venues have been certified as 3-star green buildings, and all renovated venues have achieved green transformation and upgrading. The National Aquatics Centre, National Indoor Stadium and Capital Indoor Stadium cluster have obtained 2-star green buildings. A new Evaluation Standard for Green Snow Sports Venues has been put in practice, and all new snow sport have reached the three-star level of the standard.

The "greenest" ice (See p.56)

A transcritical direct cooling technology using carbon dioxide has been used in 4 ice sport venues for the Games, marking the global debut of the technology in winter Olympic venues, significantly reducing greenhouse gas emission resulting from ice making.

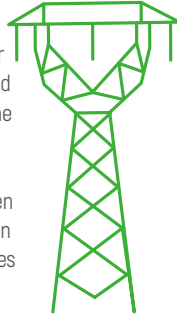


Ultra-low-energy projects (See p.56)

The Polyclinic of the Beijing Olympic and Paralympic Village, the D6 (building number) area of the Yanqing Olympic and Paralympic Village and the Wukesong Ice Sports Centre are 3 ultra-low-energy projects, which minimise the heating and cooling needs of buildings making best use of renewable energy sources, and achieving significant building energy saving and consumption reductions.

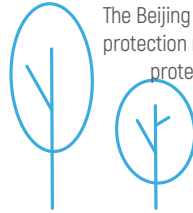
All venues powered by renewable energy (See p.53-54)

All venues and relevant facilities for the Beijing 2022 Games are powered by renewable energy supplied by the newly-built Zhangbei flexible direct current grid. In addition, a Green Energy Trading Mechanism has been created to allow more transparency in the purchase of renewable certificates and more ease in transactions.



Plant conservation in the competition zones (See p.37-39)

The Beijing 2022 Games implements three types of protection measures: in-situ, near situ and ex situ protection for plants in the competition zone. In the Yanqing Zone, topsoil has been stripped and multiple subalpine meadows have been restored. In the Zhangjiakou Zone, a significant ecological green space system has been built.



Wildlife conservation in the competition zones (See p.36)

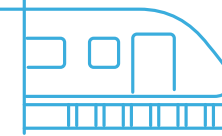
In the process of venue planning, design and construction, effective measures have been taken to minimise the impact on animals and their natural habitats. These measures included the setup of wildlife corridors, the reduction of night-time construction activities, and the monitoring of wildlife activities.

Carbon-neutral Games (See p.48)

Beijing 2022 has established a successful low-carbon management mechanism, integrated the low-carbon concept into all relevant aspects of Games preparations, and taken a wide range of carbon reduction and carbon offset measures to stage a carbon-neutral Games.

The Beijing-Zhangjiakou High-speed Railway contributing to regional development (See p.76-77)

The Beijing-Zhangjiakou High-speed Railway, which connects the three competition zones, includes Zhangjiakou into the one-hour living circle of Beijing, better integrates the two cities' transport systems, and injects a new impetus into the coordinated development of the Beijing-Tianjin-Hebei Region.



Building Beijing-Zhangjiakou sports culture tourism belt (See p.83)

Beijing and Zhangjiakou have established a coordinated development mechanism to vigorously promote the integrated development of sports industry, cultural leisure and ice and snow tourism, as well as create high-quality sports events, sports tourism routes and folk culture experience activities.

Creating a new landmark of urban regeneration (See p.88-90)

With Beijing 2022 Headquarters in its premises, Shougang Park has been transformed and upgraded into a new landmark of urban regeneration featuring integrated development of multiple business models in the new era, creating a model of sustainable development of the Games and the city in the history of the Olympic Games.

Rapid development of Yanqing driven by the Games (See p.92-93)

Since Beijing's successful bid for the 2022 Olympic and Paralympic Winter Games, Yanqing District, by benefitting from the opportunity of winter sports expansion, has vigorously developed the homestay inn industry, established a farmer ski team, and added fresh impetus to its regional development.

Building Zhangjiakou into a sports city (See p.91-92)

Benefitting from the opportunity of being one of co-host cities of the Beijing 2022 Games, Zhangjiakou aspires to build itself into a sports city. Zhangjiakou already hosts more than 100 skiing events and activities every year thus promoting its regional economic and social development.



National public ice and snow season (See p.112)

Mass winter sports events including the National Popular Ice and Snow Season have been held to encourage 300 million Chinese people to participate in winter sports and advocate for a healthy lifestyle.

Olympic education throughout schools (See p.107)

China has designated and selected 835 model schools for education about the Olympic and Paralympic Winter Games and 2,062 featured schools for promoting winter sports on campus. Targeting primarily the youth, specific school materials on Olympic knowledge have been compiled and Olympic Games related cultural and educational activities have been organised as parts of the overall Olympic education programmes.

About the Beijing 2022 Games

On 31 July 2015, at the 128th Session of the International Olympic Committee (IOC), IOC President Thomas Bach announced that Beijing had won the right to host the Olympic Winter Games 2022. It will be the first Olympic Winter Games staged in China, also making Beijing the world's first city to host both the Summer and Winter Games.



Beijing won the right to host the Olympic Winter Games 2022

The XXIV Olympic Winter Games will be held from 4 to 20 February 2022.

The XIII Paralympic Winter Games will be held from 4 to 13 March 2022.

Vision and Objectives

Joyful rendezvous upon pure ice & snow uniting the passion of hundreds of millions for winter sports.

Deliver a fantastic, extraordinary and excellent Beijing 2022 Games, which is green, inclusive, open and clean.

Inspire the youth with the Olympic spirit.
Encourage millions to embrace winter sports.
Promote social progress through Winter Games.
Create a harmonious world of better mutual understanding.

Green

By staging a green Games, we mean to give priority to ecological conservation, resource saving, and environmentally conscious practices, while, through our Games preparations, contributing to a modern China with ever-improving living and environmental standards;

Inclusive

By staging an inclusive Games, we mean to promote wide-range participation and collaboration while hosting the Games for all also achieving considerable social benefits;

Open

By staging an open Games, we mean to benefit from hosting the Games while opening up to the world staying oriented to the future and striving for modernisation;

Clean

By staging a clean Games, we adopt a stringent budget management with rigorous control of the costs and meticulous process monitoring.

Zones and Competition Venues

A total of 109 events will be held in 15 disciplines across 7 sports at the Olympic Winter Games, and 78 events in 6 Para sports will be held at the Paralympic Winter Games. These competitions will take place in 12 competition venues in the Beijing, Yanqing and Zhangjiakou zones.

Beijing Zone

Beijing, the capital of China, is the national political, cultural, international exchange, and technological innovation centre, and an ancient city with a history of over 3,000 years. It has 6 competition venues and will host competitions of 4 sports (Curling, Ice Hockey, Skating and Skiing) during the Olympic Winter Games, and 2 Para sports (Para Ice Hockey and Wheelchair Curling) during the Paralympic Winter Games.

Table 1 Competition Venues Owner

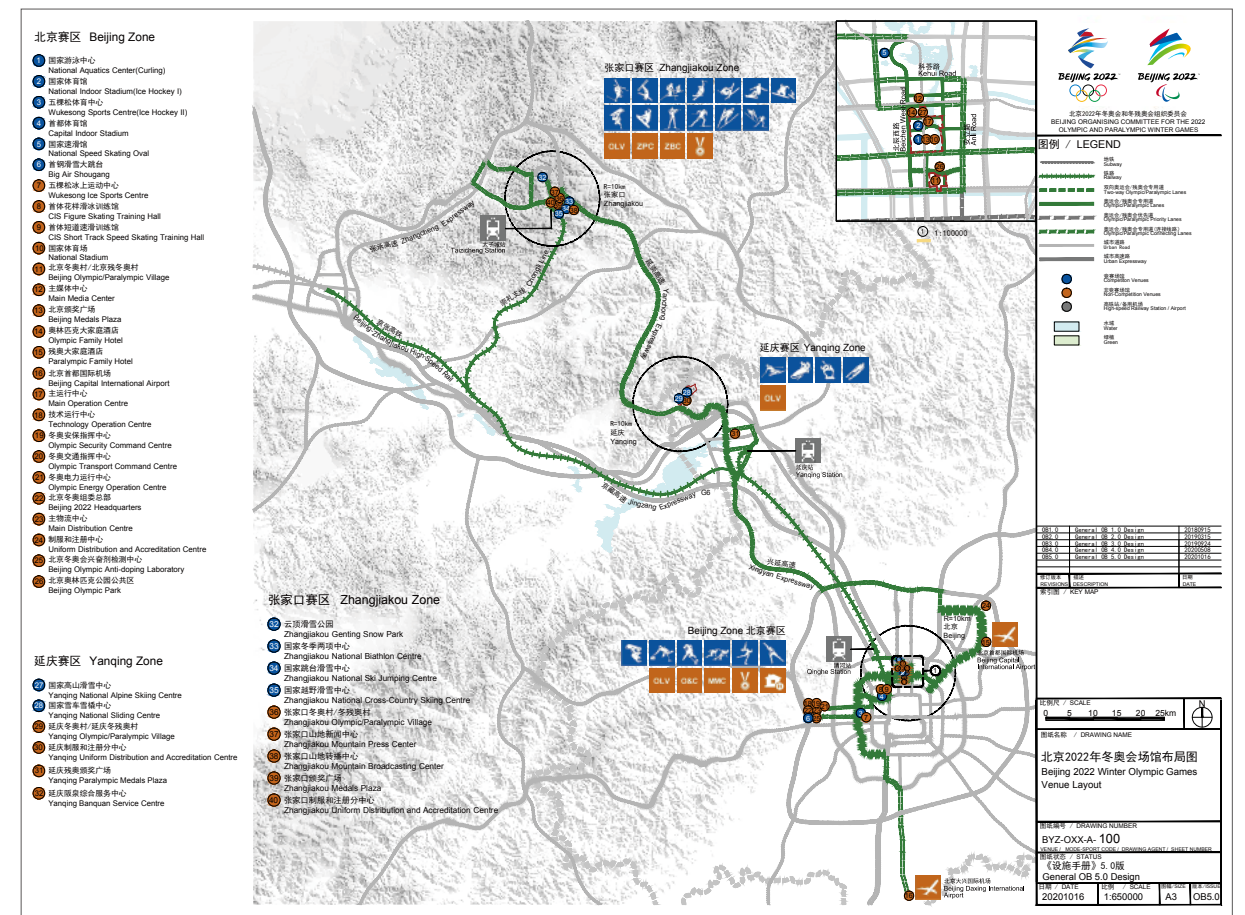
No.	Zone	Competition Venue	Sport	Discipline	Venue Owner
1	Beijing	National Aquatics Centre	Curling	Wheelchair Curling	Beijing State-Owned Assets Management Co., Ltd.
2		National Indoor Stadium	Ice Hockey	Para Ice Hockey	Beijing Performance & Arts Group Co., Ltd.
3		Wukesong Sports Centre	Ice Hockey		Beijing Wukesong Culture and Sports Centre Co., Ltd.
4		National Speed Skating Oval	Skating		Beijing National Speed Skating Oval Co., Ltd.
5		Capital Indoor Stadium	Skating		Winter Sports Management Centre of the General Administration of Sport of China
6		Big Air Shougang	Skiing		Beijing Shouao Real Estate Co., Ltd.
7	Yanqing	National Alpine Skiing Centre	Skiing	Para Alpine Skiing	Beijing Enterprises J.O Construction Co., Ltd.
8		National Sliding Centre	Bobsleigh, Luge		
9	Zhangjiakou	Genting Snow Park	Skiing	Para Snowboard	Miyuan (Zhangjiakou) Tourist Resort Co., Ltd.
10		National Cross-Country Skiing Centre	Skiing		Zhangjiakou AoTi Construction and Development Co., Ltd.
11		National Ski Jumping Centre	Skiing		
12		National Biathlon Centre	Biathlon	Para Biathlon, Para Cross-Country Skiing	

Yanqing Zone

Located in the Northwestern part of Beijing Municipality, the Yanqing Zone is 74 kilometres away from the urban area of Beijing. It has 2 competition venues, and will host competitions of 3 sports (Skiing, Bobsleigh and Skeleton as well as Luge) during the Olympic Winter Games, and 1 Para sport (Para Alpine Skiing) during the Paralympic Winter Games.

Zhangjiakou Zone

Located in the Chongli District of Zhangjiakou in the Northwest of Hebei Province, the Zhangjiakou Zone is 180 kilometres away from Beijing. It has 4 competition venues, and will host competitions of 2 sports (Skiing and Biathlon) during the Olympic Winter Games, and 3 Para sports (Para Snowboard, Para Cross-Country Skiing, and Para Biathlon) during the Paralympic Winter Games.



Organisational Structure

The Beijing 2022 Games is an important landmark event in Chinese history. Staging the Games will strongly boost the integrated development of Beijing-Tianjin-Hebei Region. The Chinese government has attached great importance to the preparations for the Beijing 2022 Games and established a smooth working mechanism supported by an organisational structure with the leadership of the central government. Under this framework, the local governments (Beijing and Hebei Province) play a guiding role, Beijing 2022 coordinates the preparatory activities and resources for staging the Games, and collaboration between all sectors of society is greatly encouraged. This mechanism has been effectively ensuring the progress in Games preparations.

The Leading Group for the Preparations of the XXIV Olympic Winter Games

After Beijing won the bid to host the 2022 Olympic Winter Games in 2015, the Chinese government established a leading group for the preparations of the XXIV Olympic Winter Games, headed by Han Zheng, Member of the Standing Committee of the Political Bureau of the CPC Central Committee and Vice Premier of the State Council. Sun Chunlan, Member of the Political Bureau of the CPC Central Committee and Vice Premier of the State Council, and Cai Qi, Member of the Political Bureau of the CPC Central Committee and Secretary of the CPC Beijing Municipal Committee, serve as deputy heads. The members of the Group also include more than 40 departments of the Beijing Municipal Government, the Hebei Provincial Government, the General Administration of Sport of China and the China Disabled Persons' Federation. The Leading Group meets regularly to discuss the progress and major issues encountered in the preparatory process, and instruct the relevant departments to advance their Games preparations.

Host city governments

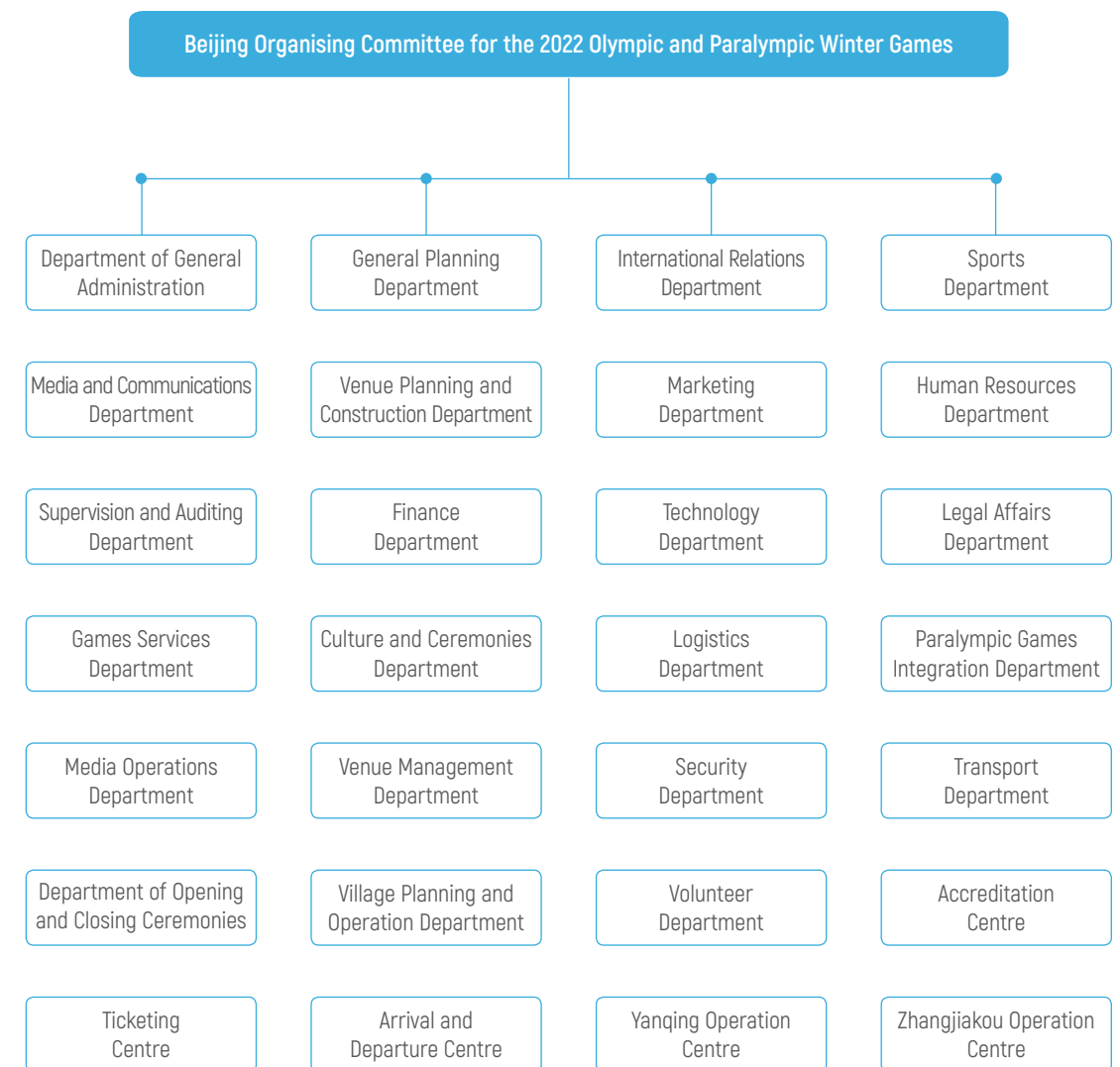
During the early days of the Games preparations, the Beijing Office of the Engineering Construction Headquarters for the Beijing 2022 Games, the Hebei Office for Preparations for the XXIV Olympic Winter Games, the Yanqing Preparations Office and the Zhangjiakou Preparations Office were established to coordinate the preparations for the Beijing 2022 Games. As the preparations progressed, the Beijing City Operations Command Department and the Hebei Province Operations Command Department were also established with the responsibility of promoting the preparations for the Games in a coordinated manner. Local governments of Beijing, Hebei Province, Yanqing District and Zhangjiakou have aligned the Games preparations with their own regional development strategies, actively assumed the hosting responsibilities, and worked to honour the sustainability commitments covering environmental protection, economic development, venue and infrastructure constructions, and Olympic education.

Beijing Organising Committee for the 2022 Olympic and Paralympic Winter Games

The Organising Committee for the Olympic and Paralympic Winter Games Beijing 2022 was officially established on 15 December 2015 to organise and coordinate the staging of the Beijing 2022 Games. The Executive Committee is the executive body of Beijing 2022. The Secretary of the CPC Beijing Municipal Committee serves as President of Beijing 2022. The department Heads of the General Administration of Sport of China (the Chinese Olympic Committee), the China Disabled Persons' Federation (CDPF), the Beijing Municipal Government and the Hebei Provincial Government respectively serve as Executive President, Executive Vice President and Vice President of Beijing 2022. On 30 June 2021, Beijing 2022 had 28 departments (centres).

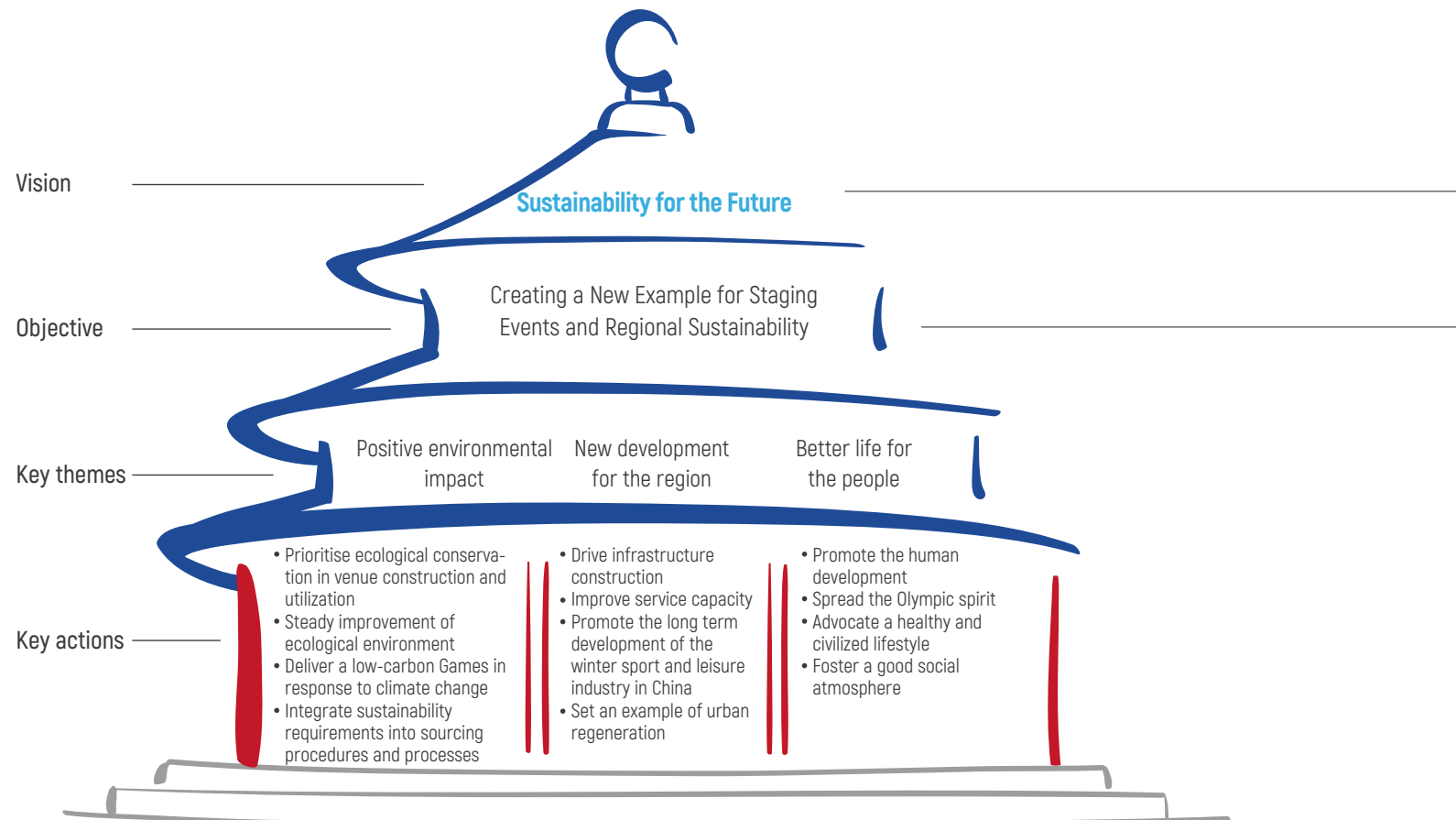
The Leadership of Beijing 2022

There is one President, four Executive Presidents, one Executive Vice President, five Vice President, one full-time Vice President, one Secretary General (part-time), and two Deputy Secretaries General.



01 Beijing 2022 Sustainability Management

The mission of staging a “green, inclusive, open and clean” Games is also a guide to our sustainability work and is embodied throughout the process of preparing for and staging the Games. The Beijing 2022 Games is the first Olympic Games that follows the Olympic Agenda 2020 by the International Olympic Committee throughout its preparations and hosting. Beijing 2022 has honoured its commitments at the bid for the Beijing 2022 Games, to implementing sustainability policies and plans, innovating the model for sustainability management, integrating relevant sustainability requirements into the preparations and staging of the Beijing 2022 Games, and promoting various measures with the Games partners and stakeholders in a coordinated manner to achieve the agreed sustainable development goals (SDGs).



The Sustainability Framework of the Beijing 2022 Games

1.1 Sustainability Vision and Objectives

Based on the present and with an eye on the future, Beijing 2022 strives to provide new solutions for environmental improvement, create new models for regional and urban development, and open up new horizons for human and social progress.

While preparing for the Games, the Chinese government works actively with the stakeholders to integrate sustainability into all aspects and daily operations of Games preparations. It promotes the harmony between humans and nature through accelerated environmental improvement, drives coordinated high-quality regional development, and strives to meet the people’s needs for a better life through greater public engagement. With the Games becoming a powerful driving force for the sustainable development of the host cities and regions, the Chinese government creates a model of synergy between the Olympic Movement and the host cities and regions.

1.2

Bid Commitments on Sustainability

Sustainability is one of the three major concepts¹ pitched by Beijing in bidding for the Games. The basic objective of our sustainability work is to fully fulfil our sustainability-related bid commitments. These commitments have been divided into 28 categories including sustainable objectives; concept and strategy; sustainable institutions; budget and financial mechanisms; plans, guidelines and standards; venue selection and planning; design, construction and operations; promotional and cultural activities; sustainable sourcing; urban and rural environment and sustainable development; ecological protection and compensation; response to climate change and carbon neutrality; air quality control and improvement. (The relevant content of the Bid Commitment is specified at the beginning of each section.)

These commitments are broken down into specific tasks which are divided among 64 departments of Beijing 2022, Beijing Municipal Government, Hebei Provincial Government and Zhangjiakou Municipal Government, including authorities of ecology and environment, gardening and landscaping, urban management and water affairs. Furthermore, an inter-departmental coordination mechanism is also established by Beijing 2022 and meetings are held on a regular basis to coordinate and advance relevant work, solve key problems, and prepare periodic progress reports. Relevant government departments have, in accordance with their responsibilities, worked closely to support the preparations of the Beijing 2022 Games, promoted the progress towards the sustainability goals, and created a favourable environment for the Games.

On 30 September 2021, Beijing 2022 achieved and completed 98% of the sustainability objectives and tasks with significant results. For example,

- "Establish a Beijing 2022 sustainability management system integrating monitoring, revisions, guarantees and reports." Beijing 2022 has innovatively integrated three international standard requirements: the ISO 20121 Event Sustainability Management System, the ISO 14001 Environmental Management System, and the ISO 26000 Guidance on Social Responsibility. It also established and operated the Beijing 2022 Sustainability Management System certified by ISO 20121 or ISO 14001 third-party authorities (See p.20).
- "Adopt the Green Building Standards for venue constructions." 100% of the competition venues, training venues and Olympic and Paralympic Village have achieved green upgrading. (See p.32).
- "Offset all carbon emissions generated during the Beijing 2022 Games." Beijing 2022 and the venue owners have implemented a series of carbon emission reduction measures such as the Low-carbon Venue, the Low-carbon Energy, and the Low-carbon Transport. The governments of Beijing City and Hebei Province contribute significant amounts of carbon sinks in the forestry industry. The Games-related enterprises also

- sponsor various carbon trading products (CCERs/²CERs) for the Beijing 2022 Games for achieving the goal of a carbon-neutral Games (See p.48).
- "In Beijing, the annual mean concentration of PM_{2.5} in 2022 will decline by about 45% compared with that in 2012. By 2022, rendering Beijing an increased number of sunny days, cleaner water, and a better environment for urban living." From 2015 to 2021, the annual mean concentration of PM_{2.5} in Beijing and Zhangjiakou had dropped by 59% and 31.4%, respectively (See p.69).
- "Promote the Beijing 2022 Games and sustainable urban development with coordinated efforts; develop and implement detailed plans and specific measures areas such as environmental protection, economic development, urban construction, and Olympic education." Since the beginning of the preparatory work, Yanqing District and Zhangjiakou City have effectively upgraded their urban infrastructure. Meanwhile, the winter sports industry as well as other related industries have also developed rapidly. Olympic education has extended to the national level (See p.76).

1.3

Sustainability Policy

The Sustainability Policy for the Olympic and Paralympic Winter Games Beijing 2022 (hereinafter referred to as the "Policy") was publicly released on 30 December 2016 to fulfil the sustainability commitments and lay down the relevant guidelines. It elaborates such priorities as the ecosystem and biodiversity conservation and the environmental management. The publication also declares the principles of adhering to the Olympic values and promoting social integration, and puts forward the measures of establishing the sustainability management system, and integrating low carbon management and sustainability objectives into the supply chain.

According to the policy, Beijing 2022 and all partners are required to take sustainability as the core concept and basic principle, and integrate it into their work before, during and after the Games. Through effective sustainability management, the policy aims to improve the environment, promote regional economic development and social progress, create tangible and intangible Olympic legacies, and enhance the Games' sustainability impact, make the Games "fantastic, extraordinary and excellent" and to the satisfaction of the Olympic family and the international community. The policy contains the following principles:

- Work in a fair and transparent manner in strict compliance with applicable laws and ethics, respect diversity of cultures, traditions and equality for all;
- Strictly abide by the standards and regulations of specific labour laws and regulations, and protect the labour rights and human rights of the workforce;
- Prohibit any form of discrimination on the grounds of race, nationality, religion, political views and positions, gender or disability;
- Work with relevant global organisations and institutions to protect ecosystems and biodiversity;
- Establish a sustainability management system in line with the International Standardisation Organisation, and integrate the sustainability principle into the daily work of all departments of Beijing 2022.



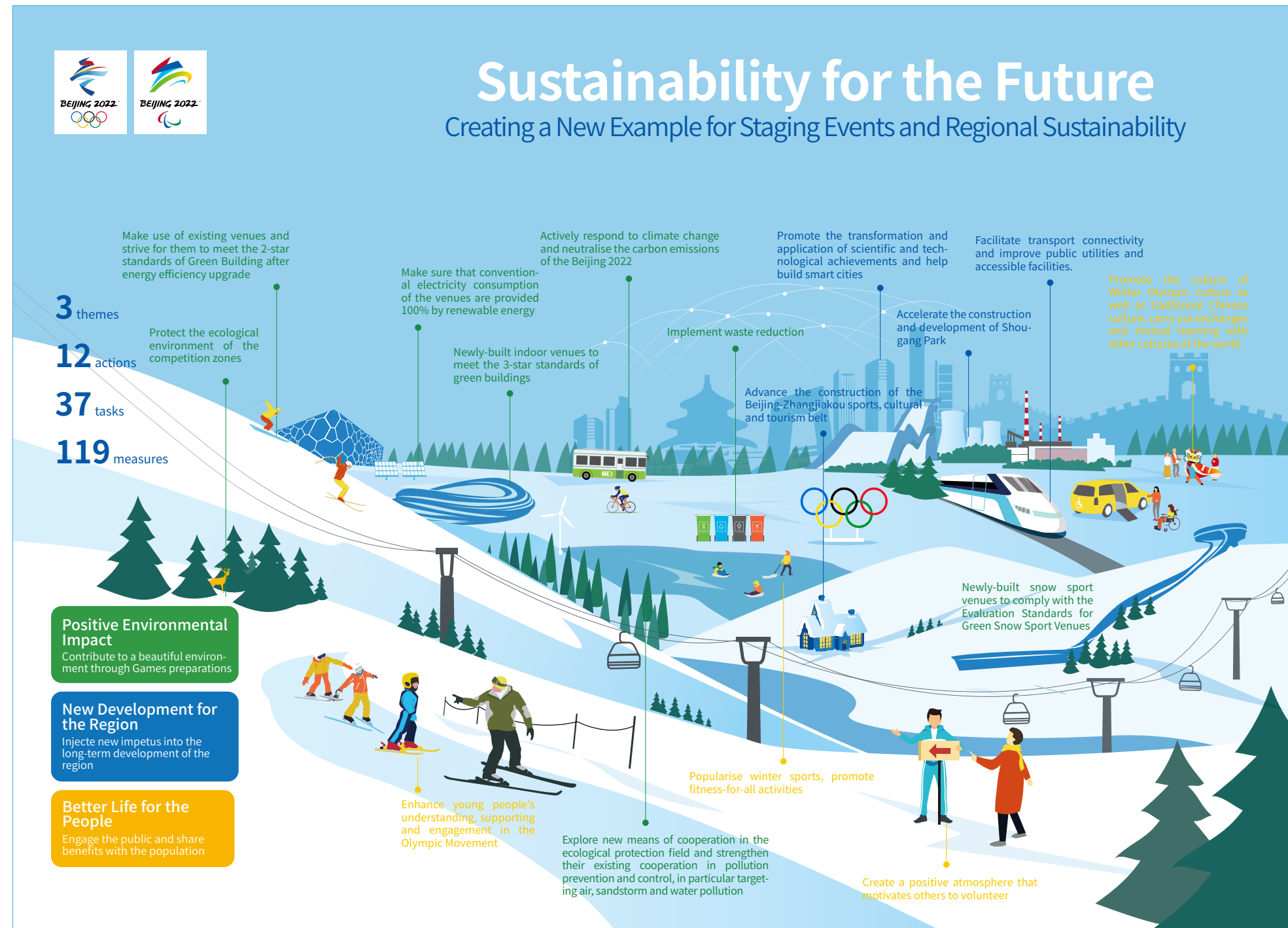
The Beijing 2022 Sustainability Policy can be found on the [Beijing 2022 website](#).

¹ Three major concepts are "Running Athletes-centred Games, Ensuring Sustainable Development, Hosting Economical Games".

² CCER: Chinese Certified Emission Reduction; CER: Certified Emission Reduction

1.4 Sustainability Plan

Beijing 2022 has been earnestly honouring the sustainability commitments, the Host City Contract – Operational Requirements and the Sustainability Policy for the Olympic and Paralympic Winter Games Beijing 2022. [The Sustainability Plan of the Olympic and Paralympic Winter Games Beijing 2022](#) (hereinafter referred to as the “Sustainability Plan”) was devised and compiled by Beijing 2022 jointly with the Beijing Municipal Government, the Hebei Provincial Government and key stakeholders, and officially released to the public on 15 May 2020 (see Page 12 The Sustainability Framework for the Beijing 2022 Games). The Sustainability Plan contains 12 actions, 37 tasks and 119 measures. Please refer to chapters 2, 3 and 4 of this report for the progress on sustainability made by Beijing 2022.

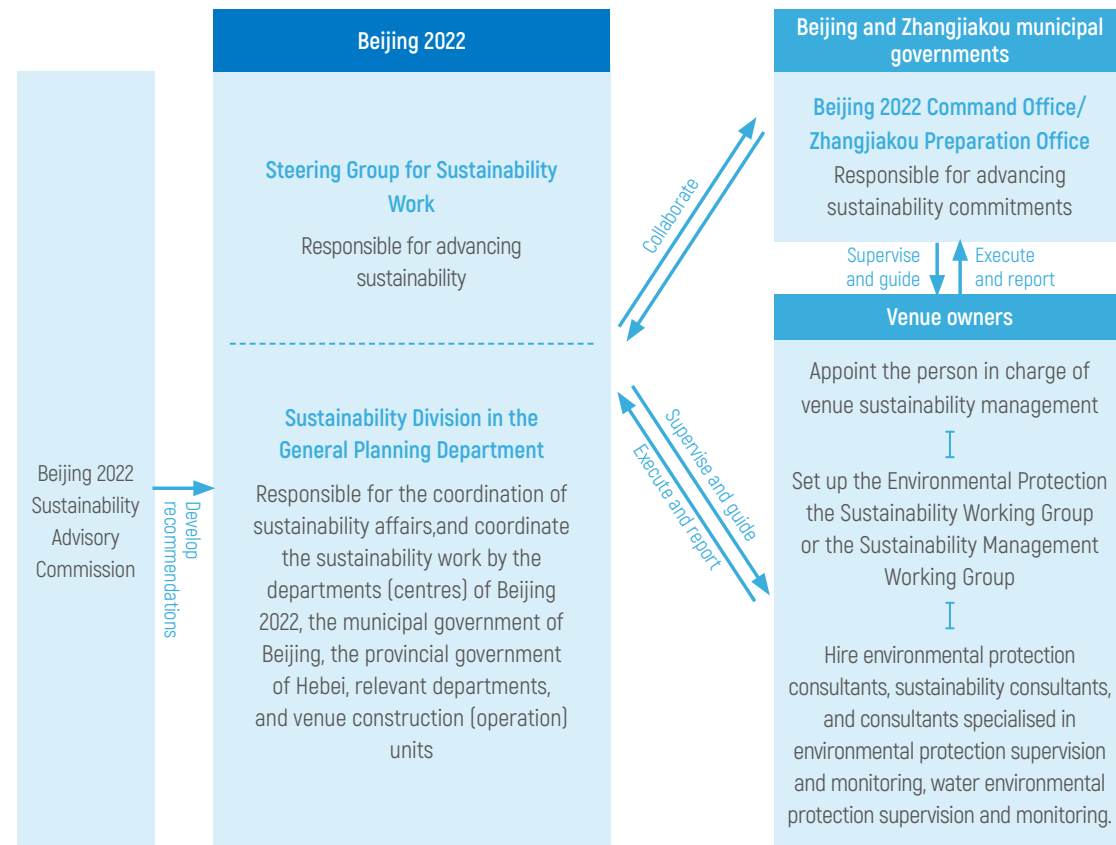




We will establish the Sustainability Advisory Commission, invite third parties to participate, and subject it to open and transparent supervision.

1.5 Organisational Structure for Sustainability Management

Steering Group for Sustainability Work was established in 2017, headed by the Vice President (Full Time) and Secretary General Han Zirong and composed of the heads of all relevant departments (centres). The Sustainability Division, in the General Planning Department, is responsible for the planning, organisation and coordination of all sustainability affairs, and the overall coordination of the sustainability work by the departments (centres) of Beijing 2022, the Municipal Government of Beijing, the Provincial Government of Hebei, relevant departments, and venue owners. The Division is also in charge of promoting the implementation of various sustainability measures.



Steering Group for Sustainability Work

- Decisions about major sustainability issues;
- Review of all sustainability working documents and reports;
- Provision of support for the effective implementation of the sustainability management system;
- Coordination and communication for the sustainability work among multiple departments.

Sustainability Division (FA) in the General Planning Department:

- Organisation, establishment and promotion of the operations of the sustainability management system;
- Formulation and implementation of the sustainability strategies and plans for the Beijing 2022 Games;
- Formulation and implementation of the sustainability-related working documents, including the guide on venue and infrastructure sustainability (planning and design phase, construction phase and operation phase), specifications for sustainable procurement, plans for low-carbon management, the implementation plan for carbon neutrality, the sustainability communications plan, and the sustainability training plan;
- Establishment of the supervision and monitoring processes to ensure the adequate implementation of all sustainability requirements; organisation and evaluation of the sustainability measures for venues;
- Establishment of a sustainability advisory commission, organising relevant activities and listening to its recommendations;
- Supervision of Beijing 2022, the suppliers and other partners to carry out activities for sustainability-themed training and promotion to improve the workforce's sustainability awareness and capabilities; and the establishment of the Beijing 2022 Sustainability New Media Communication and Interaction Platform to disseminate stories about sustainability and raise public awareness of sustainability.

Beijing 2022 Sustainability Advisory Commission

The Beijing 2022 Sustainability Advisory Commission was established in November 2018. The Committee is composed of 26 senior experts representing the United Nations Environment Programme and Universities in China, research institutions and government departments specialised in areas such as the sustainability management system, green buildings, ecological and environmental protection, atmospheric environment management, winter sports management, carbon management, and sustainable sourcing. Through meetings, on-site inspections, topic-specific research and working reports, the Committee provides strategic recommendations for the sustainability work of the Beijing 2022 Games. The Committee also assists in the evaluation of major issues, and participates in the supervision of the sustainability work.



Inauguration Ceremony and 1st Plenary Session of the Beijing 2022 Sustainability Advisory Commission



Commitment The Organising Committee will adopt the standardised and internationalised sustainability management know-how and approaches (Olympic Games Guide on Sustainability, ISO 20121²-Event Sustainability Management System-Requirements with Guidance for Use), and formulate guidelines on the Beijing 2022 sustainable development.

Beijing 2022 will integrate select sustainability objectives into all project management areas and supply chains, and build the Beijing 2022 sustainability standards system incorporating monitoring, review, assurance and reporting.

1.6 Sustainability Management System

In light of the progress of work, Beijing 2022 bases its management on the ISO 20121: Event Sustainability Management Systems and the ISO 14001: Environmental Management Systems, and uses the approach of recognizing social responsibility and engaging stakeholders as specified in ISO 26000: Guidance on Social Responsibility. We have effectively integrated the aforementioned three international standards, comprehensively classified the sustainability-related issues of the Games preparations and delivery, and established a sustainability management system with the characteristics of Beijing 2022. Under the closed-loop management mechanism of Plan-Do-Check-Act (PDCA), we established the sustainability management mechanism, integrated sustainability into all aspects of the preparations and daily operations, and increased staff awareness and capacity for sustainability through top-level design, policies, multi-stakeholder engagement, supervision and improvement.

² The ISO 20121 is a sustainability management standard required by the IOC to be adopted by every Organising Committee. China formulated the national standard Event Sustainability Management Systems -Requirements with Guidance for Use (GB/T31598-2015) equivalent to ISO 20121, and officially released it in June 2015. The ISO 14001 and ISO 26000 are standards adopted by Beijing 2022 for its sustainability commitments. Of these, the implementation of ISO 20121 and ISO 14001 are both subject to independent third-party certification.

The Certification of the Sustainability Management System

On 6 November 2019, after being certified by the third party, the sustainability management system of Beijing 2022 have obtained the ISO 20121 (GB/T31598) Certificate of Sustainability Management System for Large-scale Events and the ISO 14001 (GB/T24001) Certificate of Environmental Management System. We then passed the first and second supervision audits of a third-party review in October 2020 and July 2021, respectively, ensuring the compliance and effectiveness of the sustainability management system.



In July 2021, the social responsibility performance of Beijing 2022 was evaluated as a five-star level by a third party.



Ceremony for Certification of Beijing 2022 Sustainability Management System

"The awarding of the prestigious international event sustainability standard is a major milestone for Beijing 2022. This achievement sends out a strong message about Beijing's commitment to sustainability. By receiving this certificate, Beijing 2022 is already creating a sustainable legacy."

—Juan Antonio Samaranch,
IOC Member and Chair of the
Coordination Commission for the XXIV
Winter Olympic Games Beijing 2022

Plan

- Carry out comprehensive surveys and interviews to systematically identify sustainability issues, risks and opportunities and develop measures;
- Integrate the three national standards of ISO 20121\14001\26000 to establish a comprehensive sustainability management system;
- Develop a series of work documents such as the Guide on Venue and Infrastructure Sustainability, the Low Carbon Management Plan, Sustainable Procurement Guide, to formulate a complete set of sustainability management rules.

Do

- Actively communicate with stakeholders, and gradually explore and establish a working mechanism of "upper and lower linkage, internal and external collaboration, expert support, and joint advancement";
- Incorporate the sustainability content into the basic planning, operational plans, venue operational plans and other preparation work plans of the Beijing 2022 Functional Areas (FAs);
- Promote the implementation of the sustainability related bid commitments, the sustainability plan, the low-carbon management plan, and the venue sustainability measures.

Check

- Organise regular work scheduling and information communication meetings;
- Carry out regular on-site inspections and reviews of venue sustainability;
- Conduct annual internal audit, management review and supervision for the sustainability management system, and commission third-party review on the implementation of ISO 20121, ISO 14001 and ISO 26000.

Act

- Make improvements based on deficiencies in internal audits, management reviews, third-party audits, and other inspection results;
- Identify challenges in daily work and communications, and make improvements, such as conducting random checks;
- Update, add or adjust the objectives, indicators and implementation plans in light of internal and external changes, such as formulating a work plan for reduction of plastic pollution programs in accordance with the China's applicable reduction of plastic pollution requirements.

1.7 Sustainability Trainings and Communications

In order to promote the integration of sustainability into all aspects of the preparations, Beijing 2022 has organised on-board training, bi-weekly lectures, and special training sessions on the sustainability management system, sustainable sourcing, venue sustainability and carbon management to raise the staff's sustainability awareness and capability, and promote the implementation of sustainability requirements in stakeholders' daily work. By the end of July 2021, all Beijing 2022 and venue construction personnel received sustainability training. For example, there are 32 sessions of special training on sustainability organised by Beijing 2022. (For details of model training, see Appendix 2 Sustainability Training for the Beijing 2022 Games.) The venue owners explained matters needing attention concerning environmental protection and construction with case studies through training sessions and occasional on-site training. At the same time, communications boards for environmental protection were set up on the construction site to further strengthen the training for environmental protection and raise awareness. *The Yanqing Zone issued the Training Manual for Construction Personnel* to improve the workforce's awareness of environmental protection.



"The Basics of the Sustainability Management System" lecture on 11 August 2017, as part of the Bi-weekly Lecture Series



"The Sustainable Development of the Beijing 2022 Games and Environment" lecture on 14 September 2018, as part of the Bi-weekly Lecture Series



The first training session for internal auditors on the sustainability management system



Training on sustainability organised by Zhangjiakou AoTi

The communications of the sustainability of the Beijing 2022 Games is carried out in different stages and at different levels, and the sustainability story of the Games are told in a way that is easy to understand also by non-professionals. The methods of communications include various media, network reports, expert interviews and paper publishing.

- Official communications of the Beijing 2022 (press conferences, release news on the official website, and on-site interviews)
- Media special reports (in the form of radio special programs, TV documentaries, network special topics, etc.)
- Mobilise public participation through social media and new media
- Use international conferences and large-scale events to show highlights
- Popularise sustainability knowledge to the public, especially young people
- Publicise significant and interesting results during the Games
- Prepare brochures and provide them to guests, spectators, media, etc



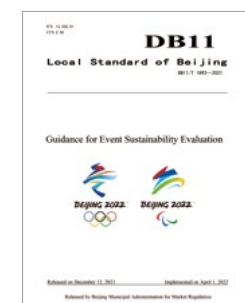
On 23 June 2019, Beijing 2022 unveiled the low-carbon management plan demonstrating the progress in staging a green Games



On 11 December 2019, Beijing 2022 briefed the UN Climate Change Conference COP 25 on sustainability efforts

Innovatively prepare the standard of Guidance for Event Sustainability Evaluation

On the basis of scientifically summarising the sustainability practice of the Beijing 2022 Games, Beijing 2022 has innovatively compiled the Guidance for Event Sustainability Evaluation (DB11/T 1892-2021), which has become the local standard of Beijing. The standard proposes the evaluation content in seven aspects and 35 indicators, providing a reference for scientific evaluation of the sustainability of events. It also guides and assists event organizers to enhance their sustainability management, leaving a valuable legacy of the Games sustainability.

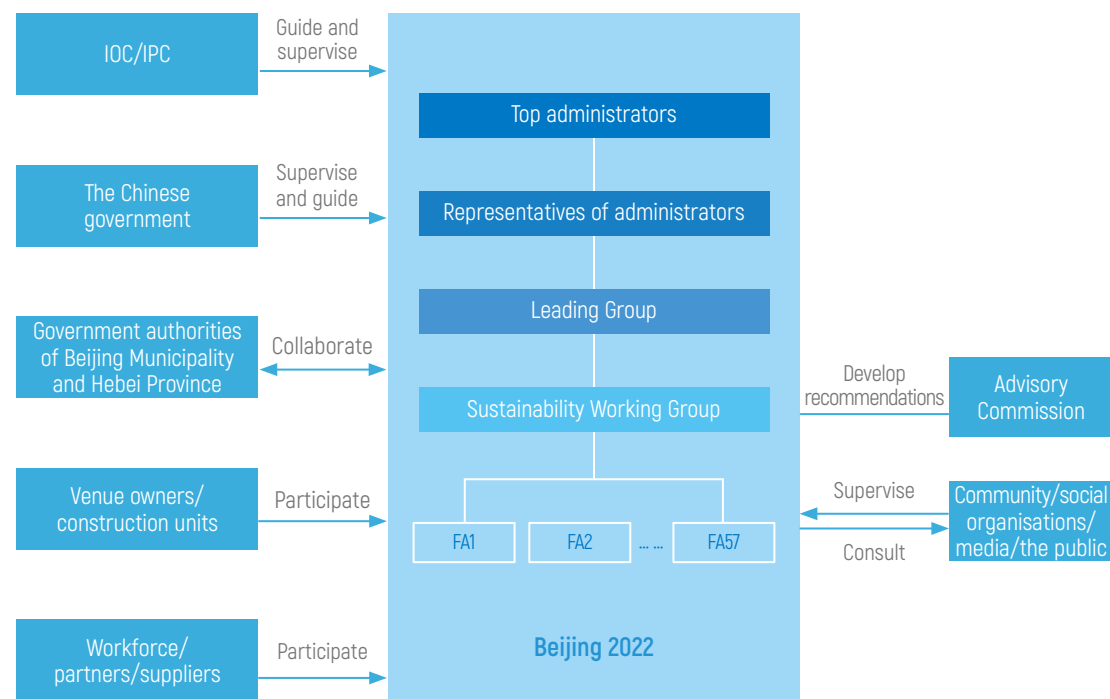




Working closely with environmental NGOs, we will increase public awareness, so that the community members clearly understand the importance of sustainable development.

1.8 Stakeholder Communications and Engagement

The basic principle for identifying stakeholders of Beijing 2022: "The Organising Committee must organise the work and activities in accordance with their expectations (or requirements)" and the stakeholders are "influenced by the work and activities of the Organising Committee". In the preparation process, we communicated with stakeholders in various ways such as group meetings, theme communications and one-to-one communications, and actively listened to their concerns and requirements (see Appendix 1 Communications and Participation Methods of Stakeholders), and fully considered the stakeholders in all sustainability efforts.



Listening to the Voice of Stakeholders: Collaborating with International Union for Conservation of Nature (IUCN) on ecological conservation.

In November 2018, IUCN, based on the planning and EIA (Environmental Impact Assessment) results of the Yanqing Competition Zone, proposed the basic ideas and main framework for ecosystem and biodiversity management for the Yanqing Zone, and described issues that might arise. At the suggestion of the IUCN representative office in China, Beijing 2022, according to the impact on the environment and in the priority order of prevention, management, remedy and compensation, implemented proper engineering measures for ecological conservation in four categories: avoidance (prevention), mitigation (management), restoration (remedy) and compensation, and then prepared the responsibility matrix for environmental protection measures in the Yanqing Zone and the Zhangjiakou Zone. These measures were broken down into 54 and 44 specific tasks, and the lead units and timelines for each of them are specified to clarify the respective requirements and responsibilities. The impact of venue constructions and operations on the surrounding environment is minimised to achieve nearly-zero loss of the surrounding natural environment and biodiversity.

According to the Matrix of Responsibility for Environmental Protection Measures in the Core Area of Yanqing of the Beijing 2022 Olympic and Paralympic Winter Games Master Plan, a series of ecological protection measures has been developed and implemented, following the mitigation hierarchy of avoidance, minimization, restoration and offset. We appreciate the efforts and measures of Beijing 2022 to mitigate the impact of the constructions and operations of the venues on the biodiversity and ecosystem functions, and effectively implement the biodiversity management strategies. We also look forward to the continuing monitoring and evaluation of the possible impacts of those measures, to showcase the outcomes that are hopefully nature positive.

—Zhang Yan, Country Coordinator IUCN China Country Office

Beijing 2022 puts people's rights, interests and development in the first place and promotes social progress and increases employment opportunities through the Games preparations. It provides sound work rights protection and a safe and healthy work environment for its workforce and other frontline workers and supports them in improving their skills. In terms of the resettlement of residents, Beijing 2022 and the local governments fully respect the preferences and choices of people concerned and protect the legal rights and interests of farmers whose land is requisitioned, so that they can benefit from the development of the local winter sports industry. Beijing 2022 also takes actions to promote sustainable consumption and lifestyles in an effort to advance overall social progress.

—Han Bin, Executive Secretary General of the Global Compact Network China

02 Positive Environmental Impact

Beijing 2022 and the host city governments work together to protect the natural resources and environment in and around the competition zones of the Beijing 2022 Games. We also actively respond to climate change and strive to stage a carbon-neutral Games; implement sustainable sourcing to promote the development of a green, low-carbon and circular economy; and strengthen joint prevention and control of regional environmental pollution, effectively improving the environment of the Beijing-Zhangjiakou region, and contributing to a beautiful China through Games preparations.





Commitment

In the entire process of venue planning, construction, operations and the Post-Games use, we will give priority to ecological protection and place it in a more prominent position. In accordance with the currently relevant laws and regulations, we will carry out environmental impact assessments during the planning and design phases. New and temporary venues will be built based on strict environmental impact assessments, and advanced energy-saving and eco-friendly technologies will be widely used to conserve and recycle resources and energy, and minimise negative environmental impacts.

We will carry out comprehensive, in-depth and detailed environmental impact assessments for each mountain venue, and put forward and implement measures for ecological protection, environmental pollution prevention and ecological compensation, so as to minimise the negative impact on the environment.

2.1

Prioritising Ecological Conservation in Venue Construction and Use

Beijing 2022 prioritises ecological conservation, saving resources and being environmentally friendly, and makes the best use of existing Beijing 2008 Games venues and other existing venues and facilities. All new venues are designed, constructed and operated according to the green building standards. In the Yanqing Zone and the Zhangjiakou Zone, we have launched ecological protection and restoration projects to protect and restore water bodies, atmosphere and soil. In the Yanqing Zone, we have taken targeted measures to protect wildlife and plants so as to reduce possible impacts on the ecological environment around the competition zones (2.1.3 and 2.1.4 are mainly related to the Yanqing Zone, while in the Zhangjiakou Zone it does not involve wildlife under state/regional protection).

Environmental Impact Assessment (EIA) completed for each venue

EIA reports have been prepared for each venue construction project of the Games before the commencement of venue construction at the end of 2018. The EIA approval from corresponding government departments has been obtained in accordance with applicable laws and regulations. See the official website of Beijing Municipal Ecology and Environment Bureau for the approval documents (only Chinese version).



We will make full use of the Olympic Green, the National Stadium, the National Aquatics Centre and other Beijing 2008 venues, and as a general strategy, use existing venues and infrastructure as much as possible.

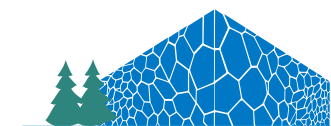


Commitment

2.1.1

Making Full Use of Existing Venues and Facilities

Beijing 2022 has actively explored the "repeated, comprehensive and sustainable use" of venues to maximise the use of existing venues, adapted to local conditions, and made full use of the legacy of the Beijing 2008 Games. Beijing 2022 also applied the latest scientific and technological achievements when renovating venues to meet the needs of ice competitions and opening and closing ceremonies, etc. Through these measures, Beijing 2022 has managed to reduce resources consumption, lower the carbon emissions and environmental impacts during the preparations for the Games, and laid a solid foundation for the post-Games use for multiple sports and business forms.



In the Beijing Zone, there are six venues that are the legacies of the Beijing 2008 Games, and these venues are remodelled to serve both the Summer and Winter Games.



In the Zhangjiakou Zone, the existing ski tracks of the Genting Snow Park are re-purposed for the Games.



The Beijing 2022 Headquarters sits in a transformed office complex from the old industrial facilities in the Shougang Park in the west of Beijing.



The National Aquatics Centre: China's first Winter Olympic venue with a curling rink above a swimming pool

The National Aquatics Centre, also known as the "Water Cube", was the venue for swimming, diving, synchronised swimming and Para swimming in the 2008 Games, and will host the curling and wheelchair curling events in the 2022 Games. As a model venue for both the Summer and Winter Games, the Water Cube for aquatic events can be converted into the Ice Cube with a curling rink, making it China's first Olympic venue with a curling rink above a swimming pool. For the sustainability-oriented transformation, the National Aquatics Centre was awarded the 2019 IOC trophy "Sports and Sustainable Architecture".



Wukesong Sports Centre: Efficient transformation of a basketball court into an ice hockey rink

With a construction area of 63,000 square metres and a capacity of 18,000 spectators, the Wukesong Sports Centre was the competition venue for basketball events in the Beijing 2008 Games and will host women's ice hockey events in 2022. Through renovations of the original standard ice surface, locker rooms, spectator stands, lighting facilities, audio systems, and display screens, the venue is able to switch between ice hockey and basketball event modes within six hours and meet the competition needs of the Games.



Genting Snow Park: Transformation of a snow venue

The Genting Snow Park in the Zhangjiakou Zone officially opened in 2012, with a ski area of 885,000 square metres and 41 tracks built in the first-phase project. After Beijing and Zhangjiakou won the bid for hosting the 2022 Olympic Winter Games, the Genting Snow Park was designated as the venue for freestyle skiing and snowboard events, including moguls, aerials, halfpipe, slopestyle, cross and parallel giant slalom. Renovation has been made on the basis of the existing tracks, and six courses are built for halfpipe, parallel giant slalom and slopestyle, etc. The venue successfully hosted a number of FIS World Cup events in 2018, 2019 and 2020.





Commitment All new venues will adopt high standards of green design and construction methods, demonstrating energy saving, low-carbon energy and rigorous waste and wastewater treatment. We will apply the green building standards to all venue constructions, widely adopt clean energy, energy-saving and eco-friendly technologies and products, and create a strong environmental legacy for the Games.

2.1.2

Construction of Green Venues

Beijing 2022 formulated and updated the Guide on Venue and Infrastructure Sustainability (hereinafter referred to as the Venue Sustainability Guide) for all stages of the planning and design, construction, operation and post-Games use in April 2018, August 2018, and January 2020, putting forward specific requirements on wildlife protection, conservation of water and soil, solid waste management, sustainable sourcing and smart construction sites in the aspects of environmental protection, resource saving, and sustainable social development. Throughout the entire life cycle of the venues, from planning, design, constructions, Games-time operations to post-Games use, the green building standards have been strictly observed. The latest low carbon technologies, clean and renewable energy, energy-saving and water-saving equipment, high-efficiency external insulation, high-performance doors and windows, and select advanced, ultra-low-energy construction technologies have been employed to save resources, reduce pollution, protect the environment, and make the Games venues void of health hazards, efficient and in harmony with nature. (For specific measures and cases, see 2.2.3 "Promoting the construction of low-carbon venues".)

During the periods of May-November 2018, August-December 2019 and August-November 2020, in collaboration with the Beijing Office of the Engineering Construction Headquarters for the Beijing 2022 Games and the Hebei Preparation Office, Beijing 2022 conducted three reviews for the new and renovated venues in accordance with the requirements in the Venue Sustainability Guide to assess the implementation of the sustainability requirements on and measures for venues. The review results show that the sustainability requirements in the

Venue Sustainability Guide have been comprehensively implemented, sustainability work results of venue design and construction have been achieved.

The design and construction of new ice sports venues and Olympic villages follow the 3-star standards Green Building Evaluation Standards, and those of the new snow sports venues follow the 3-star standards of the Evaluation Standard for Green Snow Sports Venues. The renovations of existing venues follow the 2-star standards of the Evaluation Standards for Green Renovation of Existing Buildings (GB/T51141-2015). The above standards focus on energy-saving, water-saving and materials-saving measures adopted in venue design and constructions. For example, the Green Building Evaluation Standards focus on safety, durability, human health and comfort, convenience, resource saving, and environmental compatibility.

By 30 June 2021, all of the renovated venues had been certified as 2-star green buildings or above, all of the newly-built venues had been certified as 3-star green buildings and all snow sports venues had obtained the 3-star certificates. (See Table 2: Green Building Evaluation Results for the Beijing 2022 Games.)



Site of venue sustainability review

Table 2 Green Building Evaluation Results

Zone	No.	Venue	Time of Certification	Grade of Green Building	Assessment Criteria
Beijing	1	National Speed Skating Oval ("Ice Ribbon")	23 April 2021	Three-star	Green Building Evaluation Standards DB11/T 825-2015
	2	Beijing Olympic/Paralympic Village	Passed the review on 31 May 2021, and the certificate has yet to be issued.	Three-star	
	3	Main Media Centre	27 September 2020	Three-star	
	4	Wukesong Ice Sports Centre	26 November 2020	Three-star	
	5	Big Air Shougang	26 November 2020	Three-star	Evaluation Standard for Green Snow Sports Venues DB11/T 1606-2018
	6	National Aquatics Centre ("Water Cube")	23 August 2019	Two-star	Evaluation Standards for Green Renovation of Existing Buildings GB/T 51141-2015
	7	National Indoor Stadium	20 February 2020	Two-star	
	8	Capital Indoor Stadium cluster (including three venues: Capital Indoor Stadium, CTS Figure Skating Training Hall, and CTS Short Track Speed Skating Training Hall)	31 May 2021	Two-star	
Yanqing	9	Yanqing Olympic/Paralympic Village	23 April 2021	Three-star	Green Building Evaluation Standards DB11/T 825-2015
	10	National Alpine Skiing Centre	22 March 2021	Three-star	Evaluation Standard for Green Snow Sports Venues DB11/T 1606-2018
	11	National Sliding Centre	22 March 2021	Three-star	
Zhangjiakou	12	Zhangjiakou Olympic/Paralympic Village	4 August 2020	Three-star	Green Building Evaluation Standards DB13(J)/T 113-2015
	13	National Cross-Country Skiing Centre	30 December 2020	Three-star	Evaluation Standard for Green Snow Sports Venues DB13 (J)/T 288-2018
	14	National Ski Jumping Centre	30 December 2020	Three-star	
	15	National Biathlon Centre	30 December 2020	Three-star	
	16	Genting Snow Park	1 February 2021	Three-star	

Multi-purpose use of the Capital Indoor Stadium

The Capital Indoor Stadium was first built in 1968, and for more than 50 years it has hosted numerous international and domestic sports competitions and training activities, as well as major cultural events and artistic performances. It was the volleyball venue for the Beijing 2008 Games and will host competitions of short track speed skating and figure skating in the Beijing 2022 Games. Through innovations, it allows accurate regulation of the ice temperature, making it possible to hold two events on the same ice surface in the same venue.



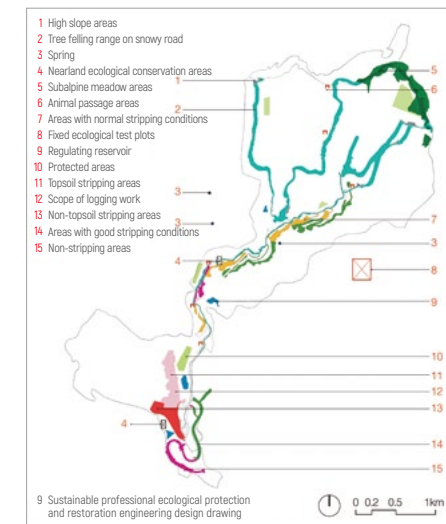
Evaluation Standards for Green Snow Sports Venues

In response to the lack of domestic and international green building standards for snow sports venues, China organised relevant units to formulate the Evaluation Standard for Green Snow Sports Venues to promote the construction of green snow sports venues for the Beijing 2022 Games. It was officially released and put into effect on 1 January 2019 as a local standard jointly recognised and followed by Beijing, Tianjin and Hebei Province. According to the Standard, the green snow sports venues are rated as the basic grade, the one-star, two-star and three-star grades. The Standard integrates environmental aspects, resource conservation, health and culture, management and innovation into the design and construction of snow sports venues, and provides a comprehensive reference for the formulation and improvement of domestic and international standards for green snow sports venues. In November 2021, the Standard was awarded the "Standard Science and Technology Innovation Award" by China Engineering Construction Standardization Association (approved by the Ministry of Science and Technology of China). All snow sports venues of the Beijing 2022 Games meet the requirements of the three-star Standard.



Yanqing Zone integrates sustainability requirements into engineering design for the first time

The Yanqing Zone has the most complex challenges in terms of competition venue and ecological development of the Beijing 2022 Games. The design team thoroughly studied the Evaluation Standard for Green Snow Sports Venues, made sustainability requirements for the first time as a special part of the construction engineering design, put forward corresponding design requirements harmonised with construction projects, specified project construction contents and formulated standards to be achieved in the competition zones. The team also defined platforms for environmental protection, energy and resource utilisation, low carbon emissions, and sustainable project supervision, as well as specific contents of sustainable design for legacy protection and post-Games utilisation, and based on which venue owners' sustainable special project investment has been obtained.

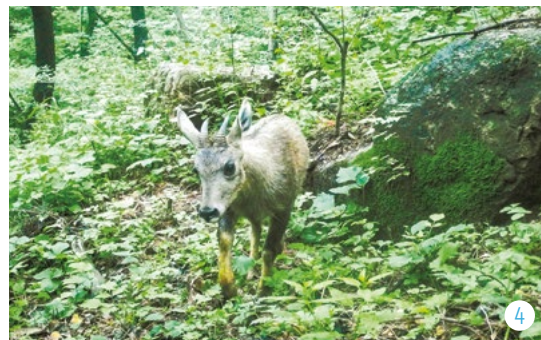
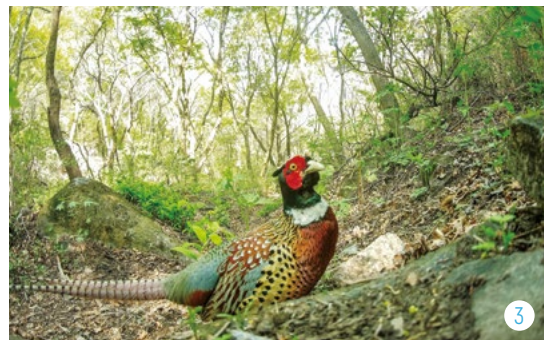


2.1.3

Wildlife Conservation in the Yanqing Competition Zones

The core area of the Yanqing Zone is located at the Haituo Mountain in the south of the Jundushan Mountain (a part of the Yanshan Mountains), Yanqing District, Beijing, and the valley at the southern foot of the Xiaohaituo Mountain, with the Yanqing Basin to the south. There are protected wild animals around this competition zone. In the process of venue planning, design and constructions, the venue developer, in accordance with the requirements of Beijing 2022 and the engineering designers, has taken a number of effective measures to minimise the impacts on wild animals and their habitats.

- Night-time construction work was restricted, and directional light shields were used for road lighting to mitigate the impact of light pollution on animals.
- The site topography of the competition zone was taken into account to guarantee the living spaces of small mammals and reptiles. Additionally, wildlife corridors were set up based on bridges or culverts in competition zones fully considering the existing micro-topographical conditions.
- More than 600 artificial nests have been set up around the Yanqing Zone to compensate for the impact of venue constructions on birds.
- The DNA-based individual measurement method is used to monitor the distribution range, movement track, population and other information of animals around the competition zone, to ensure targeted research and conservation. More than 200 infrared trigger cameras are set up to monitor wild animals, and images of moving wild animals such as the gorals (*Naemorhedus griseus*), roe deers, wild boars and Koklass pheasants are continuously captured.



1. Artificial nest 2. Nestling in artificial nest 3. Ring-necked pheasant (male) 4. Gorals (*Naemorhedus griseus*) [2-4 shooting for infrared camera]

We will uphold the “compensation before the use, and compensation before the construction” principle, and implement ecological restoration projects to the outdoor venues and the surrounding areas. We will formulate and implement a compulsory Olympic ecological compensation scheme, fully realise the concept of Leave No Trace, and carry out ecological restoration projects in the vicinity of the venues. Furthermore, the guideline of “compensation before occupation and compensation before construction” is carried out. The distance between the protected areas and the venues will ensure that the removal of trees will be minimal. Where such removals cannot be avoided transplantations and other methods of site protection will be applied.



2.1.4

Plant Conservation in the Yanqing Competition Zones

During the venue design phase for the Yanqing Zone, the land use scope and construction red line were minimised, the construction scope was controlled, and the road and other passage ways were reasonably arranged. During venue constructions, the water and

electricity line project was scientifically designed and scheduled, and the number and scale of permanent buildings, overlays and sites were reasonably determined to minimise the competition area environmental impact.

Baseline Survey

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). The survey result shows that the Yanqing Zone contains 447 plant species of 284 genera in 86 families. There is one species of *Batrachium pekinense*, which is under national first-class protection (This species became a wild plant under national second-class protection in 2021).

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.

For example, in order to protect the plants in the competition zones, we proposed that “the construction projects in the planned areas are not to involve important habitats, old trees and precious wood species. Avoidance measures will have to be taken to the greatest extent for protected species in the areas permanently occupied by construction projects beyond the actual venue sites. If in-situ conservation is impossible, ex-situ measures have to be taken”, namely, the in-situ, near-situ and ex-situ conservation measures have been taken for plants in the competition zones.

In-situ conservation. 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.



Batrachium pekinense in the Yanqing Zone

Near-situ conservation. We have established near-situ conservation areas in the ecological regions which have similar habitats at the foot of mountains with minimal human disturbance, and replanted shrubs and grasses, rattans and saplings. So far, we have transplanted a total of 11,027 plants from the competition zones (See Table 3 Transplanting for Near-Situ Conservation for details).

Table 3 Transplanting for Near-Situ Conservation

No.	Species	Quantity	Size
1	<i>Juglans mandshurica</i> Maxim.	231	DBH 2-8cm
2	<i>Ulmus lamellosa</i> Wang et S. L. Chang ex L. K. Fu	386	DBH 2-6cm
3	<i>Dioscorea nipponica</i> Makino	6,309	Vines (not expressed in DBH)
4	<i>Schisandra chinensis</i> Baill.	2,168	Vines (not expressed in DBH)
5	<i>Eleutherococcus senticosus</i> Maxim.	1,872	DBH 1-4cm
6	<i>Platanthera chlorantha</i> Cust. ex Rchb.	51	Herbs (not expressed in DBH)
7	<i>Codonopsis pilosula</i> Nannf.	3	Root diameter: 2-3cm
8	<i>Sorbus alnifolia</i> K. Koch	2	DBH 10-15cm
9	<i>Sorbus pohuashanensis</i> Hedl.	5	DBH 5-6cm, planted on both sides of the road.
Total		11,027	/

Ex-situ conservation. We have built one 20-hectare ex-situ conservation base in Shangbanquan Village, Zhangshanying Town, Yanqing District. Since May 2017, a total of 24,272 trees of 28 species have been transplanted, including *Juglans mandshurica*, *Ulmus pumila*, Manchurian Lilac, *Fraxinus macrophylla*, *Acer truncatum* Bunge, *Tilia mongolica* Maxim and Mongolian Oak. By 30 June 2021, the survival rate of the transplanted trees has reached 90.7% thanks to the scientific methods and meticulous care.



The ex-situ conservation base of the Yanqing Zone

Protecting every tree and plant in building an eco-friendly Olympic and Paralympic Village

The Yanqing Olympic and Paralympic Village is located in the Yanqing Zone. In order to protect the ecological environment to the greatest extent, the construction unit worked with a specialised landscape company to survey, the quantity and the distribution of trees in the construction area, and marked the trees in the design drawings. In the process of constructions, fine meshes were used by the developers to preserve the 127 native trees as a landscape, where watering and fertilising were adapted to the current season and the characteristics of tree species, and tree diseases and pests were treated. Trees that could not be kept in place were transplanted to a near site or to an appropriate off-site location for protection.



2.1.5

Ecological Restoration in the Competition Zones

The Yanqing and Zhangjiakou zones have implemented ecological restorations of exposed side slopes and hills caused by temporary land occupation and road constructions. They have adapted to local conditions, including their different elevations, slope degrees and directions, and soil base conditions, and taken actions to carry out ecological restoration for tracks, slopes along roads, areas around reservoirs, as well as temporarily occupied areas. The Yanqing Zone completed the ecological restoration of 2.14 million square metres, while the Zhangjiakou Zone 454,000 square metres.

In terms of vegetation restoration, the Zhangjiakou Zone has followed the notion of "gradual process, flexible use,

and integration". According to the characteristics of plant growth, the planting has gradually been restored, its scope of woodlands extended, and the vegetation restoration properly applied. This process has flexibly utilised the original permeable ground to carry out these activities. Finally, the temporary site has been reintegrated into the large landscape system through ecological restoration and compensation. For example, the Miyuan Genting Company installed green landscaping on both sides of the construction access road, and sprayed guest soil for slope protection and completed grass planting on the slopes of the mountains.

To build an ecological green space system in the Chongli Winter Olympic core area

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. The first phase greening of the ecological corridor has been completed, with trees including Chinese Pine, *Pinus sylvestris* and spruce, as well as shrubs and ground cover plants planted. The second phase greening is being implemented, including a farmland consolidation project and a bicycle lane project for the non-motorised transport system. The original water system has been used to design three water surface landscapes in Mazhangzi Village, Erdaoying Village and the Taizicheng site, with newly constructed wooden plank roads and viewing decks. By 30 June 2021, 72,000 square metres of turf, 3,256,000 shrubs and 229,000 square metres of grass seeds have been planted in the core and surrounding areas.



While carrying out ecological restoration, the Zhangjiakou Zone has achieved the greening of all forested hills. In the zone, the original topography and vegetation are respected, the current vegetation is retained and used as much as possible, and the local vegetation is used to strengthen the continuity and integrity of woodlands, so that the new vegetation and the original woodland are integrated into the original natural state.

Regarding the ecological restoration, the Yanqing Zone has adopted four measures, namely subalpine meadow stripping, topsoil stripping, ecological restoration of slopes, and ski course vegetation restoration and maintenance. By combining soil and water conservation with vegetation restoration, the restoration into the natural state has been successfully achieved. In the process, the construction units in charge of meadow storage devices and the restoration of high and steep slopes have also applied for technical patents.

Restoration of subalpine meadows in the Yanqing Zone

Some parts of the subalpine meadows were affected while building the temporary roads of the National Alpine Skiing Centre. To better protect the affected meadows, the construction personnel first scooped up thick turf blocks and stored them at a designated location before the construction commenced. The turf blocks were removed to the working plane after the construction was completed. A total of 3,500 square metres of subalpine meadows was restored by means of stripping, re-movement and maintenance.



Restored Subalpine meadow

Topsoil stripping protection of the Yanqing Zone

In the Yanqing Zone, the topsoil³ is rich in various plant seed resources. To better collect and protect the topsoil of the mountain side areas, the construction staff, before the commencement of venue constructions, stripped and stored the topsoil, and reused all the stripped topsoil as part of the ecological restoration project in accordance with the principles of demand, early utilisation and reduction of guest soil also reducing the risk of any alien biological invasion. The stripped topsoil of the Yanqing Zone totalled 81,848 cubic metres, all of which was used for landscape reconstruction and ecological restoration in the zone, protecting the regional ecological resources.



The stages of the topsoil stripping and reuse in the Yanqing Zone

³ The topsoil layer refers to the upper layer of soil profile, features dense root systems and a good structure, contains more humus and rich germplasm resources. High-quality topsoil is valuable and difficult to regenerate.



In all stages of the venue design, constructions, operations and post-Games use, Beijing 2022 will give full consideration to water conservation and water resource recycling requirements.

2.1.6

Advancing Water Resources Management

Beijing 2022 has strictly implemented the water resources management system, and strives to meet the goal of sustainable water resources utilisation through secure water supply, sewage treatment, recycling of non-conventional water resources and flood control. As a result, the overall water conservation level of the ski industry has improved.

Water Resources Assessment

In order to properly plan the total amount of water resources required in the snow sports competition zones, the municipal water management authorities of Beijing and Zhangjiakou initiated the preparations for the Yanqing Zone Water Resources Report and the Zhangjiakou Zone Water Resources Report respectively. A comprehensive survey was conducted on the status of water supply, water use and drainage within each competition zone, and existing issues with the development and utilisation of water resources were identified. Then considering the carrying capacity of water resources, we put forward measures to meet the water demand for snowmaking and the requirements for wastewater treatment and recycling.

Surface water is used for all snow and ice making in the Yanqing and Zhangjiakou zones. The recycling of rainwater and snowmelt water is fully considered, and rainwater and snowmelt water collection and utilisation systems are built. According to the above-mentioned reports, the water demand of the Beijing 2022 Games will not affect the domestic and non-domestic water consumption in and around the Yanqing and Zhangjiakou zones. The estimates are as follows:

The total water demand of the Yanqing Zone during Games-time (November 2021 to March 2022) is about 890,000 cubic metres, accounting for 4‰ of Yanqing

District's water resources. The water needed for snowmaking is supplied by surface water; the water for ice-making for the sliding events and general venue use is supplied by tap water. After the Games, the total annual water demand of the Yanqing Zone will not exceed 1.24 million cubic metres, accounting for 6‰ of the water resources in Yanqing. The report concluded that the water consumption of the Yanqing Zone during and after the Games will not affect regional water use of Yanqing.

The water demand of the Zhangjiakou Zone during Games-time (November 2021 to March 2022) is 1.9 million cubic metres, accounting for 2.4% of Chongli District's water resources. Specifically, the water consumption for snow-making is 730,000 cubic metres (530,000 cubic metres for Genting Snow Park and 200,000 cubic metres for the Guyangshu venue cluster), and the general domestic water demand is 1.17 million cubic metres. After the Games, the annual water demand will be 2.054 million cubic metres, accounting for 2.6% of water resources in Chongli. It was concluded that the water consumption of the Zhangjiakou Zone during and after the Games will not affect regional water use of Chongli.

The actual water consumption for snow making during the Games will be published in the post-Games report.

Smart snow making for higher water-use efficiency

All snow sport venues have adopted a smart snow-making system, with all equipment incorporated into a platform for unified management. The snow-making equipment can be monitored in real time via computers, tablet PCs and mobile phone. Snow-making equipment has the advantages of fast snow production, high snow-making efficiency and low water consumption. Compared with traditional methods, smart snow making can save up to 20% of water by realising optimal allocation and accurate delivery of water resources.



Snow-making equipment in the National Alpine Skiing Centre

Conservation of the Water Environment

The Yanqing and Zhangjiakou zones have integrated the conservation of the water environment into the venue planning, design, constructions and operations, and comprehensively improved the control of water pollution, protecting the water quality in their surrounding areas (see Table 4 and Table 5).

For example, the Yanqing and Zhangjiakou zones have built both decentralized and centralized sewage treatment facilities, achieving full collection and

treatment of domestic sewage. The quality of effluent water has met Standard A for newly built facilities of the Discharge Standard of Water Pollutants for Urban Wastewater Treatment Plants (DB11/890-2012) and the requirements of Class A standard in Table 1 of Pollutant Discharge Standard for Urban Sewage Treatment Plants (GB18918-2002) respectively. In line with the Urban Sewage and Miscellaneous Water Standard (GB/T18920-2002), all the effluent water can be used for toilet flushing, green space and road watering, and snow-making.

Table 4 Environmental Quality of Surface Water in Yanqing (unit: mg/L)

Surface water body	Foyukou Reservoir*1								
	November 2017	June 2018	November 2018	June 2019	November 2019	June 2020	November 2020	June 2021	Class II Standard value
pH value	8.73	7.07	8.48	7.9	8.31	8.31	8.52	8.09	6-9
Chemical oxygen demand	5	<4	7	4	4	13	14	15	≤15
Five-day biochemical oxygen demand	ND*2	1.2	1.5	0.7	1	1.6	0.8	<0.5	≤3
Ammonia nitrogen	0.068	0.177	0.11	<0.025	0.06	0.052	0.061	0.167	≤0.5
Total phosphorus	<0.01	0.01	<0.01	<0.01	0.03	0.03	0.02	<0.01	≤0.1

Note: *1. Samples were collected at the inlet of the Foyukou Reservoir; *2.ND means not detected.

Table 5 Environmental Quality of Surface Water in Zhangjiakou (unit: mg/L)

Surface water body	Taizicheng River								Class III Standard value
	March 2017		October 2019		December 2019		December 2020		
	Upper reaches	Lower reaches	Upper reaches	Lower reaches	Upper reaches	Lower reaches	Upper reaches	Lower reaches	
pH value	8.01	8.15	7.07	6.87	7.85	7.64	7.2	7.65	6-9
Chemical oxygen demand	17	15	10	19	11	19	10	18	≤20
Five-day biochemical oxygen demand	3.7	3.3	2.2	3.9	2.4	3.8	2	3.3	≤4
Ammonia nitrogen	0.101	0.082	0.112	0.974	0.192	0.874	0.316	0.924	≤1.0
Total phosphorus	0.08	0.07	0.01	0.18	<0.01	0.19	0.02	0.12	≤0.2

Building a Sponge Competition Zone

Zhangjiakou is building a "sponge competition zone" by means of "water infiltration, retention, storage, cleaning, use and drainage". Measures such as sidewalks using materials with high water permeability, setting up grass ditches beside skiing tracks and building multiple reservoirs are taken to collect and utilise rainwater and snowmelt. All wastewater in the competition zone is collected, treated and reused, ensuring the recycling of all water resources. In the Guyangshu venue cluster (the venues for cross-country skiing, ski jumping and biathlon), a 250,000 cubic metres capacity of rainwater collection pool is built. After treated by a honeycomb-shaped silica sand rainwater self-purification system, the water can be used for snow making in winter, and irrigation, landscaping and replenishing water into rivers in summer, cleaning roads, and flushing toilets.



The reservoir of the Guyangshu venue cluster in the Zhangjiakou Zone

We will establish field ecological observation stations, strengthen the ecosystem monitoring, and protect natural habitats and biodiversity. We will establish a biodiversity monitoring, assessment and early-warning system, maintain ecological balance, conserve natural habitats and biodiversity, and realise sustainable development of the region and a sustainable cycle of the environment.



2.1.7

Environment Monitoring

In constructing venues, special teams were set up in the Yanqing and Zhangjiakou zones to regularly monitor the environmental factors, for example, water, air, noise and ecology, etc., while ambient air quality monitoring stations were built to monitor the atmospheric quality in real time (see Table 6-8) in a bid to assess the effectiveness of sustainable measures.

- By preparing comprehensive reports on environmental monitoring as well as soil and water monitoring, the venue owners have monitored the soil erosion situation dynamically, evaluated the effectiveness of soil erosion measures (See Table 4&5), and implemented improvement measures based on the issues identified in the report.
- At the end of 2018, the ecological monitoring station for the Yanqing Zone was up and running, monitoring 52 indicators in real time, including micro-meteorology, environment,

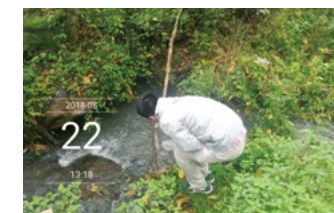
hydrology, soil and biology in the surrounding forests. The station has prepared reports quarterly, semi-annually and annually, on a regular basis. According to the monitoring reports, by the end of June 2021, the overall particulate matter concentration, water environment pH value and total alkalinity around the Yanqing Zone had improved to a notable extent or significantly, while the soil environment and dominant species of trees, shrubs and herbs remained stable.

- In November 2019, the Guyangshu Ambient Air Quality Automatic

Monitoring Station in the Zhangjiakou Zone was completed and put into integrated operations. In December 2020, the Ambient Air Quality Automatic Monitoring Station in Genting Snow Park was transformed and put into integrated operations, realising the need for a real-time monitoring of the ambient air quality in the Zhangjiakou Zone. In October 2021, the Ambient Air Quality Automatic Monitoring Station in Yanqing Zone was completed and put into integrated operation.



Sampling at an atmospheric monitoring



Sampling at a surface water monitoring point



Venue construction PM_{2.5} monitoring instruments on site

Table 6 Annual Mean Value of Main Factors of Yanqing Competition Zone Atmospheric Automatic Monitoring Station from 2016 to 2020 (unit: $\mu\text{g}/\text{m}^3$)

Monitored projects	Standard value	2016	2017	2018	2019	2020
PM ₁₀	70	54	39	49	45	41
PM _{2.5}	35	32	22	23	24	20
SO ₂	60	9	9	7	8	4
NO ₂	40	11	11	12	13	10

Note: The implementation standard is the annual mean value of Level II, Ambient Air Quality Standard (GB3095-2012)

Table 7 Monitoring Results of Daily Mean Value of Air Pollutant Concentration in the Planning Area of the Zhangjiakou Zone (unit: $\mu\text{g}/\text{m}^3$)

Monitored area	Year	Monitoring projects			
		PM ₁₀	PM _{2.5}	SO ₂	NO ₂
Construction area of the Olympic Village	2019	48-63	17-30	5-19	13-29
	2020	72-101	38-58	4-7	17-51
Guyangshu construction area	2019	50-65	19-32	6-19	12-24
	2020	80-107	44-61	4-7	20-53
Genting Snow Park A	2019	20-46	13-17	4-15	11-22
	2020	46-80	17-27	4-11	15-52
Genting Snow Park B	2019	22-73	10-15	4-17	12-23
	2020	53-86	20-30	4-11	17-53
Standard value		150	75	150	80

Note: The implementation standard is the daily mean value of Level II, Ambient Air Quality Standard (GB3095-2012)

Table 8 Noise Results of Construction Site Boundary by Venue in the Zhangjiakou Zone (unit: dB (A))

Monitored points	Year	Day-time	Night-time
Genting Hotel	2019	52.1-66	39-50
	2020	56-60	48-55
The top of snow track	2019	59.3-66.4	37-54.7
	2020	54-66	41-52
Genting Snow Park A	2019	43.4-67.2	38-52
	2020	54-63	46-52
Genting Snow Park B	2019	41.9-66.7	39-50.7
	2020	57-63	42-49
East boundary of the Olympic Village	2019	55.5-67.6	40-51.7
	2020	59-64	32-49
West boundary of the Olympic Village	2019	53-66.9	40-52
	2020	59-64	32-50
North boundary of the Olympic Village	2019	56.3-67	40-51.8
	2020	60-67	34-48
East boundary of the construction area of the Guyangshu Venue Cluster	2019	52.4-66	40-52.4
	2020	59-67	33-44
South boundary of the construction area of the Guyangshu Venue Cluster	2019	52.1-65.9	37-54.8
	2020	57-63	31-46
West boundary of the construction area of the Guyangshu Venue Cluster	2019	51.2-63.9	38-53.6
	2020	57-63	31-48
North boundary of the construction area of the Guyangshu Venue Cluster	2019	54.9-66.8	40-53.1
	2020	51-64	31-48
Standard value		70	55

Note: The implementation standard is the Emission Standard of Environment Noise for Boundary of Construction Site (GB12523-2011)



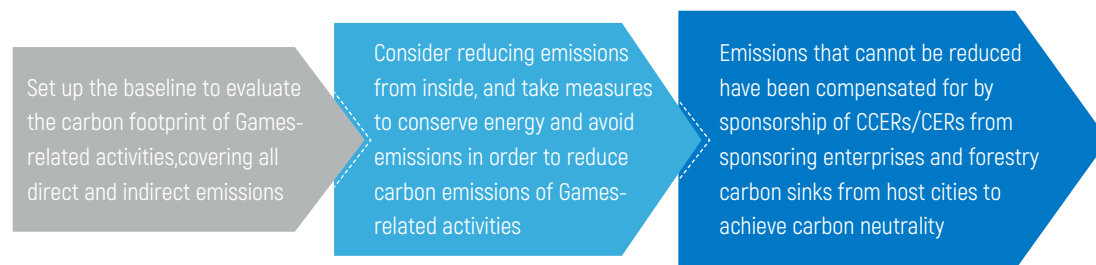
Commitment The carbon emissions generated by the Beijing 2022 Games will be fully neutralised, the market-oriented carbon emission reduction mechanisms such as carbon emission trading will be implemented, and a carbon emissions assessment and management mechanism will be established for the Beijing 2022 Games to reduce carbon emissions from the source. We will set up the Beijing 2022 carbon emission compensation mechanism based on forestry carbon sink, and explore the establishment of a carbon neutral mechanism for the Games participants. We will also increase the number of forests carbon sinks.

2.2 Promoting Low-Carbon Management

Climate change is a serious challenge facing mankind in the 21st century, and is a vital aspect for the survival and development of mankind. To combat the impacts of climate change, in May, 2019, Beijing 2022 signed up to the UN Sports for Climate Action Framework. We have established a sound low-carbon management mechanism, integrated the low-carbon concept into our Games preparations, and taken measures such as carbon emissions reduction and carbon offsets to stage a carbon-neutral Games. The Chinese Government is taking concrete actions to demonstrate China's active response to climate change, and fully promote China's role as a key player in, contributor to and leader of global ecological conservation.⁴

2.2.1 Low-Carbon Management Objectives

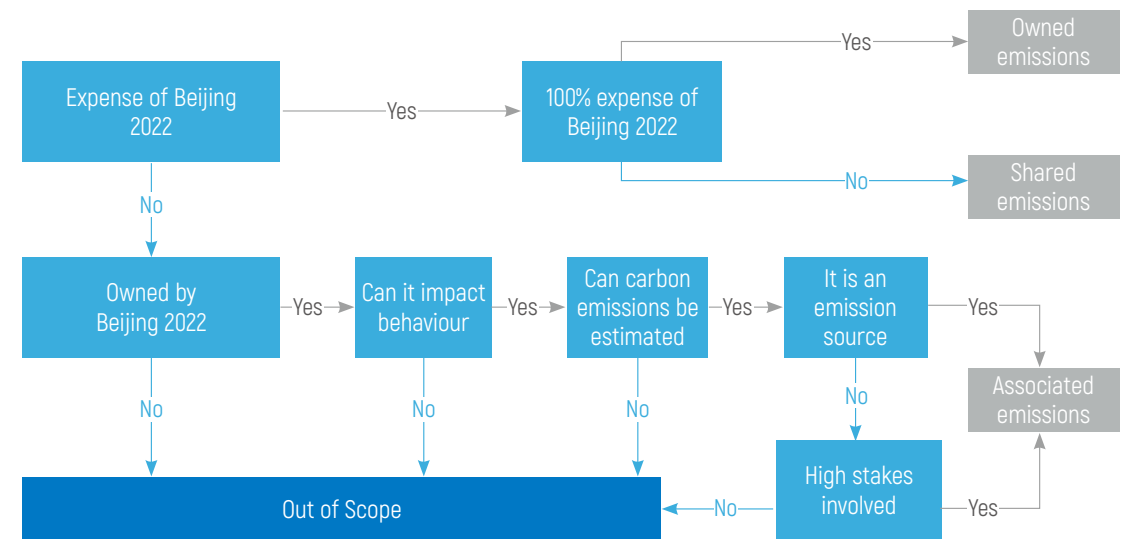
The overarching goal of carbon management for the Beijing 2022 Games is to offset all Games-related carbon emissions



⁴ Additional information can be found in the Low Carbon Management Pre-Games Report of the Beijing 2022 Games (published on 20.01.2022).

Calculating the Baseline of GHG Emissions

We have developed our own GHG accounting methodology for the Games based on the IOC's carbon footprint methodology, and by referring to the GHG accounting methodologies used by previous Organising Committees and methodologies in Beijing and China.



Carbon Accounting Boundaries of the Beijing 2022 Games

In 2018, the total baseline emissions covering the whole process of the Beijing 2022 Games was 1.637 million tons of carbon dioxide equivalent (t-CO₂e). In 2021, according to the event preparation dynamics of Beijing 2022 Games and the actual activity level data of venue construction, Beijing 2022 revised the greenhouse gas baseline emissions. The revised baseline emissions decreased by 331,000 tons of carbon dioxide equivalent to give a total of 1.306 million tons of carbon dioxide equivalent (see Table 9 The Carbon Emission Baseline of Beijing 2022 Games). The actual emissions will be calculated following the conclusion of the Games and provided in the Beijing 2022 post-Games sustainability report.

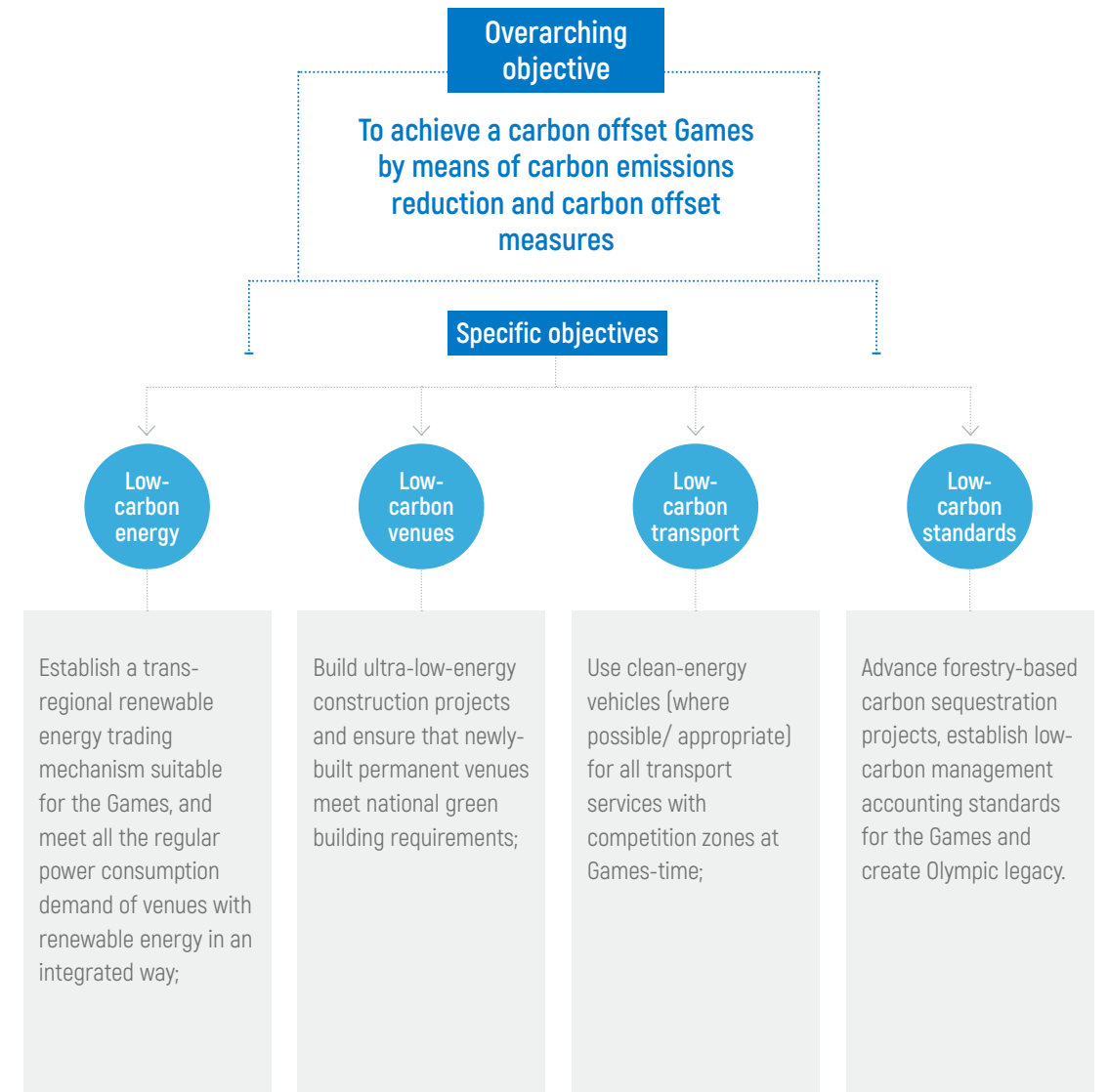
Table 9 The Beijing 2022 carbon emission baseline (2018) and revised baseline (2021)

Accounting Category	Activity Category	Emission Sources Category	GHG Emissions (1,000 tons of CO ₂ equivalent)	
			Accounting in 2018	Revised in 2021
Preparations and operations	1. Beijing 2022 preparations and operations	Energy ^{*1} , food and beverages (FNB ^{*2}), business travels, accommodation and catering on business trips, office supplies (paper, ink cartridge, computers, etc.), and uniforms	79	79
	2. Olympic Family (excluding athletes and media)	Transport, accommodation and catering for the Olympic Family at the expense of Beijing 2022	23	23
	3. Various main events services	Games time services (transportation, accommodation, and FNB ^{*2}) for various subjects (athletes and delegation officials, media, broadcasters, contractors, volunteers, medical personnel, security personnel, market partners)	74	74
	4. Beijing 2022 owned events	Including the Countdown Celebrations, Torch Relay, city activities, Opening and Closing Ceremonies	18	18
	5. Venue operations	Energy ^{*1} consumption of the venues and supporting facilities	93	73
	6. Refrigerants for ice sports venues	Escape of refrigerants	5	5
	7. Venue support facilities	Snow making machines, security facilities, LCD screen, and look of the Games	3	3
	8. Waste	Solid waste treatment and domestic sewage treatment	10	10
	9. Others	Including medals, licensed commodities, athletes' bibs, spectator supplies, tickets and certificates	68	68
Venue and transportation facilities constructions and services	10. Venue constructions and renovations	Energy ^{*1} consumption, and use of materials ^{*4}	350	395 ^{*5}
	11. Transport infrastructure and logistics	Energy ^{*1} , use of materials ^{*4} , and logistics (warehousing and transport)	102	258 ^{*5}
Spectators	12. Spectators	Transport ^{*3} , accommodation and FNB	812	300
Total			1637	1306

Notes: *1. Energy includes gasoline, diesel, natural gas, electricity, heating and tap water;
 *2. FNB includes food, beverages, food packaging and beverage packaging;
 *3. Transport means include flights, railways, coaches, private cars, public buses and subways;
 *4. Materials refer to cement, steel, sand, concrete, glass and other building materials.
 *5. Emissions increased due to venue location changes
 *6. Emissions increased primarily because of modifications to construction plan and initial calculation assumptions (length of roads times unit estimated emission). Revised baseline calculations on actual construction materials and energy consumption.

The Low-Carbon Management Programme

In order to achieve the objectives of low-carbon management of the Beijing 2022 Games and assume an innovative and exemplary role in responding to climate change, Beijing 2022 has jointly released [the Low-Carbon Management Programme for the Olympic and Paralympic Winter Games Beijing 2022 with the Beijing Municipal Government and Hebei Provincial People's Government](#), proposing 18 carbon emission reduction measures through four main focus areas and four carbon offset measures, and defining the low-carbon management supporting mechanism.



Phase-based Measurement of Carbon Emissions

According to the measurement, the total GHG emissions of the Beijing 2022 Games from 2016 to 2021 was 489,000 tons of carbon dioxide equivalent. Regarding emissions, the transport infrastructure accounted for 50.0%, venue constructions 41.3%, and Beijing 2022 preparations and operations 7.5%. Between 2016 and 2021, the annual emissions were 5,421, 7,670, 123,715, 207,540, 88,231 and 56,422 tons of carbon dioxide equivalent, respectively (see Table 10 Actual greenhouse gas emission from 2016 to 2021 for details). The GHG emissions reduced by low-carbon measures will be disclosed in the Low-carbon Management Pre-Games Report of the Beijing 2022 Games (published on 20.01.2022).

Table 10 Actual Greenhouse Gas Emission from 2016 to 2021 (unit t-CO₂e)

Category	2016	2017	2018	2019	2020	2021	Total
Beijing 2022 preparations and operations	5,377	7,615	8548	6,377	3,912	4,937	36,766
Olympic Family	44	55	76	38	26	26	265
Transport infrastructure			98,582	145,969	0.00	0.00	244,551
Venue constructions and renovations			16,281	54,518	81,218	50,142	202,159
Others (licensed merchandise)			228	631	1,106	1,317	3,282
Beijing 2022 owned events				6.70	0.35	0.23	7.28
Refrigerant					230		230
Waste					1,739		1,739
Total annual emissions	5,421	7,670	123,715	207,540	88,231	56,422	488,999

The Olympic Games related projects will use the most advanced renewable energy technologies, and use energy-saving, water-saving design and environmental protection materials to fully meet the requirements of sustainable development. PV and wind power will provide electricity for lighting, venue operations and transport.



2.2.2

Promoting the Use of Low-Carbon Energy

The Beijing 2022 Games will rely on the newly-built Zhangbei renewable energy flexible DC power grid in Zhangjiakou City and its cross-regional green power trading mechanism to meet the Games-time energy demands of all venues across the three competition zones. For the first time in Olympic history, 100% of the conventional electricity demand of all venues will be supplied by renewable energy at Games-time.

[Read More: Renewable Energy](#)

Renewable energy is generated by converting wind, solar and other renewable energy sources into electric energy with the help of specific power generation equipment, such as wind turbines and solar PV cells.

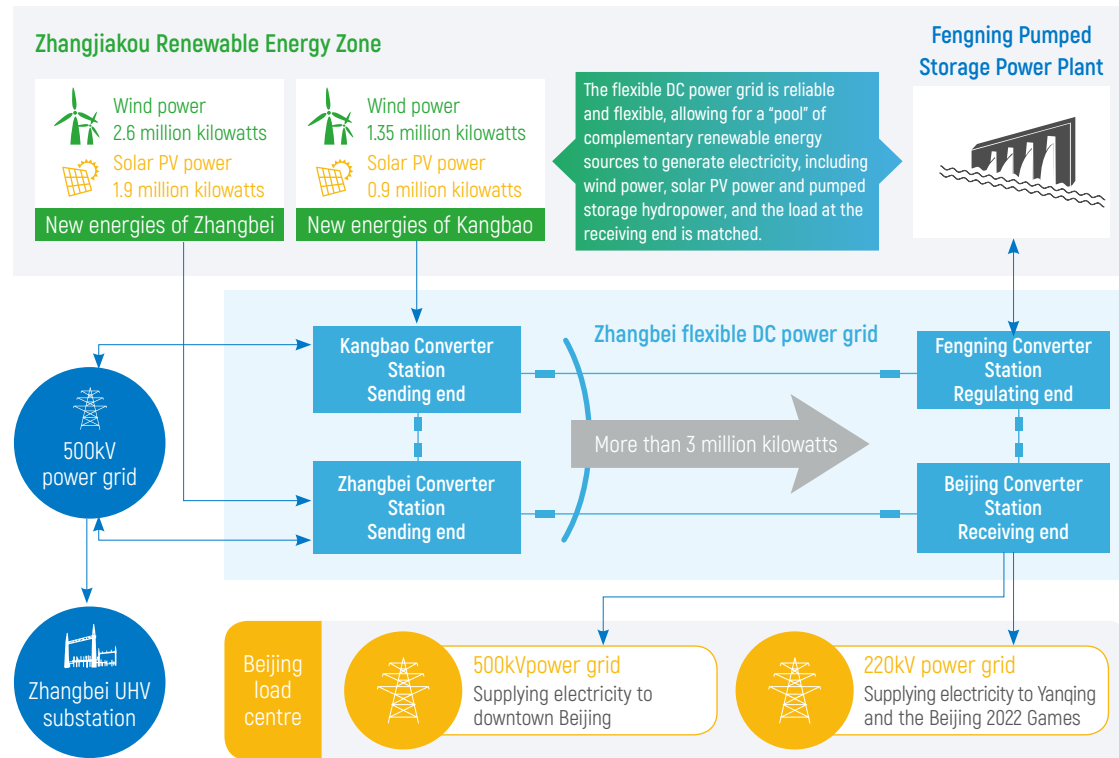
Lighting Up Beijing with the Wind Power From Zhangbei Through Technological Innovation

The pilot project of the Zhangbei renewable energy flexible direct current grid using the complementary energy forms of wind power, photovoltaic power, and energy storage, has solved the challenge of intermittent and instable renewable energy power generation, while safely and efficiently transmitting abundant clean and renewable energy from the Zhangbei County of Zhangjiakou to Beijing. The project 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. The project fully meets the conventional electricity demands of the Games venues, significantly increases the proportion of the consumption of electricity generated from clean sources in Beijing, and contributes to the low-

carbon transformation and development in Beijing. The preparations for the Games have accelerated the implementation of the project, which is the flexible DC project with the largest transmission capacity in the world.

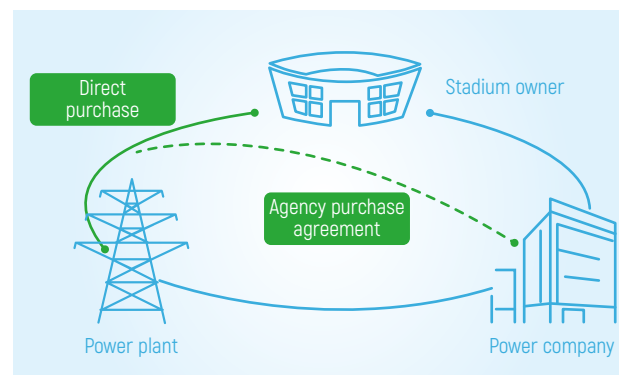


Zhangbei Converter Station



Guaranteeing 100% Renewable Power Supply for Games Venues Via an Innovative Green Energy Trading Mechanism

By building a green power trading platform and adopting the market-oriented direct purchase of green power, all venues and related facilities of the Beijing 2022 Games have been supplied with green power. The first venues powered by renewable energy include the Beijing 2022 Headquarters in Shougang Park; 4 legacy venues of the Beijing 2008 Games (the National Aquatics Centre, the Capital Indoor Stadium, the Wukesong Sports Centre and the National Indoor Stadium) the newly-built National Alpine



Skiing Centre and National Sliding Centre in the Yanqing Zone; and the National Ski Jumping Centre, the National Cross-Country Skiing Centre, the National Biathlon Centre, and the Olympic/Paralympic Village in the Zhangjiakou Zone. By 30 October 2021, ahead of schedule, 19 venues had achieved meeting 100% of their conventional energy needs by renewable energy, the cumulative use of renewable energy is about 171 million kWh.

2.2.3

Promoting the Construction of Low-Carbon Venues

Beijing 2022 has been actively building low-carbon venues, including projects of ultra-low-energy, promoting low-carbon energy-saving renovation of venues, and strengthening intelligent management of energy consumption and carbon emissions during venue operations, striving to make all venues comply to low-carbon energy-saving standards (see Table 11).

Table 11 Examples of Low Carbon Venue Measures

Measures	Design Phase	Construction Phase
Energy-saving measures	<ul style="list-style-type: none"> Designing passive ultra-low-energy buildings in light of the venue functions Using renewable energy according to local conditions, including solar photovoltaic power generation, the solar domestic water heating system, water-source heat pump, air-source heat pump, wind-solar hybrid lighting system, solar environmental monitor, solar-powered weather station, etc. Prioritising the use of energy-saving electrical equipment with high energy efficiency grade Using high-efficiency energy-saving lamps, and intelligent control of the lighting system Building the energy consumption and carbon emission control centre 	<ul style="list-style-type: none"> Using construction techniques with less energy consumption and construction machinery and equipment with high energy efficiency Rationally using renewable energy sources such as solar, wind and geothermal energy in accordance with the construction energy requirements, local climate and natural resource conditions Using electricity, natural gas and other clean energy for heating, cooking and other domestic activities Building an energy consumption control centre
Material-saving measures	<ul style="list-style-type: none"> Optimising the design of the architectural structure system and reducing the consumption of resources for venue construction Adopting the Building Information Modelling (BIM) technology 	<ul style="list-style-type: none"> Prioritising the use of energy-saving, eco-friendly, detachable and recyclable prefabricated components and materials that are assembled on site Using materials that have obtained environmental evaluations and been certified as green building materials With the building durability and safety guaranteed, preferring the use of renewable/recyclable materials and building materials produced from waste as raw materials. From 2018 to 2020, 24.6% of construction waste was utilised on site for the construction and renovation of venues
Others	<ul style="list-style-type: none"> Carbon dioxide as a refrigerant was utilised in the National Speed Skating Oval, the Capital Indoor Stadium, the CTS Short Track Speed Skating Training Hall and the Wukesong Ice Sports Centre. 	

Ultra-Low-Energy Projects

The Games has three ultra-low-energy projects, including the Polyclinic of the Beijing Olympic and Paralympic Village, the D6 area of the Yanqing Olympic and Paralympic Village and the Wukesong Ice Sports Centre. The Polyclinic of the Beijing Olympic and Paralympic Village covers an area of 1,358 square meters, achieving an energy-saving rate greater than or equal to 51% when compared to Beijing current energy efficiency design standard for public buildings, and it is expected to save 42.4 tons of carbon dioxide emission reduction. The area of ultra-low energy consumption built in the D6 area of Yanqing Olympic and Paralympic village is 10,856.22 square meters. Compared with the current national energy-saving design standard for public buildings, the energy-saving rate is 61%. It is estimated that 755 tons of carbon dioxide emission will be saved annually. With

an ultra-low-energy area of 38,960 square meters, the Wukesong Ice Sports Centre is expected to save 2,927 tons of carbon dioxide emission per year during the operational phase, thanks to an enhanced enclosing structure and the application of renewable energy.



The Debut of Carbon Dioxide as a Refrigerant in Olympic Venues

The carbon dioxide trans-critical direct refrigeration technology is used in four ice sport venues, namely the National Speed Skating Oval, the Capital Indoor Stadium, the CTS Short Track Speed Skating Training Hall and the Wukesong Ice Sports Centre, marking the debut of the carbon dioxide refrigeration technology in venues for Olympic Winter Games. The carbon dioxide used are collected and purified from industrial waste gases after the initial filling. In 2021, the four ice sport venues are expected to cut a total of 900 tons of carbon dioxide emissions.



Carbon dioxide as a refrigerant

The carbon dioxide refrigerant's global warming potential (GWP) is 1 and ozone depletion potential (ODP) is 0. It is the most safe and eco-friendly refrigerants at present. The carbon dioxide refrigeration technology evaporates the liquid carbon dioxide and then absorbs the heat to complete refrigeration and ice making. The heat generated can be reused for heating water and indoor spaces, dehumidifying, ice melting and other purposes requiring energy. This technology is energy efficient and stable and can produce stable and even cooling. The carbon dioxide refrigerant was selected for four ice sports venues at the Beijing 2022 Games, which can achieve energy savings of more than 20% compared with traditional refrigeration methods.

Reduction of Building Materials

The National Ski Jumping Centre in the Zhangjiakou Zone is the first ski jumping venue in China. During the construction, 100% of scaffolds were built with socket-type and ring-lock supporting systems, which has saved about 50% of steel consumption compared with traditional construction methods.



The design of the National Speed Skating Stadium was optimised by replacing the mesh/truss structure with a single layer of two-way orthogonal and saddle-shaped cable mesh roof, thereby reducing the glass curtain wall area by 4,800 square metres and the use of 3,200 tons of steel. The amount of steel used is only about a quarter of that of a traditional steel roof, cutting interior space and the resulting energy consumption.

In the construction of the Beijing Olympic and Paralympic Village and the National Speed Skating Oval, recycled concrete made of cement pile heads were used for solving the problems of urban waste stacking, land occupation and environmental pollution, realising the recycling of necessary materials in the concrete production. In the National Speed Skating Oval, 654 pile heads collected from the construction site were screened and crushed, and made into concrete grandstand boards for later engineering installation. The total amount of recycled concrete used is about 73 cubic metres, saving about 18 tons of cement.



The design of dressing rooms of the National Indoor Stadium adopts a new modular process of prefabricated containers. This means that the main structure and components of dressing rooms are designed and manufactured in a standardized way, so the dressing rooms are assembled on site. Considering the special demand of ice hockey competitions, each dressing room unit is equipped with a skate-blade sharpening room, a storage room, a washroom, a shower room, a massage room, a coaching room and a dressing room. After the competitions, each dressing room unit can be disassembled into multiple separate boxes or reassembled into a new unit as required, with a reuse rate exceeding 95%.



Athletes' dressing room in the construction of prefabricated container in National Indoor Stadium

During the construction process in the Yanqing Zone, the best possible reuse plan was developed for the soil and rock produced during the construction process – balancing the filling and excavation of soil and rock, realising the local reuse of soil. This not only avoids the manpower, material and financial resources required for the transport and disposal of residue, but also cuts economic costs, while helping protect the environment and reduce carbon emission in the Yanqing Zone.



Building "gabion wall" with waste stonework

2.2.4

Building a Low-Carbon Transport System

Relying on the advantages of Beijing and Hebei in the development of new energy vehicles and renewable energy, Beijing 2022 has formulated its Games-time transport operations policies, devised a low-carbon transport service system, and fully applied intelligent transport systems and management measures to improve targeted traffic management and explore good practices of the regional green transport system.

Large-Scale Application of Clean Energy Vehicles

It has been decided that the transport within the Beijing Zone will mainly rely on pure electric and natural-gas-powered vehicles. The decision also includes the Yanqing Zone and the Zhangjiakou Zone where hydrogen-fuelled vehicles will be deployed. A total of 4,090 vehicles will be needed during the Games, including 2,205 vehicles provided by Worldwide TOP Partner, Toyota. In total there are 816 hydrogen-fuelled vehicles, 370 pure electric vehicles, 478 natural-gas-fuelled vehicles, 1,807 hybrid vehicles and 619 conventional-energy vehicles. Energy-saving and clean-energy vehicles will account for 100% of all passenger cars and 84.9% of all vehicles.

Improving the Efficiency of Transport Operations

The Transport Resources Management System is built to realise a unified command of transport operations during the Games, and ensure an orderly traffic environment. The real-time monitoring and statistical analysis of vehicles at the Games can fully reflect the overall operations of transport and assist in decision making, improving the level of transport and traffic management and providing an orderly overall traffic flow during Games-time. The function of information publishing allow accurate and rapid transmission of information, expedited handling of events, improve the ability of traffic organisation, operations, management, and provide technology support for the smooth and efficient traffic operations during Games-time.

Advocating Low-Carbon Inter-Zone Transport

We will make full use of the Beijing-Zhangjiakou high-speed railway for inter-zone transport and encourage particularly spectators to travel by railway between the Beijing, Yanqing and Zhangjiakou zones. We will also make full use of rail transit and P+R facilities to guide spectators to use low-carbon transport means such as clean energy vehicles to access the competition zones. The railway service can effectively improve transport efficiency and reduce carbon emissions.

Beijing Zone

- The Beijing Subway Line 11 connecting Beijing 2022 Headquarters and Big Air Shougang has been constructed. The west section has been put into operation by the end of 2021, improving the transportation in the Shougang region after its completion.
- A network of intelligent bus dispatching systems has been established to realise regional intelligent scheduling and dispatching for over 80% of all routes.
- Supporting transfer (P+R) parking lots, shuttle buses and bicycle routes are planned and constructed in a unified way.

Yanqing Zone

- In the Yanqing Zone, multiple venue interconnecting roads have been constructed, and the Yanqing

Comprehensive Transport Service Centre has been established to satisfy the demands of transfer and connection between the high-speed rail and various forms of transport serving the Games.

Zhangjiakou Zone

- In the Zhangjiakou Zone, the road network from the urban area to the provincial highways in Chongli, the Chongli Ring Roads, and the regional roads in Chongli have been optimised and upgraded. Furthermore, emergency evacuation lines have been constructed. The Zhangjiakou South Comprehensive Passenger Transport Hub and the Chongli South Passenger Transport Hub have been constructed to satisfy the needs for rapid transit connection during the Games.

Completion and operations of a supporting hydrogen refuelling station for the Beijing 2022 Games

A supporting hydrogen refuelling station for the Games - the hydrogen refuelling station (Phase II) in the Yanqing Park of Zhongguancun started operations on 30 June 2021. The Project further improves the support capacity of hydrogen fuel vehicles for the Games and plays an exemplary role for the application of hydrogen energy in the domestic transport sector.



2.2.5

Implementing a Low Carbon Policy for Office Work and Operation

Beijing 2022 advocates low-carbon office work and travel, striving to create the office area of Beijing 2022 into an important platform to exhibit the achievements of global ecological progress. By the end of June 2021, Beijing 2022 had saved a total of 363,000 sheets of paper. More than 17,000 video conferences have been held, with the total number of accumulative attendants reaching 288,000, having reduced the total carbon dioxide equivalent emission by about 402 tons. From 1 July 2019, the office area of Beijing 2022 has been fully powered by clean energy.

Save paper

- Make full use of the information system for the daily office work and information transfer. Process documents electronically.



Save water

- Make rational use of water. Turn the tap as low as possible and turn the tap off in time after the use, to prevent "water running" or "dripping".
- Save portable water and collect water as needed, to avoid waste.



Low-carbon transport

- Promote the use of video conference systems to reduce transport.
- Arrange car pooling for official activities held at the same time in the same direction as much as possible.
- Advocate public transport and shared travel.



Save electricity

- Use natural light in the office area as much as possible. Turn off some lights when there are few people. Do not leave the lights on overnight.
- Computers, printers, video equipment, etc., shall be shut down in time when they are not in use. Cut off the power supply after work to reduce standby power consumption.



Save food

- In order to avoid food waste, the Beijing 2022, venues and Olympic hotels will carry out fine management on the food supply process, and carry out the "Clean Your Plate Campaign" to guide the Olympic personnel to pick up meals on demand. The Olympic hotels will also reward or offer concessions to the diners with "spare meals".



Refuse classification

- For foreigners working and participating in the closed loop due to the epidemic situation, the participants will be widely informed of the garbage classification methods, different garbage icons and garbage can styles in the closed loop through the competition manual and Winter Olympic APP (My2022).





Fully support the campaign of "Green Home ·Green Games", advocate the concept of green, low-carbon and sustainable development and carry out green home construction activities in which the entire population are involved.

2.2.6

Exploring Ways for Carbon Offsetting

Beijing 2022 has explored and established a mechanism for carbon offsetting. The carbon emissions generated by the preparations for the Beijing 2022 Games are being offset through various forms of measures, such as forestry carbon sinks, CCERs/CERs sponsorship certified by Games-related enterprises, and the promotion of a carbon generalised system of preferences (carbon GSP) among the public, so as to achieve carbon neutrality of the Beijing 2022 Games. With the strong support of related departments of the Beijing Municipal Government and the Hebei Provincial government, significant progress has been made in implementing the carbon offset measures. In the meantime, Beijing 2022 has promoted the practice of low-carbon actions across the board, advocating sustainable productions and lifestyles.

Listen to voices of stakeholders: carbon neutrality demonstration

Beijing 2022 held a carbon neutrality demonstration on 7 May 2021, at which Du Xiangwan - an academic and the former Vice President of the Chinese Academy of Engineering, Pan Jiahua - a member and researcher of the Chinese Academy of Social Sciences, Zhang Jieqing - the China Director of the Natural Resources Defence Council and experts and NGO representatives of other related fields discussed such issues as the carbon emission accounting method, carbon emission reduction measures and achievements and carbon offset measures for the Games.



Carbon Sink in Forestry Industry

Since the bidding for the Games began in 2014, Beijing and Zhangjiakou have carried out a large number of systematic afforestation projects. It has been confirmed by both Beijing and Zhangjiakou that afforestation projects of 47,333 hectares and 33,000 hectares respectively, have been completed. Carbon sequestration generated by the afforestation projects, which has been monitored and verified by the third party, will be completely used for carbon offsetting for the Games, to ensure a carbon-neutral Games. The afforestation projects in Beijing and Zhangjiakou are also beneficial to the improvement of the environment and the protection of biodiversity, leaving meaningful green Games legacies for future generations.

Sponsorship

The three official partners of the Beijing 2022 Games, including PetroChina, the State Grid Corporation of China and the China Three Gorges Corporation have sponsored CCER/CER to Beijing 2022, in an effort to assist in the realisation of the carbon neutrality goal of the Games.

Carbon Generalised System of Preferences

Beijing 2022 officially released and launched the WeChat applet of "Low-Carbon Games" on 2 July 2020, recording the low-carbon footprints of users in their daily life with digital technology, promoting Carbon Generalised System of Preferences, and encouraging and guiding the public to lead a green and low-carbon lifestyle, and actively participate in the diversified and low-carbon Games campaigns. By 31 December 2021, more than 110,000 people registered for the mini-programme thus offering their contributions to the low-carbon Games.

WeChat applet of "Low-Carbon Games"

The WeChat applet of "Low-Carbon Games" initiates low-carbon activities such as green travel, waste sorting and the Clean Your Plate Campaign. It uploads information through screenshots and obtains WeChat steps with authorisation, confirms through self-timed clock-in, answers questions about the Games and records the low-carbon footprints through taking pictures, etc., to gain carbon credits, the title of "Low-carbon Champion" and various medals of honour. These carbon credits can be exchanged for a wide range of rewards. This quantisation of carbon credits helps to encourage and guide the public to pursue a green and low-carbon life, cultivate the public's sense of low-carbon responsibility and honour, and play exemplary roles.



QR code for the WeChat applet of "Low-Carbon Games"





Commitment Develop sustainable sourcing guidelines for required products and services according to international and national standards. Prepare sustainable sourcing documents: *Clarify the procurement method of products and services and the sustainability requirements in the procurement process.* Have a comprehensive evaluation on the supplier's performance, credit and technical level.

2.3 Implementing Sustainable Sourcing

Beijing 2022 aims to apply the concept of "running the Games in a green, inclusive, open, and clean manner" and incorporates sustainability throughout the entire procurement process to support national and regional sustainability, and contribute to the implementation of the 2030 Agenda for Sustainable Development.

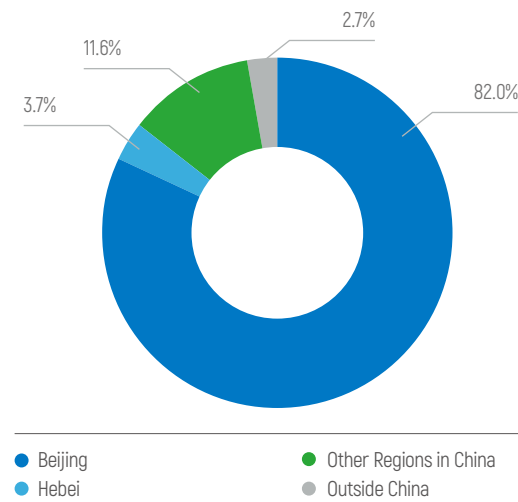
Beijing 2022 committed to : 1) developing sustainable sourcing policies for required products and services according to international and national standards, 2) preparing and implementing sustainable sourcing procedures, 3) having a comprehensive evaluation of the supplier's performance.

As of June 30, 2021, Beijing 2022 has signed a total of 779 contractors (70 of which provide products and the remaining 709 provide services). For 189 procurement projects above a certain financial threshold, Beijing 2022 had to follow the *Government Procurement Law of the People's Republic of China, the Catalogue and Standards of Centralized Procurement of Beijing Municipal Government Procurement and other related laws and regulations*. All project procurement announcements and bid winning results are required to be announced on the [China Government Procurement Website](#) and the [Beijing Government Procurement Website](#). Beijing 2022 has 11 official partners, 11 official sponsors, 10 official exclusive suppliers, 13 official suppliers and 29 licensed manufacturers, where the contractors and market development partners located in Beijing and Hebei Province account for 85.7% (see Figure below). Among the contractors and market development partners, 79.6% (620) are enterprises, 11.0% (86) are universities and research institutes, and 9.4% (73) are other types of entities (mainly involved in consultancy and advisory services). 100% of the contractors completed and signed the supplier questionnaire, where 100% of all contractors indicated that they were meeting at least 14 of the listed 17 social indicators, 66.7% of the contractors

indicated that they already met at least 8 of the 10 environmental indicators and 76.2% of the contractors indicated that they met at least 3 of the 4 economic indicators. As an important overall indicator, all contractors meet social, environmental and economical basic indicator requirements.

The Beijing 2022 Sustainability Department held 5 sustainability training sessions for the contractors attended by 1,563 participants working for [724] contractor companies. It organized other relevant departments to conduct various on-site visits to the above-mentioned companies for quality control and to monitor adherence to the Beijing 2022 sustainability standards. 85% of all companies have obtained ISO 45001 (Occupational Health and Safety Management Systems) certification, and more than 90% of the manufacturing companies have obtained ISO 45001 (Occupational Health and Safety Management Systems) and ISO 14001 Environmental Management Systems certifications.

Locations of suppliers by provinces / regions



2.3.1

Formulating Rules for Sustainable Sourcing

At the end of 2016, Beijing 2022 released the Sustainability Policy for the Olympic and Paralympic Winter Games Beijing 2022, stating that the activities related to the Games are carried out following the requirements of the ISO 20121 (Event Sustainability Management Systems), ISO 14001 (Environmental Management Systems) and ISO 26000 (Guidance on Social Responsibility) as well as the requirements of UNGC (United Nations Global Compact). Beijing 2022 has integrated this statement in its internal policies and procedures on sustainable sourcing and prepared a series of documents for sustainable procurement in accordance with the relevant laws and regulations such as the *Government Procurement Law of the People's Republic of China and the Bidding Law of the People's Republic of China*, to ensure the effective implementation of sustainable sourcing. Specifically:

[The Sustainable Sourcing Guide for the Olympic and Paralympic Winter Games Beijing 2022](#) 1) sets out goals for the procurement functions to build a role model of sustainable procurement for major events, including the development of Small and Medium-sized Enterprises (SMEs) and ecological conservation through the adequate management of resources, energy and land; and 2) establishes a clear procurement procedure from the selection of suppliers through end of the contract. The Guide is applicable to the construction companies, operators of the Games venues and all associated infrastructure, licensees, suppliers and other contractors (including venue owners).

[The Sustainable Sourcing Code for the Olympic and Paralympic Winter Games Beijing 2022](#) details the procurement procedure set out in the Guide and specifies the procurement processes to be implemented when procuring goods and services for the Games. The Code includes a detailed sustainability questionnaire for partners to raise awareness of Beijing 2022's requirements across the social, economic and environmental categories.

[The Sustainable Sourcing Technical Criteria for the Olympic and Paralympic Winter Games Beijing 2022](#) specifies the requirements that suppliers are to meet in the procurement of specific categories of goods and services. It lists additional standards for 9 categories of goods, including paper products, plastic products, metal products, textiles, woodwork, electronic and electrical appliances, building materials, and decoration materials, as well as two types of services including decoration projects and cleaning/ logistics services. For example, FSC certification is required for all paper products.

2.3.2

Implementation of Sustainable Sourcing

To ensure the correct implementation of its policies, Beijing 2022 established various preventive measures aimed at raising awareness and building capacity as well as on-site visits to verify the effectiveness of these measures, namely:

Responsible Procurement Team: Beijing 2022 established an inter-departmental responsible procurement team composed of a 12-member working group selected from 7 key departments covering procurement, marketing, finance, legal affairs, general administration, sustainability, and internal supervision & auditing. The Procurement Team is responsible for the coordination and supervision of all procurement activities of Beijing 2022, analyzing and determining the implementation methods and procurement processes, managing procurement projects above the procurement quota standard (in accordance with the provisions of the relevant financial departments of Beijing), reviewing the compliance and content of the procurement documents, and ensuring the effective implementation of various procurement requirements.

Sustainability Training: The Sustainability Department developed a training programme for the Beijing 2022 venue owners and contractors to raise awareness and build proper capacity on the Beijing 2022 sustainability requirements. Beijing 2022 has carried out sustainability-related training (see Appendix 2 Sustainability Training for the Beijing 2022 Games), to ensure that the requirements of sustainability sourcing are properly understood and implemented. As of June 30, 2021, a total of 5 sustainability training sessions have been carried out for contractors, with a total of 1,563 participants from 724 partner companies, significantly improving the sustainability awareness and capabilities of contractors.

Audit and Traceability: Beijing 2022 has followed the ISO 20121 Event Sustainability Management System and the ISO 14001 Environmental Management System certification audits. In the process, a third-party certification organization also audited the implementation of sustainable sourcing and the practice of suppliers. Whilst the management of suppliers mainly focused on Tier-1 suppliers, relying on the joint supervision of food production and marketing, a comprehensive process relating to the traceability mechanism of food supply was established. The connecting system of the whole from-farmland-to-dining-table process was established in line with the characteristics of food and raw material processing, logistics and distribution and catering services, which is across link, region and regulatory departments. In some cases, the traceability system relies on new high-tech technologies such as the use of QR codes as the traceability information carrier to collect information including food origin, production, packaging, inspection, logistics, warehousing as well as other relevant information on the supply chain.

Engagement with Our Suppliers and Self-assessment: Each contract with our suppliers, licensees and other contractors included substantial sustainability clauses. At the same time, Beijing 2022 monitored the sustainability performance of its contractors starting with the supplier questionnaires. This questionnaire acts as a self-assessment for our partners, so they can understand our requirements and evaluate their current performance relating to their obligations. We encouraged all our suppliers to share our requirements with their own suppliers and sub-contractors. The questionnaire has 31 items, including 15 compulsory minimum compliance items. Beijing 2022 reviewed the information in the questionnaires and the results were as follows:

Social: 100% contractors meet more than 14 social indicators (There are 17 social and labour rights indicators in total, including the promotion of equal opportunities and non-discrimination, skills training, respect for the rights of persons with impairments).

Environment: 66.7% contractors meet more than 8

environmental indicators (There are 10 indicators in total, including pollution prevention, energy and resources conservation, re-use and reuse, and packaging reduction).

Economic: 76.2% contractors meet more than 3 economic indicators (There are 4 indicators in total, including promoting the development of small and medium-sized enterprises and promoting regional employment).

Inspection and Evaluation: Beijing 2022 organized on-site visits to verify the accuracy of the information in the questionnaire and more generally to ensure that our sustainability requirements were actually met in practice by our suppliers. In November 2019, Beijing 2022 set up an Investigation Team composed of representatives from the General Planning, Marketing, Supervision and Auditing, Finance, Legal Affairs and Logistics departments. The Sustainability Division trained the Investigation Team on how to monitor the Beijing 2022 sustainability standards. Since its establishment, the Investigation Team collected third-party audits and conducted 91 on-site visits and inspections of contractors. The visits assessed various aspects of quality, environment, health and safety, employees' labour rights and business ethics performance. The visits included a combination of document reviews, interviews with front-line workers and managers, quality tests, building inspections and specific environmental tests such as the treatment of sewage or emissions. As a follow-up to the findings, the contractors have improved their sustainability performance through measures such as improved health and safety processes, enhanced monitoring of working hours, better housing and canteen facilities.

Additional Requirements: In addition, we encouraged all our licensees to obtain ISO 9001 quality management system and ISO 14001 environmental management system certifications. For our licensees and other partners, we have collected and analyzed additional available third-party social and environmental certifications from 577 suppliers to determine their compliance with national legislation and international standards.

Grievance and Complaints: Beijing 2022 relied on various grievance mechanisms for workers and communities to raise issues. Workers in supply chains and on construction sites are able to access the government operated phone hotlines. Workers can also download an APP (Zhangshang 12333) to facilitate the reporting of complaints to the relevant government authorities pertaining to labour rights issues. In addition, Beijing 2022 set up its own grievance mechanism and informed all suppliers of its existence. The hotline number and email are displayed on both the Chinese and English versions of the Beijing 2022 website and is managed by the Beijing 2022 Audit and Supervision Department.

2.3.3

Case Studies

Beijing 2022 Licensee providing employment opportunities for people with impairments

It is a licensed manufacturer of purple clay teapots for the Beijing 2022 Games, with a total of 34 employees, all of whom are purple clay teapot producers, accounting for 39.1% of the total number of workers. The company hired national masters to train people with impairments who are interested in learning the production of purple clay pots in Liaoning Province where the company is located. Since its establishment, the company organized over 800 trainings free of charge, so as to help people with impairments find employment in the company, or to generate their own independent income through self-entrepreneurship.

In order to ensure accessibility to people with all kinds of impairments, the company had to make a number of adjustments over the years to the building infrastructure. The company installed barrier free ramps and stair handrails within the

vicinity and at the entrance of the staff dormitory and studio, to ensure that all employees could freely, and without difficulty, access and exit these important locations. Barrier free toilets were also installed in various locations to facilitate work and life. In addition, the company also covers the costs of the equipment needed to help as far as possible each disability, such as crutches, wheelchairs or hearing aids.



"Having a physical disability has had a certain impact on my life and income. With the training and help of the Federation for people with impairments and my employer, I learned the skill of creating of purple clay teapots. With these skills, I not only brought economic sources to my family, but also enriched my daily life."

---Teapot maker Li Dongwei

Create a "warm hut" for female employees

Among the more than 140 employees of a company engaged in the front-line work of the Games, 65% are female employees, who are directly engaged in activities such as artificial snow making, customer service, cleaning and maintenance. With the support of the Zhangjiakou Federation of Trade Unions, in order to meet the actual needs of female employees, the company has built a well-equipped and heated temporary building at the construction site of the Guyangshu Venue Cluster in Chongli District, providing a private, hygienic, comfortable and safe place of relaxation for the female workers.

"When you need to rest, you can take a break in such a cozy hut, and you will soon recover. The union really does practical and good things for the female employees."

---Liu Shuang, female employee of a construction company in Zhangjiakou Zone

Reduce resource consumption by renting instead of buying

Beijing 2022 favoured renting instead of buying in the material procurement reducing resource consumption. Materials obtained by renting include: Approximately 12,000 desktop computers, servers, notebook computers, monitors, and various types of printers and copiers necessary for the venues during the Games; vehicles required for the daily travel of Beijing 2022 staff (sedans, commercial vehicles, off-road vehicles, medium buses, coaches, accessible vehicles); linen (including bed sheets and quilt covers) and office furniture (such as coat racks and desks) needed in the Olympic and Paralympic Villages.

Sustainable logistics services

A logistics service provider chosen by Beijing 2022 actively promotes reduction, standardisation and green treatment of packaging. It has won the award of packaging for sustainable development and the WWF Pioneer in Green Transformation. In the process of providing the Games with logistics services, the provider actively implements the sustainability requirements, uses recyclable wood pallets for storage, conducts paperless operations in warehouses, and makes full use of smart devices. New energy vehicles are widely used for logistics transport in the three Games Zones. For packaging, recovered materials are used to make recyclable boxes so as to reduce waste and the consumption of packaging materials.

2.3.4

Anti-Corruption

Beijing 2022 has strictly abided by the requirement of staging a clean Games by setting up a Supervision and Auditing Department to supervise the discipline and integrity of all officials and members. Beijing 2022 has established a comprehensive supervision mechanism, made recommendations on the key tasks of supervision, and publicised information on important events. Beijing 2022 has carried out clean education for its workforce and contractors, provided educational videos and books, organised integrity counselling for new members, and conducted integrity talks for newly promoted directors. Beijing 2022 has also carried out the specific and overall tracking of key tasks, including materials procurement, market development, product

release and personnel recruitment. For competition events, it has established 18 supervision teams, covering all venues and operations teams. Beijing 2022 has set up a reporting mailbox, an opened e-mail and other reporting channels to receive reports from the public and established a confidentiality and protection mechanism for whistle-blowers. For example, keep the name of the informant strictly confidential, establish and improve the responsibility system, and prevent the disclosure or loss of reporting materials. Up until the publication of this report, a comprehensive integrity education session was conducted for all the workforce, including over 300 middle and senior managers, with integrity admonition talks with over 200 persons.

Develop and implement action plans to deal with air and water pollution, implement special projects to protect forests, wetlands and biodiversity, promote the environment protection in Beijing and Zhangjiakou and further improve the regional ecological quality. By 2022, the annual mean concentration of PM_{2.5} in Beijing will have been reduced by about 45% when compared with 2012. Plant a large number of trees; build green barriers; conserve and protect water sources.



2.4

Enhancing the Quality of Urban Environment

The preparations for Beijing 2022 have accelerated the ecological environment protection efforts of the host city and facilitated the implementation of a series of projects and action plans in this regard. Efforts to control air pollution have been enhanced, and the work of venue construction has been associated with ecological restoration and environmental improvement efforts. Consequently, the environmental quality of Beijing-Zhangjiakou Region has seen an improvement, giving visibility to an example of integrated development of sport infrastructure and natural environment. These efforts provide a strong environmental guarantee for the success of the Games.

2.4.1

Air Pollution Control

From 2015 to 2021, the air quality in Beijing and Zhangjiakou improved significantly. In 2021, the annual mean concentration of Beijing PM_{2.5} is 33 µg/m³, which is 59% lower than that in 2015. In 2021, the annual mean concentration of Zhangjiakou PM_{2.5} is 23.4 µg/m³, which is 31.4% lower than that in 2015 (See Table on p.71).

The State Council draws up and implements the Three-Year Action Plan for Clean Air (2018-2020). Beijing 2022 even sets higher requirements for the air in Beijing and Zhangjiakou and also speed up the air quality improvement process. Beijing develops and implements the Beijing's Three-Year Action Plan for Clean Air (2018-2020) and Action Plan for 2021 for Pollution Prevention and Control in Beijing on the basis of the Clean Air-Air Action Plan (2013-2017). Zhangjiakou develops and implements the Zhangjiakou's Three-Year Action Plan for Winning the blue-sky protection campaign and Implementation Plan for Air Quality Improvement in

Zhangjiakou in 2021 on the basis of Implementation Rules of Zhangjiakou Air Pollution Prevention and Control Action Plan, to specify duties of relevant departments at all levels, take integrated measures such as preventing pollution strictly from the source, performing process supervision and encouraging participation by the people, to ensure that the Games-time air quality reaches standards as stipulated in WHO Air Quality Guidelines. The governments of Beijing, Tianjin, Hebei and their neighbouring areas have jointly established a steering committee for air pollution control to improve the cooperation mechanism beyond administrative boundaries and strengthen the regional coordination in air-pollution prevention and control. Beijing and Zhangjiakou have adopted many measures to prevent air pollution and improve the air quality. The measures include:

Optimising the Energy Mix and Reducing Coal Consumption

- Efforts were made to improve energy efficiency and expedite the development of lower-carbon heating sources such as natural gas, electricity, geothermal energy, biomass, solar energy and industrial waste hearth.
- From 2016 to 2020, Beijing renovated more than 23,000 steam-ton coal-fired boilers in 2,252 villages, to make the city's centralised heating system clean. By the end of 2020, 3,386 of the city's 3,921 villages became coal-free. Beijing's coal consumption had been

reduced from 11.65 million tons in 2015 to 1.73 million tons in 2020, with the proportion of coal in its energy consumption dropping from 13.7% to 1.9%.

- Between 2016 and 2020, Zhangjiakou City vigorously implemented the electricity-based pilot program of heating in urban areas in winter, with 5,849 coal-fired boilers of 35 t/h and below eliminated, promoting energy alternatives to coal.

Control of Industrial Pollution

- Beijing and Zhangjiakou have strictly implemented a catalogue of prohibitions and restrictions on new industries, investigated and rectified polluting enterprises, strengthened the regular law enforcement and supervision of volatile organic compounds in key industries such as the chemical, the painting and printing industries, and rejected the production processes with heavy pollution. Beijing and Zhangjiakou have also organised the clean production inspections of enterprises in key industries involved in volatile organic compounds emissions, and implemented the treatment project of "one

policy for one factory" for environmental protection, technological transformation and emissions reduction.

- From 2017 to 2020, over 80 entities in Beijing have been selected as national green manufacturing enterprises such as green factories, green supply chains and green product design companies.
- Zhangjiakou City has continued optimising its industrial structure. From 2016 to 2020, the city phased out 680,000 tons of iron production capacity, 2.4 million tons of steel production capacity, 22 million tons of coal production capacity, and 600,000 tons of coke production capacity.

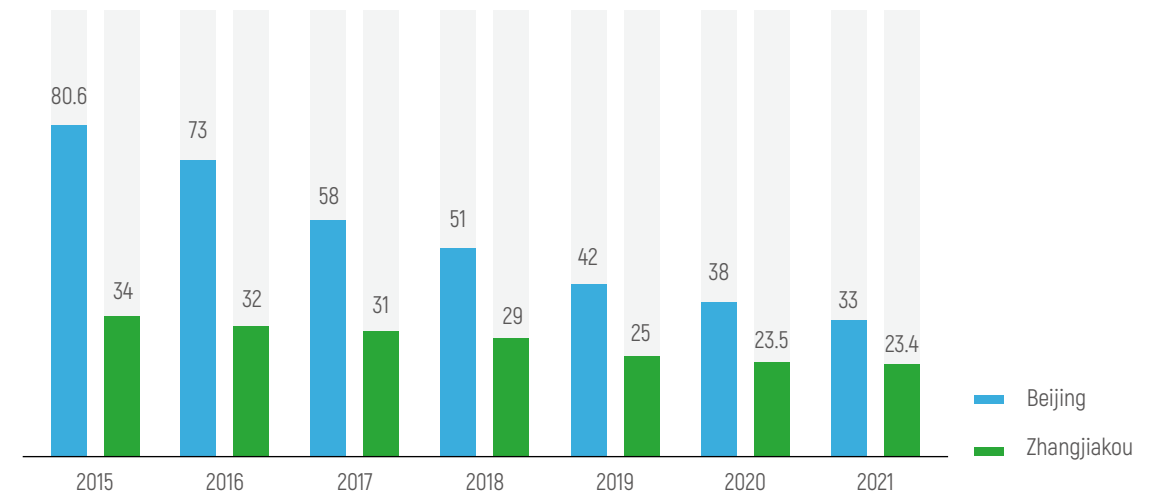
Control of Motor Vehicle Emissions

- Beijing 2022 has expedited the promotion and utilisation of new energy⁵ vehicles in Beijing and Zhangjiakou. More vehicles that do not comply with national or local emission standard are scrapped and dismantled⁶. Beijing has upgraded the required motor vehicle emission standards, eliminated old motor vehicles with low emission standards, controlled the total number of motor vehicles, promoted new energy vehicles, and further prevented motor vehicle pollution. The number of new energy vehicles in Beijing increased from 2,211 in 2013 to 401,000 in 2020. Since 1 July 2019, Beijing has implemented the national VI B emission standards for heavy-duty gas vehicles and heavy-duty diesel vehicles for public transport and sanitation. Since 1 January 2020, the national VI

B emission standards have been implemented for light-duty gasoline vehicles and heavy-duty diesel vehicles. Since 1 November 2019, all diesel cargo vehicles complying with the national III emission standard have been banned from entering all roads within the city's administrative area. Zhangjiakou City has taken urban public transport in its main area as a key field to comprehensively.

- promote the application of hydrogen fuel cell buses. As of 30 June 2021, of the 905 buses in the main city, 712 are new energy buses (including 304 hydrogen fuel cell buses, 197 plug-in hybrid buses and 211 pure electric buses), with clean energy vehicles making up 78.6%.⁷

Change in Annual Mean Concentration ($\mu\text{g}/\text{m}^3$) of Major Air Pollutant-Fine Particulate Matter ($\text{PM}_{2.5}$) in Beijing and Zhangjiakou



2.4.2

Improve the Environment by Addressing Desertification

To ensure the air quality in Beijing during the Games and the long-term local climate improvement, the State Forestry and Grassland Administration, Beijing, Tianjin and Hebei Province prepare and distribute the Plan for the Co-development of Forestry Ecology in the Beijing-Tianjin-Hebei Region (2016 – 2020) and sign the Framework Agreement for Promoting the Pioneering and Coordinated Development of Forestry Ecology in the Beijing- Tianjin-Hebei Region. Beijing develops and implements the Plan for Environmental

Protection and Ecological Development of Beijing in the Period of the 13th Five-Year Plan. Zhangjiakou develops and implements the Measures for Encouraging Reforestation in Zhangjiakou and the Plan for Building a Green Zhangjiakou (2016 – 2022). It carries out afforestation projects, creates green ecological corridors and builds ecological green belts on a large scale, effectively preventing the movement of sand and optimising the regional environment.

Control Sand Sources

- Between 2015 and 2021, the afforestation area in Beijing increased by 76,666 hectares; urban green space increased by 3,773 hectares; 11,000 hectares of wetlands were built or restored; the afforestation rate increased from 41.4% to 44.4%; the forest coverage in Yanqing District has exceeded 60%.
- From 2016 to 2021, the afforestation area was 1.024 million hectares and the afforestation rate exceeded 50% in Zhangjiakou.

- Zhangjiakou is located in the northwest Hebei Province and the transitional area between the Inner Mongolia Plateau and the Haihe Plain. It is a major area of water-source conservation, sand-dune stabilisation and windbreak for Beijing. The staging of Beijing 2022 has accelerated the completion of 1,430,000 hectares of the Beijing-Tianjin sandstorm-source control project.

⁵ New-energy vehicles here refer to battery electric vehicles, plug-in hybrid electric vehicles, fuel-cell vehicles and other alternative-energy vehicles.

⁶ Vehicles that are scrapped and dismantled refer to those vehicles that are forced to stop service by the government because they have expired the stipulated service life or been irreparably damaged. The dismantling of vehicles is done in scrapyards, and 70% of the ferrous metal is recycled.

⁷ Zhangjiakou: Full Coverage of New Energy Vehicles for Public Transport by 2025 (xinhuanet.com)

Greening in Competition Zones

- Large area afforestation in and around the competition zones improves the level of ecological landscape in winter and leaves ecological legacies of the Games.
- In 2018-2019, Beijing cultivated 38,666 hectares of forest every year. In 2018, 128,306 hectares of mountains were closed for afforestation in Zhangjiakou. In 2019, 26,000 hectares of mountains were closed for afforestation, and 47,666 hectares of forests were cultivated.

Greener mountains and more beautiful sceneries in the Zhangjiakou Zone

Chongli District evaluates various landscape elements such as mountains, waters, forests, fields, lakes and grassland, making overall planning for the competition zone's core areas, ecological scenic byways, mountains, farmlands and villages. In this way, "full green coverage without blank spaces" is realised, forming a complete ecological system of green spaces in core areas of the Games. Between 2016 and 2021, the afforestation area in Chongli District was 86,087 hectares. The afforestation rate reached 71.53% in the whole district and over 81.02% in core areas. The afforestation area in the Guyangshu Cluster reached 95.8 hectares.



The favourable greening conditions along the roads in Zhangjiakou



Greening of Olympic core area

2.4.3

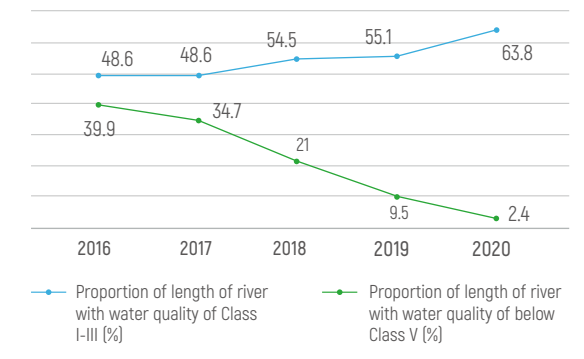
Protect and Control Water Sources

A series of cooperation agreements have been signed in the Beijing-Tianjin-Hebei Region and a working mechanism of cross-boundary water pollution prevention and control has been established, to improve the water environment of river basins with joint efforts and through coordinated control. Beijing develops and implements, for example, the Beijing Prevention and Control of Water Pollution Program, the Three-year Action Plan for Further Accelerating Urban and Rural Water Environment Control in Beijing (July 2019 - June 2022), while Zhangjiakou develops and implements for example the Zhangjiakou's Action Plan for Keeping Our Waters Clear (2019-2020), to actively promote the small river basin ecological improvements, the constructions of green ecological corridors, the control of water pollution, and the sewage treatment rate have gradually increased, so as to continuously improve the water environment quality and water conservation functions.

In accordance with the descriptions of the water quality grades in the Environmental Quality Standards for Surface Water (GB 3838-2002) (see Appendix 3 Classification for Water Area Functions), the quality of surface water in Beijing and Hebei Province has been steadily improving, larger water bodies have increased significantly, and the proportion of below Class V has dropped.

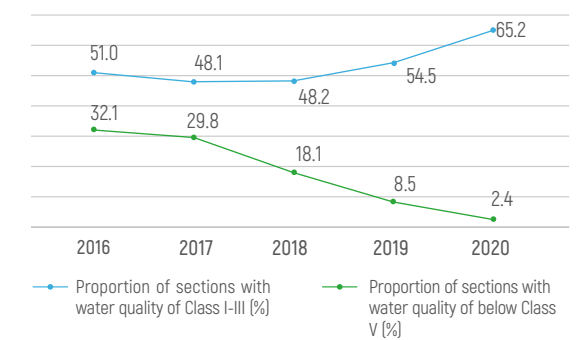
- Beijing and Hebei Province have enhanced the ecology of small river basins, promoted comprehensive control of water and soil erosion, and secured water safety for Beijing residents, improving water resources and the related environment. From 2016 to 2019, the improved area of small river basins in Yanqing District was 188 square kilometres. From 2016 to 2020, Zhangjiakou will control 694 square kilometers of water and soil loss in the upper reaches of Guanting reservoir, Yunzhou reservoir, Chongli district and areas along the Games routes.
- Beijing, together with Zhangjiakou and Chengde in Hebei Province, has prepared the Implementation Plan for Construction of Green Ecological Corridor Project through Cooperation between Beijing and Hebei Province in Ecological Water Conservation Forest in 2019. Efforts have been made to construct a mountain water conservation forest area in Baxia, in Zhangjiakou and implement ecological restoration projects for waterfront buffer zones and riverbanks along the rivers.
- Beijing has carried out comprehensive urban domestic sewage treatment, advanced the construction of sewage collection pipelines, facilitated sewage treatment and recycled water use, and consolidated the effectiveness of treating contaminated, malodorous water. It has comprehensively improved the rural environment and given a strong boost to the construction of rural domestic sewage treatment facilities.
- We have implemented targeted actions for the protection of drinking water sources in and around the Games zones, carried out surveys on the environmental conditions of regional centralised drinking water sources, and regularly disseminated information on drinking water safety to the public.

Water Quality of Rivers in Beijing



Note: data is from the ecological status bulletin/environmental bulletin of Beijing over the years

Water Quality of Rivers in Hebei Province



Note: data is from the ecological status bulletin/environmental bulletin of Hebei Province over the years

03 New Development for the Region

Beijing and Zhangjiakou took the hosting of Beijing 2022 Games as an opportunity to accelerate regional economic development and social progress in the Yanqing District and Zhangjiakou. It includes the coordinated development in the transport, environment, industry, public services and other sectors, facilitates poverty eradication in the Chongli District, adjusts and optimises local industrial structures and significantly contributes to the coordinated development strategy in the Beijing-Tianjin-Hebei Region.





Commitment

Promote the Games and sustainable urban development with coordinated efforts; develop and implement plans and specific measures in areas such as environmental protection, economy, urban development and Olympic education. The Games will be closely linked to the development of the city. Relying on the Olympic legacy and opportunities brought by the upcoming Games, we continue advancing with the "Beijing-Zhangjiakou sports-culture-tourism belt" program by carefully planning our Games venues and giving full consideration to their use after the Games. The program will boost sports-related culture, tourism and leisure, conference and exhibition as well as other industries and promote the integration of the Games and human development.

3.1

Accelerating Infrastructure Projects

Beijing and Zhangjiakou vigorously strengthen their transport networks and related infrastructure projects, achieve regional connectivity, promote inclusive development of the three competition zones, and carry out the strategy for coordinated development of the Beijing-Tianjin-Hebei Region.

3.1.1

Promoting Connectivity of Transport Facilities

Two important transport support facilities were accelerated by the Games, the Beijing-Zhangjiakou high-speed railway and the Beijing-Chongli expressway, connect Zhangjiakou, Chongli, Yanqing and the downtown area of Beijing significantly reducing travel times among them. Since its opening for operations over one year ago, the Beijing-Zhangjiakou high-speed railway has already carried a total of 6.806 million passengers, greatly contributing to the transport capacity between the two cities.

Between 2015 and 2019, the length of highways increased by 5.6% and 6.7% in Yanqing and Zhangjiakou respectively. Meanwhile, the Taizicheng-Chongli section of the

Taizicheng-Xilinhot high-speed railway, the Zhangjiakou-Chengde expressway and four county roads were constructed or upgraded. These are integral part of a broader transport network consisting of four longitudinal routes, three horizontal routes and one ring route.

Beijing-Zhangjiakou high-speed railway is not only an important part of China's "eight longitudinal routes, eight horizontal routes" high-speed railway network, but also an important traffic guarantee facility for the Beijing 2022 Games. The hosting of the Games has accelerated the construction of the Beijing-Zhangjiakou high-speed railway.

A growing one-hour living circle thanks to the Beijing-Zhangjiakou High-speed Railway

At 8:30 on 30 December 2019, a train with the registration number G8811 departed from the Beijing North Railway Station, marking the start of operations of the Beijing-Zhangjiakou high-speed railway reaching speeds up to 350 kilometres per hour. Zhangjiakou has been part of the one-hour living circle around Beijing with the travel time between the two cities reduced from more than three hours to 47 minutes. It takes only 26 minutes to travel from the Beijing Zone to the Yanqing Zone. The railway benefits the economy and tourism along the route, integrates the two cities' transport even more, and injects a new impetus into the coordinated development of the Beijing-Tianjin-Hebei Region.





Construction based on accessibility standards is completed in venues where competitions and activities related to people with impairments are held. Appropriate facilities available for people with impairments and accessible facilities for people with impairments are provided at the entrances, in the elevators and toilets as well as in all relevant indoor spaces of the venues.

3.1.2

Improving Accessibility

Beijing 2022, the China Disabled Person's Federation as well as the governments of Beijing and Zhangjiakou and related organisations are actively engaged in improving accessibility to ensure that the Beijing 2022 Games is inclusive and accessible for everyone.

Build Accessible Venues

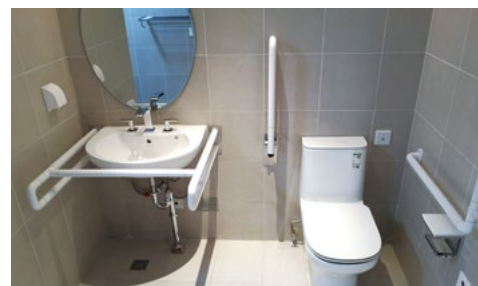
In 2018, Beijing 2022, the China Disabled Persons' Federation, the Beijing Municipal Government, and the Hebei Provincial Government jointly and officially released the *Beijing 2022 Accessibility Guidelines*. Special plans related to constructions and alterations for accessible facilities have been developed for all Games venues.

Accessible construction of Olympic and Paralympic Villages

The Yanqing Olympic and Paralympic Village provides 683 beds, including 158 accessible beds. There is also a prosthetic and wheelchair repair centre.

The Beijing Olympic and Paralympic Village provides 1,040 beds for athletes and team officials. All rooms are on lower floors, and outdoor circular accessible paths connect every residential building. All roads are free of stairs. Indoor furniture is arranged in a way that is friendly to wheelchair users. The height and shape of handrails, switches and other devices are specifically designed for easy and convenient operations. An intelligent platform will also be used during the Games, enabling the residents in the village to use navigation services, check the availability of accessible facilities and make appointments through a mobile app.

The Zhangjiakou Olympic and Paralympic Village provides 273 accessible rooms (including 36 spare rooms) and a prosthetic and wheelchair repair centre. Indoor furniture is arranged in a way that is friendly to Para athletes, and outdoor accessible paths are built connecting all vital areas of the village.



Accessible bathroom in the Yanqing Olympic / Paralympic Village



The Yanqing Olympic and Paralympic Village

National Alpine Skiing Centre

The National Alpine Skiing Centre has accessible elevators, road systems and surface lifts for the Paralympic Winter Games, during which accessible shuttle buses, accessible toilets, accessible elevators and ropeways will be available. The gondolas are also wheelchair-accessible and the chair lifts are accessible for sitting ski equipment.

Upgrade Accessible Infrastructure

The construction of accessible facilities has been stepped up in Beijing and Zhangjiakou since 2016, with a focus on urban roads, public transport, public service places and other areas. Upgrading efforts involved tactile guide paths, curb side ramps, accessible elevators, accessible bathrooms and flat floor facilities in the reception and service areas.

3.2

Improving Capacity for Service Provision

The hosting of the Games contributed to raising the standards on medical, accommodation, catering and other public services. Beijing has strengthened its cooperation with Zhangjiakou in telecommunications, hotel and medical services as well as other areas to ensure consistent standards for the three zones. The advantage of Beijing being the capital of China will give an opportunity to fully utilise its resources and intensify support to Yanqing and Zhangjiakou in areas such as medical services, accommodation and catering. This cooperation will further improve the capacity of Yanqing and Zhangjiakou to provide high quality public services and promote a strong collaboration in and sharing of public services facilities.

3.2.1

Construction and Coverage of 5G Infrastructure

Beijing 2022 focused on venues of the Games, steadily advanced the telecommunications infrastructure and service facilities in key regions, and has laid a strong initial foundation for leveraging 5G technology to facilitate Games operations and enhance the experience of spectators and participants, speed up the building of a smart city and support the advancement of the digital industry.

Beijing further improves the urban management, command and dispatch system for the supplementary coverage of trunk radio services for new venues and

major lines of telecommunications. By the end of 2020, the construction of the mobile telecommunications infrastructure for the Games had been completed in Beijing, including 31 5G macro sites in the Beijing Zone and the Yanqing Zone. Three indoor distribution systems for 5G network were set up in the National Alpine Skiing Centre, the National Sliding Centre and the Yanqing Olympic and Paralympic Village. A total of 23,000 5G base stations were built in Hebei Province, ensuring full coverage of 4G and 5G wireless signals in the Zhangjiakou Zone. All the core areas of the Zhangjiakou Zone are covered by 5G network.

3.2.2

Hotel and Catering Industries

Beijing 2022 has selected 103 hotels, some of which were still under construction or in the planning phase, around the three zones to guarantee adequate accommodation services during the Games. Two five-star hotels and one four-star hotel have been built,

and four three-star hotels have been upgraded in the Yanqing Zone. Between 2015 and 2021, the number of star-rated hotels in Zhangjiakou rose from 48 to 72, and the number of four-star hotels and above increased from 17 to 20⁸.

To improve the service quality of the contracted hotels, in particular, to strengthen language services, room services and western food services, Beijing 2022 dispatched staff with hotel management experience in Beijing to corresponding hotels in Yanqing and Zhangjiakou. Specialised guidance is provided for specific posts, to create a positive momentum in the hotel industry. An online training management platform has been set up in the Yanqing Zone, providing online and offline training for 5,000 people annually. Zhangjiakou developed six standards for accommodation, catering and other services and introduced an official selection program encouraging providers to improve their services.

In terms of catering services, Beijing 2022 has devised its overall requirements on catering service support, and trained catering-related staff on the principles of the supply of catering raw materials, guidelines of kitchen waste

sorting, and general policies including job specifications of food safety supply company and personnel. These overall requirements also ensure food safety and traceability from farm to table, realise supervision over the whole process from farming, processing, warehousing and logistics, food production to delivery and dining. Menus contain nutritional facts concerning calories, carbohydrates, fats, proteins, sodium and other ingredients, and information about allergens. Special meals will be prepared for vegetarians and people who are gluten sensitive or lactose intolerant, etc. Beijing 2022 respects cultural and religious diversity and provides, for example, halal food to meet the diverse dietary needs of the Games participants. According to the Games schedule, we will adopt a communication mechanism which requires clients to make reservations 48 hours ahead and confirm the reservations 24 hours in advance. Meticulous arrangements will be made to provide healthy and nutritious meals in venues.

3.2.3

Medical Services

Being a city with an advanced medical system, Beijing actively offers medical resources to other areas, provides training and exchange programmes and builds cooperative hospitals. The city has formulated and executed a series of policies to facilitate the integration and sharing of medical resources, in order to enhance the coordinated development of medical service capacity in Beijing, Yanqing and Zhangjiakou. Between 2015 and 2020, the number of medical practitioners in Yanqing District rose from 941 to 1,234, up 31.1%⁹; and the number of medical practitioners in Zhangjiakou rose from 8,072 to 10,846, up 34.4%; The number of hospitals in Zhangjiakou increased from 117 to 130¹⁰. Residents in the competition zones have more diversified choices of medical services. Zhangjiakou accelerates the building of its medical service system, promotes a number of new and maintenance projects and continuously improves the emergency medical rescue level of the hospitals. Eight hospitals are chosen as designated

hospitals for the Beijing 2022 Games and three hospitals are chosen as joint pilot hospitals for aviation medical rescue, improving local medical services.

Since 2015, Beijing and Zhangjiakou have formulated a series of service policies that are conducive to the integration and sharing of medical resources to enhance the capacity for coordinated development in Beijing and Zhangjiakou. Sixty hospitals in Beijing, including Beijing Tiantan Hospital, Beijing Jishuitan Hospital, Beijing Tongren Hospital and Beijing Hospital of Traditional Chinese Medicine carry out 62 projects in partnership with 48 hospitals in Zhangjiakou. Thanks to the guidance of experts from Beijing, a number of local medical professionals are now able to perform highly challenging medical work. These medical infrastructures will continue to provide services after the Beijing 2022 Games, which improves the health and well-being of the people in Zhangjiakou.

⁸ Data source: A List of China's 1-Star, 2-Star, 3-Star and 4-Star Hotels _China Tourist Hotel Association (ctha.com.cn), The data for 2021 is as of July 2021.

⁹ The official website of Yanqing District Government

¹⁰ The 2020 Statistical Bulletin of Zhangjiakou for National Economic and Social Development; The 2015 Statistical Bulletin of Zhangjiakou for National Economic and Social Development

Building Peking University Third Hospital Chongli Branch

To better serve the Games, promote the coordinated development of medical and healthcare services in the Beijing-Tianjin-Hebei Region and enhance the medical service in and around Chongli District, the People's Government of Zhangjiakou, the People's Government of Chongli District and the Peking University Third Hospital signed an agreement in September 2018. According to the agreement, Peking University Third Hospital would take over the People's Hospital of Chongli District, Zhangjiakou to build its Chongli Branch which will be used as a dedicated medical care facility during the Games. As one of the first pilot projects of regional medical centres in China,

this branch will not only enhance the medical and health services in the entire Zhangjiakou area, but also help address the demand for medical services in the five surrounding provinces and regions.



The Peking University Third Hospital Chongli Branch

3.2.4

Improving Capacity of Utilities

In terms of **water supply drainage**, Beijing comprehensively promotes water pollution prevention and control. Between 2017 and 2020, 28 reclaimed water plants were built and 12 sewage treatment works were upgraded and renovated within Beijing. By the end of 2020, there had been 70 sewage treatment works (reclaimed water plants) with a processing capacity of 10,000 tons and above in Beijing. Between 2017 and 2020, sewage collection pipelines with a total length of 3,152 kilometres were built, and the problem of sewage collection and treatment in 1,190 villages was fully resolved. By the end of 2020, in Beijing, the sewage treatment rate had reached 95%, and the consumption of reclaimed water had reached 1.2 billion cubic metres. Zhangjiakou fully implemented the programme of providing safe drinking water in rural areas. By the end of 2020, the centralised water supply rate had reached 97.1% and the tap water coverage had reached 94.5% in rural areas.

In terms of **power supply**, the Games has accelerated the construction process of electric power facilities in Beijing and Zhangjiakou, involving key electric projects such as auxiliary projects of electric facilities, a flexible

DC power grid project and the Tongzhou regional energy centre, as well as a number of transformer substations and distribution lines in the Yanqing Zone and the Zhangjiakou Zone, and construction and renovation of some electric facilities and lines in Yanqing District and Chongli District.

In terms of **heating power**, Beijing has estimated the thermal load for the competition zone and formulated a plan on internal heating by using electric energy. In Chongli District of Zhangjiakou, the supporting pipe network for heat supply has been renovated and put into operations, the combined thermal-electric-gas regulation work has been carried out to increase the capability of thermal protection.

In terms of **gas**, Yanqing District further expanded the coverage of natural gas pipelines. In the Zhangjiakou Zone, the natural gas engineering pipes have been installed, the construction of foundation works for LNG gas stations have been completed and the renovation of obsolete gas pipelines is being accelerated.

3.3

Promoting Winter Sports Industry

Based on their respective function positioning as well as the Games venues and supporting infrastructure, Yanqing District and Zhangjiakou have made full use of their cultural, historical and ecological resources to create a complementary and mutually reinforcing industrial system, promote the development and transformation of the winter sports industry, promote the sports-culture-tourism belt in Beijing and Zhangjiakou and boost high-quality regional economic development.

Beijing-Zhangjiakou Sports-Culture-Tourism Belt

The Beijing-Zhangjiakou Sports-Culture-Tourism Belt, extending northwest from Beijing to Zhangjiakou, features a close partnership between Beijing's Mentougou and Yanqing districts and all counties and districts of Zhangjiakou.

Efforts have been made to build a Great Wall National Cultural Park in this area by following the development pattern of "one park and five areas". The construction of a national winter tourism resort, a hot spring grape (wine) recreation area, a castle folk culture experience area, the Bashang grassland ecological tourism area and a high-end sports area will be accelerated, to create a diversified, personalised and interactive product system with winter sports, cultural experience, outdoor leisure activities, health and vacation at the core. This will vigorously drive the development of the cultural, sports and tourism sectors in Beijing and Zhangjiakou, greatly promote the flow of production factors such as human resources, capital and technology between Beijing and Zhangjiakou, boost infrastructure integration and equalise access to public services. This will also further relieve Beijing of nonessential functions to its role as the capital, thus contributing to the coordinated development of the Beijing-Tianjin-Hebei Region.



3.3.1

Development of Winter Sports Industry in China

As Beijing 2022 approaches, winter sports are becoming a part of life for more and more Chinese, and the winter sports industry is showing a bright prospect. Over the last five years, the industry has undergone structural reforms to support the industrial development. Areas including technology, human resource and standards,

which are fundamental to the industrial development, are being consolidated. Emphasis has also been placed on developing renowned enterprises and providing support for related enterprises to grow and expand. These efforts have brought about the rapid development of China's winter sports industry.

3.3.2

Rapid Development of Winter Sports Industry in Beijing and Zhangjiakou

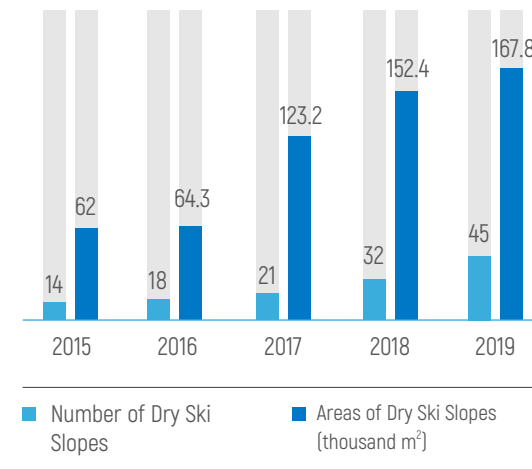
Winter sports industry bases have taken shape in Chongli District (Zhangjiakou), Jilin City, Yabuli (Heilongjiang Province) and Xinjiang. By the end of 2020, the number of standard ice rinks reached to 1,187 from 609 in 2018, and the number of ski venues reached to 701 from 524 in 2018. Winter sports venues are on the increase across the country. Between 2015 and 2019, the number and area of dry ski slopes in China increased year after year, some of which are even located in

low-altitude southern provinces such as Guangdong and Hunan. This shows people's growing enthusiasm for snow sports despite geographical and climatic limitations. Special facilities for fitness for people with impairments in winter are upgraded. By 2020, 50 fitness demonstration sites for people with impairments in winter sports have been built nationwide, and public winter sports facilities have been promoted to provide services for people with impairments.

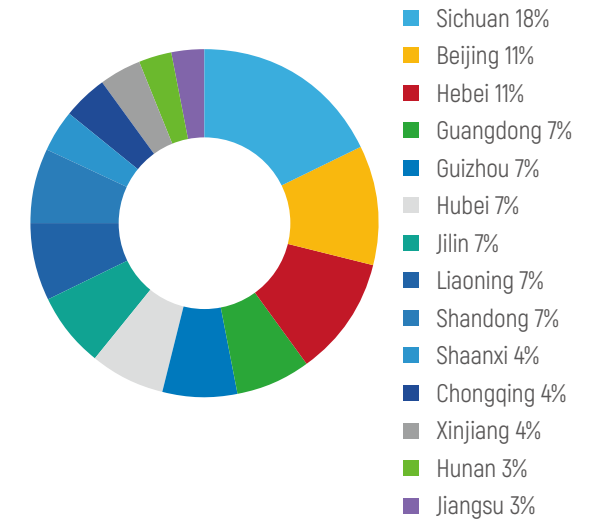
Construction of the National Ice Sports Arena for People with Impairments

Located in Shunyi District of Beijing, the National Ice Sports Arena for People with Impairments is China's first ice sports training venue dedicated to people with impairments. It will serve as the training venue for the Chinese Paralympic ice sports teams to prepare for the Beijing 2022 Games. This fully accessible venue includes arenas meeting international federations' standards, advanced equipment, and services for physical training, research and medical care, rehabilitation, meeting, etc. The Arena covers an area of 18,000 m², with a total floor space of 31,473m². It consists of a competition and training hall for Para Ice Hockey, a training hall for Wheelchair Curling and a multifunction building.

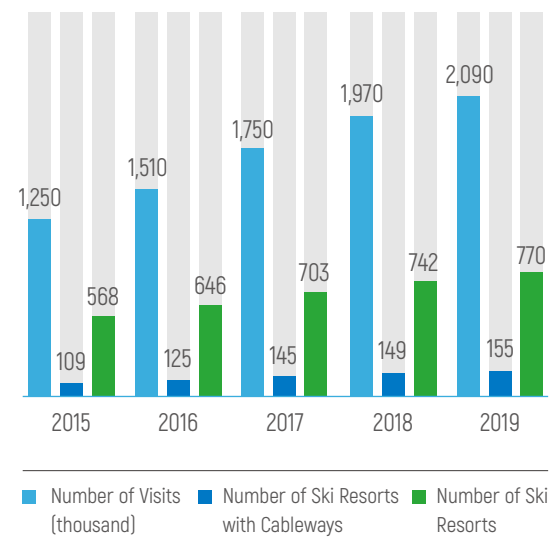
Number and Total Areas of Dry Ski Slopes in China from 2015 to 2019



Distribution of Dry Ski Slopes in Operation in 2019



Number of Ski Resorts in Operation in China and Number of Visits from 2015 to 2019



Number of Indoor Ski Fields in Operation in China from 2015 to 2019



Note: data source: China Ice & Snow Tourism Report 2021 by China Tourism Academy

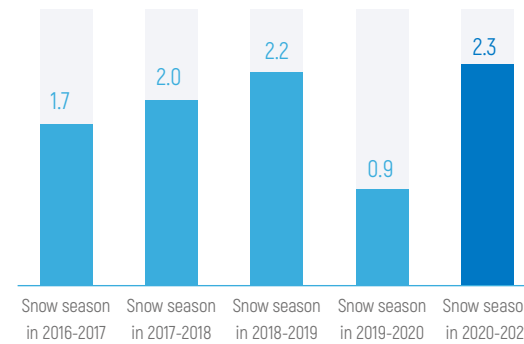
Growth of Winter Tourism

Winter tourism brings significant revenue growth to the two ski resorts in the Yanqing District and Zhangjiakou. In 2019, Zhangjiakou received 86.05 million tourists, with the total revenue amounting to RMB 103.7 billion, up by 17.0% and 20.7% respectively over the previous year. In 2019, A-level scenic areas and major tourist attractions in Yanqing District received 17.035 million tourists, up by 6.0% over the previous year, with the corresponding tourism revenue reaching RMB 1.09 billion.

In the snow season from 2020 to 2021, the number of people engaged with ice and snow sports had reached 230 million in China, and the income of ice and snow tourism exceeded 390 billion yuan.¹¹ The above figures show that China's ice and snow tourism has entered a period of rapid development. Along with the growth of ice and snow tourism, a large number of "ice and snow resorts" have emerged in China, which combine different forms of business such as sports, holiday, shops, leisure and entertainment. A total of 26 "ice and snow resorts" were built in China in 2017, and the number reached about 40 in 2019.

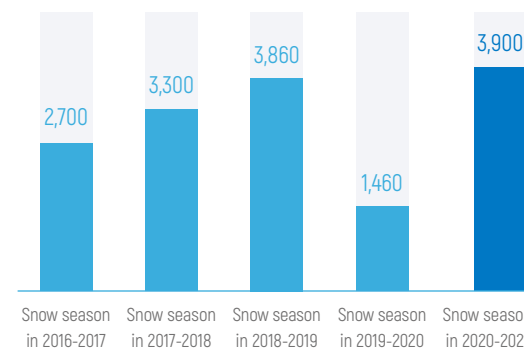
Number of Winter Tourists in China 2016-2020

Unit: 100 million persons



Winter Tourism Revenue in China 2016-2019

Unit: RMB 100 million



<p>Beijing</p> <p>Give full play to resource advantage as the capital of China and provide support for the Yanqing Zone and Zhangjiakou in accommodation, catering and other fields to improve their public service capacity and service levels.</p>	<p>Yanqing</p> <p>Actively explore the "winter sports +" mode and drive the interconnected development of the ecological environment, tourism, sport, culture, education, science and technology and other sectors. Moreover, the guesthouse industry has seen rapid and orderly development, as well, creating a large number of jobs.</p>	<p>Zhangjiakou</p> <p>Vigorously develop the winter tourism industry as the Beijing 2022 Games draw near. There are already more than 30,000 people directly or indirectly involved in the winter sports industry and tourism service.</p>
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¹¹ Data source: Report of China's Winter Tourism Development (2021)

Vigorous Development of Winter Sports Equipment Industry

The building of ice and snow equipment industrial parks is progressing steadily. By 2019, nearly 20 ice and snow equipment industrial parks were under construction or planned in the whole country, nine of which are located in Hebei Province¹².

In this regard, Zhangjiakou uses the existing resources of machinery industry to actively attract renowned ice and snow equipment R&D and production enterprises

from both home and abroad. As a result, the number of contracted projects in Zhangjiakou increased:

from 8 in 2017, to 21 in 2018 and 32 in 2019¹³, the coordinated production capacity of the industry chain continues to strengthen and the supporting facilities continue to improve at these parks, which has created a sound environment for further development of the equipment manufacturing industry.

Create an International Winter Sports Resort

From 2018 to 2020, Zhangjiakou hosted 7 FIS World Cup events, 4 points-races, 9 Asian Cup events, 31 national competitions, 13 provincial events. In the 2020-2021 snow season, more than 200 winter sports events were held in Zhangjiakou, and the number of participants exceeded five million. In Beijing, a number of international events were held in succession, such as the WCF Curling World Cup Grand Final, the FIS Cross-Country Skiing China City Sprint Beijing, the FIS Freestyle and Snowboard World Cup, and the FIS China Beijing Roller Ski World Cup 2019.

In addition, according to the statistics from Zhangjiakou Municipal Bureau of Sports, the city has staged over 30 provincial and municipal poverty alleviation sporting events in 2019, which attracted over 12,000 participants from the Beijing-Tianjin-Hebei Region and neighbouring provinces. The events benefitted over 1,000 people below the poverty line from eight counties and districts, and offered 881 event-service job opportunities to households below the poverty line.

World Winter Sports (Beijing) Expo

Since 2016, the International Winter Sports (Beijing) Expo has been held in Beijing for six consecutive years. To date, the Expo has become the world's largest and most authoritative one in the winter sports industry. It has also been played a positive role in promoting international exchanges in the winter sports industry.



¹² CCID Consulting

¹³ Progress Report of Hebei Provincial Government 2020

3.4

Setting an Example of Urban Regeneration and High-Quality Development

The preparations for the Games are fully in line with the development plans of Beijing, Yanqing District and Zhangjiakou, exploring the pilot projects of urban transformation. The Shougang Park, as an old industrial area, has been renovated and revitalised. In Zhangjiakou, a significant number of people have been lifted out of poverty and the overall urban appearance has been fully improved. In Yanqing, new industries with regional characteristics have been developed. These changes brought about by the Games inject new impetus for the sustainable development of the cities, making a model of urban regeneration.

3.4.1

Creating a New Landmark of Urban Regeneration in the Shougang Area

Due to the staging of Beijing 2008 and the effort to reduce pollution while promoting socio-economic development, the steel plant of Shougang Group in Beijing was shut down and relocated.

In 2016, the Beijing Organising Committee for the 2022 Olympic and Paralympic Winter Games moved into Shougang Park. In 2018, Shougang Group signed the agreement with Beijing 2022 to become the Official Partner of Urban-renewal Services of the Games. Shougang has seized the strategic opportunity to combine:

- The creation of a new landmark in Beijing, as part of the drive of urban renewal;
- The regeneration of the old industrial park;

- The development of the company toward energy-saving and pollution-free business; and
- The staging of the Games.

The new Shougang Park follows the concept of development on less resources, promotes sustainable and intelligent technology, creates a new driving force for innovative development and uncovers new resources for cultural development.

The goal is to establish a new landmark that represents high-quality development, advanced urban governance, high-quality living and business environment, and cultural prosperity of the capital of China.



The No.3 Blast Furnace in Shougang Park

Cultural Renaissance

As Beijing 2022 formally settled in the Shougang Park, internal functional transformation and space renewal were carried out for all buildings on the prerequisite of retaining the original industrial heritage. Buildings once used for making steel and storing materials were transformed into modern office facilities. Two cleaned coal workshops with an area of 25,000 m² were successfully transformed into short track speed skating, figure skating, curling and ice hockey training venues for the Games ("the four rinks"), which are already in operations. Also, the world's first permanent big air ramp has been built here.



Beijing 2022 Headquarters

Industrial Revitalisation

Relying on Internet technologies, the Shougang Park accommodates headquarters of many enterprises directly under the central government and boasts scientific research talent resources and financial capital advantages. It takes on the task of improving Beijing's industrial innovation chain and promoting industrial revitalisation through 5G+ industrial Internet. Unmanned new energy vehicles are promoted in the park.

Ecological Restoration

The Shougang Park is the first project under the C40 Climate Positive Development Program in China, which has become a model of urban ecological restoration. The park integrates ecological improvements into the western Beijing ecosystem and urban ecology, focuses on eight key ecological projects, such as the water system connection project within the park and the waterfront forest park. The following three results have been achieved: 1. With campaigns such as "providing

Vigour Rejuvenation

To rejuvenate and revive the park, the Shougang Group introduces stores, sports experience, leisure and entertainment activities into the park, to facilitate consumption upgrading in Beijing. Meanwhile, an

Featured skywalks transformed from former industrial transmission corridors connect functional zones and green public spaces. In 2021, China International Fair for Trade in Services was successfully held at the Shougang Park, promoting the industrial development of trade in services and making revitalisation of old industrial facilities at the Shougang Park a vivid case for this fair.

service guarantee for the Beijing 2022 Games", the environment of the winter sports square area has been greatly improved. 2. Based on the comprehensive management and ecological restoration of the Yongding River, a green ecological belt connecting lakes, wetlands and streams has been formed. 3. A corridor integrating ecological conservation and the protection and inheritance of industrial heritage has been built in the main plant area of Shougang.

international talent community is also established in the park, including office buildings with an area of 500,000 m². All these measures make the Shougang Park a vibrant community where people live and work.

3.4.2

Building Zhangjiakou Into a Top Winter Destination in Asia

Zhangjiakou grasps the opportunities brought by the Games to promote the ice and snow sports and the sports industries in the city, draws strength from the development of ice and snow tourism and related industries, drives the upgrading of the local infrastructure and helps people out of poverty¹⁴. It has significantly improved its current circumstances, and aims to build itself into a top winter destination in Asia.

Growth of Winter Sports Venues

Since the start of the preparatory work for the Games, 3 ski resorts have been built and put in operation in Chongli District, where at present, there are 7 top-level ski resorts, 169 ski courses with a total length of 162 kilometres, 67 ropeways totalling 44.5 kilometres, and a

total transport capacity of up to 63,700 persons / hour. Currently, Zhangjiakou is becoming a new ski centre in the Beijing-Tianjin-Hebei Region and China's largest skiing resort¹⁵. So far, more than 6,000 jobs have been directly created at the 7 ski resorts.

Booming Development of Ice and Snow-Related Industries

The ice and snow sports venues provide opportunities for the development of the ice and snow-related industries in Zhangjiakou. Jing-Zhang-Ao Carving Winter Sports Industry Park has been built in Xuanhua, Zhangjiakou, and the ice and snow industry and other related industries have been introduced and developed in the High-tech Industrial Development Zone of Zhangjiakou. At present, a host of well-known enterprises have been operating in the High-tech Industrial Development Zone, covering such products as ski gear (skis, ski boots and ski suits), machinery (snow making machines and groomers), as well as winter sports equipment and rehabilitation exercise

equipment. Meanwhile, high-end service providers and R&D organisations have also been introduced in the High-tech Industrial Development Zone, creating a complete industrial chain.

Zhangjiakou supports the development of "minsus", or Chinese-style bed and breakfast homestays. It has promulgated supporting policies, guided the creation of industry associations, promoted joint ventures between enterprises and villages, assisted farmers in refurbishing their accommodation to meet "minsus" standards, and strengthened financial support accordingly.

¹⁴ For more information, see the [Legacy Report of Olympic and Paralympic Winter Games Beijing 2022 \(pre-Games\)](#) p.84

¹⁵ Quoted from the China Ice & Snow Economic Development Report (2020)

Driving the Upgrading of Local Infrastructure

Since Beijing was elected as the host of the 2022 Olympic Winter Games in 2015, Zhangjiakou has continuously upgraded and improved its infrastructure, laying a solid foundation for further development of the ice and snow tourism and the regional economy.

Zhangjiakou has completed the constructions of the Chongli section of the Beijing-Zhangjiakou High-speed Railway, the Taizicheng-Chongli Section of the Taizicheng-Xilinhot High-speed Railway, the Zhangjiakou-Chengde Expressway, and the Beijing-Chongli Expressway. It also improved its urban roads at all levels, as well as three major passenger transport hubs of Taizicheng High-speed Railway, Chonglibei and Chongli'nan passenger transport hubs, forming a comprehensive transport network consisting of four north-south routes, three east-west routes and one ring road. This has effectively alleviated the former

challenges relating to the fundamental development of Chongli District, such as the insufficient transport conditions. As a result, presently, Chongli District is being integrated into the "Beijing one-hour living circle".

Furthermore, effective measures are taken to ensure the full coverage of electricity, radio and television signals, broadband coverage, and 4G network signals for all poverty-stricken villages.

The above measures have increased the development level of the region and boosted the ice and snow industry and cultural and tourism industry in Zhangjiakou. It has provided convenience for Chinese and Asian ice and snow tourism enthusiasts to enjoy the passion and pleasure brought by winter sports in Zhangjiakou.

3.4.3

Building Yanqing into an All Year Round Destination

The Yanqing Zone is an important ecological barrier and water protection area in the capital. Since Beijing's election as the host of the 2022 Olympic and Paralympic Winter Games, Yanqing District has taken the opportunity to consolidate its strategic positioning as a major ecological-conservation area and technological-innovation area of the Chinese capital, as well as an international sports, cultural, tourism and leisure area. The initial results of regional development efforts is already visible in Yanqing. Between 2015 and 2019, the per capita disposable income of residents in Yanqing District increased by 35.2%.

improving the Overall Environment

Coal has been replaced with electricity in 42 villages. Joint efforts are made with Zhangjiakou for the prevention and control of regional air pollution. In 2021, the annual mean concentration of PM_{2.5} was 29 µg/m³, 52.5% lower

than that in 2015. The surface water quality of the entire region is stable, reaching Class III or above. The forest coverage rate of the district is more than 60%.

Improving Public Service Capacity of Infrastructure

Yanqing has made continuous efforts to improve regional transport infrastructure and optimise the regional transport environment in addition to the Beijing-Zhangjiakou High-speed Railway, the Beijing-Chongli Expressway and other related projects. 34.2 km of new

urban roads in Yanqing District have been added to the existing road network. All rural roads are open to traffic. The proportion of rural roads of medium class or above reaches 73.3%, with a traffic mileage of 1,068 km.

Boosting Economic Development

The constructions of the Hydrogen Industry Park, the Green Computing Centre, the Smart Microgrid Management System and other projects have been accelerated, with 57 new energy and Internet of Energy (IoE) enterprises introduced. Focusing on the international appeal of the Beijing 2022 Games, the

2019 Beijing International Horticultural Exhibition and the Great Wall, Yanqing District have promoted tourism in a coordinated way, and has become a popular year-round tourist destination and a national tourism demonstration zone.

"Guesthouse" Businesses Thriving in Yanqing

The Games brings new vitality to the development of Zhangshanying Town, where the Yanqing Zone is located. After the end of the Games, Yanqing District will become an integrated travel destination open to the public all year round, where top-level competitions can be held and skiing, ice and snow festivals, hot springs and other related services are available. In non-snow seasons, multiple options will be provided, such as fishing, rock climbing, grass skiing, track experience, camping, mountain hiking, zip lining, cableway sightseeing, outdoor training camping and automobile camping. Since 2017, It has grown from a few home-stays in the beginning to a boutique home-stay with more than 120 brands and 400 small courtyards, and an overall reception capacity of 4,000 beds. In 2020, Yanqing District revitalised over 500 idle houses

and increase villagers' property income by more than 12 million yuan, promote the employment of more than 1,000 villagers with an average annual increase of labour wages of nearly 30,000 yuan per person, drive village collectives and cooperatives to increase their income by more than 10 million yuan.



Yanqing Guesthouse

04 Better Life for the People

The Beijing 2022 Games adheres to a people-centred development concept, combining Games preparations with human development. Stakeholders are engaged in cultivating a group of international talents with a sustainable vision. Proper resettlement arrangements were made for residents previously living in the competition zones with more employment opportunities provided for them. Activities promoting the Games are carried out on campus. The Olympic spirit is conveyed and sustainable concept of the Games is also promoted on campus. The popularity of winter sports is greatly boosted and national fitness activities are promoted. A good social atmosphere is fostered. The Beijing 2022 Games brings local people more opportunities for living a better life.



4.1

Promoting Professional Development

Beijing 2022 adheres to its people-centred principle, accelerates training of competent personnel and builds a team of high-calibre professionals with international exposure and experience. Proper resettlement arrangements were made for residents previously living in the competition zones with jobs and business opportunities created for them. This helps improve the life of people in poverty and promotes the integration of the Games preparations and human development.

4.1.1

Protecting the Rights and Interests of Staff

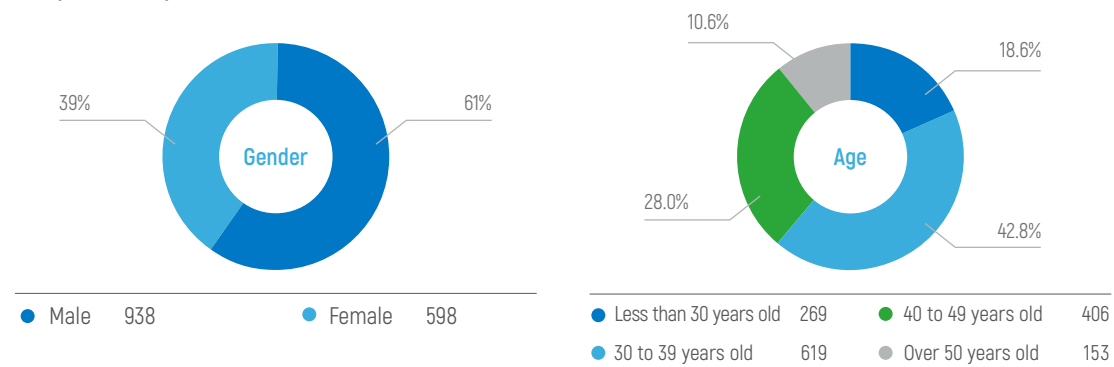
Beijing 2022 attaches great importance to the protection of its staff's rights and interests in staff selection, training, cultural integration and other related aspects.

Staff Selection

Beijing 2022 respects cultural diversity, different traditions and equality for all, rejects all forms of discrimination on the grounds of race, ethnicity, religion, political opinion and position, gender, disability, or place of birth, and ensures an open, fair and impartial recruitment and appointment process. Beijing 2022 conducts its recruitment (including campus recruitment) on a regular basis, and makes a point of involving talents who were involved in the Beijing 2008 Games in the preparations for

the Beijing 2022 Games. By 30 October 2021, we recruited 1,536 staff members including 3 people with impairments and 131 ethnic minority members, accounting for 0.2% and 8.5% of the total; 598 females, accounting for 39%; 1,203 secondees and 333 hired from the general labour market (including 4 foreign experts, 119 new graduates); about 15% had worked for the 2008 Games. More staff members will be recruited for the Games time.

Composition of paid staff as of 30 October 2021



Protection of Legitimate Rights and Interests

According to the employment contract signed between Beijing 2022 and its staff, the salary is entirely based on the positions, and has no relevance to the employee's gender or ethnicity. Each of the paid staff of Beijing 2022 receives social insurance in accordance with the applicable State regulations, and provides working conditions and protection suitable for their physical conditions for staff disabilities. If staff members suffer from occupational disease or industrial injury, they will receive subsidies or compensation based on the relevant laws and regulations of the State. Beijing has formulated the Methods for the Management of Personnel Selected by Beijing Municipality to Work in Beijing 2022 to guarantee the legal rights and interests of personnel selected to work in Beijing 2022 from the CPC, government organs and public institutions of Beijing municipality.

Talent Cultivation

Beijing 2022 has formulated various professional talent development and training policies. By "Going out" and "Bringing in", they aim to turn out a team of professionals who can thrive in an international environment. By the end of August 2021, 375 training programmes were implemented, totalling 4,800 hours and involving 26,000 trainees. This provided strong brainpower for the Games preparations.

Bringing in. Beijing 2022 has established a system of specially-appointed experts and a "biweekly lecture hall" learning and training system, selected 61 top domestic and foreign industry experts to participate in Games preparations, organised 22 training courses, covering 2,800 trainees. Experts in related fields in China and

abroad were invited to give 33 sessions of "biweekly lectures", and a total of 1,700 people have been trained.

Going out. For four consecutive seasons, over 650 staff members have been sent abroad to gain experience and skills in hosting the Games.

"Going out" to organise the largest observation and learning activities in the history of the Olympic Winter Games

During the PyeongChang 2018 Games, Beijing 2022 organised the largest and most widely participated Games-time learning activity in the history of the Olympic Winter Games, also with the longest overall duration. A total of 254 staff members were dispatched to participate in the on-site training. Among them, 41 key staff members participated in the in-post practice in POCOG for 1-4 months; 144

participated in the official Observer Programme organised by the IOC and the IPC; 24 specialists participated in sports management, broadcast services, technical exercises and other special practices. Furthermore, Beijing 2022 coordinated and supported sponsors, property owners and other stakeholders to send 45 staff members to carry out various forms of learning activities.

Carrying out general training. General training is carried out, including induction training which has been provided for new staff for four years in a row and English skills training both online and offline, involving 4,900 trainees. Professional training is furthered through making implementation opinions, sorting out and summarising 630 items of specialised knowledge and skills, and conducting 187 professional training programmes. Venue-specific and on-the-job training is strengthened through formulating related guidelines and outlines. Altogether, 26 venue-specific training programmes are implemented according to the needs of the test events.

Strengthening the foundation of training. Training materials are prepared, such as *An Introduction to the Olympic Culture*. Videos introducing sports competitions are made, including 15 for the Olympic Winter Games and 6 for the Paralympic Winter Games. In addition, 25 training bases for the Games are established.

Cultivating talents. To engage the public in Games preparations and establish a platform for talents to contribute to and enjoy the Games, Beijing 2022 held 52 training courses, having trained and retained 5,700 national technical officials from 17 provinces and cities. From 2015 to 2020, the number of technical officials in winter sports continued to increase, for instance, the number of national referees in national ice sports increased from 64 to 357 and the number of international referees increased from 6 to 106; the number of referees in snow sports increased from 108 to 523, and the number of international referees increased from 18 to 25; for skiing, bobsleigh and skeleton, and luge events, the number of national referees increased from 24 to 79, and the number of international referees increased from 24 to 79. Altogether 807 Games-time interns from 26 colleges and universities are recruited. Newly admitted graduate students are selected for the in-post practice in the venues of the Beijing 2022 Games lasting six months to one year, to train and cultivate talents in practice.

Training bases for the Games

Beijing 2022 fully mobilises all sectors of society to participate in the Games, gives full play to advantages of training bases such as colleges and universities, builds professional and international talent training platforms and deepens talent training, education and knowledge management for the Games. It gathers human resources and intellectual elements for the preparations for the Games, pushes ahead the development of higher education, creates valuable legacies in terms of human resources and culture, and promotes the development of winter sports. By 30 June 2021, Beijing 2022 approved a total of 25 training bases.

Professional training materials

Beijing 2022 has compiled general training manuals (e.g., *Basic Knowledge for Beijing 2022 Staff, Programme of the Olympic Winter Games, Programme of the Paralympic Winter Games and Sustainability of the Beijing 2022 Games*) and 50 job-specific training manuals, including the *Training Materials for Beijing 2022 Sustainability Staff*. Beijing 2022 has also prepared 234 kinds of electronic handouts and 389 videos, forming a rich teaching material system consisting of materials for general training, job-specific training and venue-specific training.

Promoting information and knowledge management. The Information and Knowledge Management (IKM) platform is built based on the IOC knowledge management system. Beijing 2022 uploads hundreds of videos and written learning materials on the platform. These materials cover a comprehensive set of information, data and knowledge about the Beijing 2022 Games, inspiring cases and videos of previous OCOGs as well as a series of learning resources open to the public. The IKM platform features a data search function, an online test function and an English/Chinese interface, providing a "menu-style" curriculum for different learners. A mobile app is also available, which makes learning possible at any time or place, greatly improving the efficiency of Games-related information dissemination and learning.

For more information, please visit: education.beijing2022.cn

4.1.2

Promoting the Growth of Frontline Workers

The Beijing 2022 Games has created a large number of jobs. More than 60,000 workers from nearly 800 construction companies have participated in the constructions of the Games venues, about 30% of which were from Hebei Province. In addition to ensuring the quality of venue constructions, companies participating in the venue constructions have also taken appropriate measures to protect the rights and interests of the construction workers, created a healthy and safe workplace, and offered training to help workers improve work skills in accordance with relevant laws and regulations concerning construction projects at national and local levels.

Protection of Workers' Rights

The general contractors of the Games venues have signed employment contracts with the construction workers and covered the relevant social security tax for the construction workers in accordance with the law. They all adopted a worker management system, which included dedicated wage accounts for national and international migrant workers working on the construction projects, in order to ensure that migrant workers receive wages on time and in full in accordance with the Regulation on Ensuring Wage Payment to Migrant Workers and other relevant regulations. The management system also ensured that the overtime hours of frontline workers does not exceed the legal maximum hours of overtime and that migrant workers were paid the corresponding overtime wages according to the actual overtime hours worked. The human resources and social security departments of the municipal governments of Beijing and Zhangjiakou attached great importance to the protection of all workers' rights. They established a dedicated Worker's Rights monitoring framework

to ensure that workers were paid their wages based on market value. This framework included regular inspections, and worker interviews to eventually handle any complaints and reports. They also launched general awareness and education campaigns to build knowledge of frontline workers on labour law, labour contracts, equal employment opportunity, rest and vacation, wages and remuneration, workplace safety and protection, vocational training, social security, and welfare entitlements. These education campaigns aimed at making sure workers were fully aware of their rights and how to protect their own rights by legal means. They also opened the human resources and social security hotline 12333 to provide immediate consulting services related to workers' rights. For example, the general contractor of Big Air Shougang also organised two training activities to make sure construction workers were specifically informed of relevant laws and regulations and knew how to safely and efficiently protect their own rights by legal means.

Workplace Health and Safety

Contractors have provided construction workers with healthy and safe working and living environments in accordance with the Construction Safety Inspection Standard (J1334-2011) and the Construction Site Environmental and Sanitation Standard (JGJ146). They have also provided construction workers with clean and safe accommodation and other facilities such as canteens and recreational facilities. They have also kept a sufficient inventory of personal protective equipment and other medical supplies and particularly strengthened the management of these supplies during the pandemic.

Construction companies have launched a three-level (company, project management department,

and construction team) safety training programme, covering laws, regulations, industry standards, and real-life scenarios on construction sites related to workplace health and safety. All construction workers working on venue construction projects of the Games have participated in the training. Construction teams have held safety meetings at the start of each shift to communicate relevant requirements, regulations, new policies, etc. to every frontline worker in a timely manner. Fire drills have been carried out on a regular basis to strengthen the safety awareness and emergency response ability of the construction workers. Until 30 June 2021, no fatality had occurred during the constructions and renovations of the venues of the Beijing 2022 Games.

Companies engaged in the construction of the Olympic venues actively participated in the municipal and national "Ankang Cup" competitions and performed well in such indicators as production safety management, leaders' awareness of production safety, and employees' knowledge and capability of production safety. They won a series of collective and individual honours in the competitions, such as Excellent Unit, Excellent Group, Excellent Individual, and Safety Guardian.



Safety meeting of construction workers (Photo by the National Speed Skating Oval)

Skills Training

Venue construction of the Beijing 2022 Games is a demanding and challenging task. In order to ensure the quality of venue constructions, constructions companies have provided skills training to construction workers to improve their work skills, which have also brought them career development opportunities. For example, the track in the National Sliding Centre in the Yanqing Zone is the first track made of reinforced concrete in China that has applied the high-velocity shotcrete construction technology. As the most important construction technology for track constructions, shotcrete, or sprayed concrete, requires very high levels of accuracy and precision. The construction company selected 21 nozzlemen from thousands of construction workers and trained them in shotcrete application, which helped them improve their structural shotcrete application skills and pass the assessment of international experts.



On 27 October 2018, Xiang Maosheng, the captain of the shotcrete crew of the sliding track at the Yanqing National Sliding Centre, was spraying shotcrete with a spraying gun. (Photo by the Media and Communications Department of Beijing 2022)

Liu Boqiang was a steel roller at the old Shougang factory. Preparing for the Games gave him an opportunity to be an icemaker at the Sports Centre Operations and Management Company Limited of Beijing Shougang Park. By 2021, he has maintained ice surface for a series of important events, including training sessions of three national teams, the first winter sports meet of Beijing, the 2018 Chinese Figure Skating Interclub League finals, and some qualification trials for the national curling team.

"I hope to work with top foreign and domestic ice makers at the advent of the Games, to keep refining my skills and experience, and help to develop the best ice making technology in China."



Residents relocated due to the Games will be resettled properly and become the direct beneficiaries of the development of the winter sports industry. The rights of the relocated residents are protected by the Property Acquisition and Demolition Law of the People's Republic of China.

4.1.3

Support from Residents in Competition Zones

Starting already from the bidding phase, Beijing 2022 and the municipal governments of Beijing and Zhangjiakou have attached great importance to the impact of the preparations and hosting of the Games on the local communities. They gave full consideration to the issue of resettlement of local residents when the three competition zones were selected. The constructions of the Beijing Zone have not induced resettlement. The governments of the Yanqing District and Zhangjiakou protect the legal rights and interests of the relocated residents, and have taken a series of actions, including negotiating with affected residents, resettling residents, and offering compensation and training to relocated residents, to protect the rights of residents relocated during the constructions in the Yanqing and Zhangjiakou zones and improve their living environment and life quality.

Resettlement of Residents

The governments of Yanqing District and Zhangjiakou have strictly abided by the Property Acquisition and Demolition Law of the People's Republic of China and relevant local regulations and policies, consulted with the residents concerned, and reached mutually acceptable agreements with the residents on the resettlement plan, which involves cash compensation, replacement of assets, resettlement subsidies, etc.

The Zhangjiakou Zone

After systematic investigations, discussions, evaluations, and several rounds of solicitation of public opinion and opinion of residents concerned, the government of Zhangjiakou has finalised the Compensation and Resettlement Plan. All decisions and relevant information concerning the relocation have been publicised. A total of 561 households (1,465 residents) in the Zhangjiakou Zone, including 421 households (1,102 residents) in Taizicheng Village and 140 households (363 residents) in Guyangshu Village, were relocated. 96 households chose cash compensation, and the remaining 465 households chose replacement housing in the three modern residential complexes constructed in the downtown area of

Chongli District. Representatives of relocated residents were invited to participate in the site selection and architectural design of the three residential complexes. The rate of cash compensation was RMB 3,435.05 per hectare. According to the assessment results of the representative of the relocated residents, the acquired houses and other properties have been compensated at fair market value. The government of Zhangjiakou has also paid contributions to the employer-sponsored old-age insurance scheme/basic urban resident old-age insurance scheme for relocated residents over 16 years old, leased farmland to relocated residents who are willing to continue to engage in agricultural production,

provided skills training for relocated residents who are willing to work, and encouraged local businesses and organisations to offer employment opportunities to relocated residents. Altogether 315 relocated residents have found a new job. The government of Zhangjiakou has also made arrangements with local high-quality educational institutions. A total of 178 children of relocated

residents have been enrolled in new schools. Before the resettlement, the per capita living area of the relocated residents was 32 square metres, and the per capita income was RMB 8,277. After the resettlement, their per capita living area increased to 55 square metres, and per capita income increased to RMB 17,259.



1. Resident representatives discuss the land requisition and relocation plan 2. Residents representatives participate in site selection and architectural design 3-5. Living environment after relocation

Yanqing Zone

The construction of the Yanqing Zone displaced 53 households (118 residents) in Xidazhuangke Village. After thorough surveys of the village and consultations with the villagers, the government of Yanqing District finalised the acquisition and compensation programme under which it agrees to provide housing for the villagers and improve the villagers' living conditions; and to return the assets and facilities that are owned by the village collective and upgraded for the Games to the village after the end of the Games. These measures will enable the villagers to improve their living environment and gain access to alternative income sources by operating hotels or homestays. All relocated villagers chose resettlement in the vicinity of their old homes. The villagers held a meeting and elected five representatives as observers to participate in the entire resettlement process, including consensus decision-

making on matters concerning compensation standards for property acquisitions. The replacement houses were constructed in accordance with identical standards as the Yanqing Olympic and Paralympic Village. Constructions started in July 2019 and completed in June 2021. Compared with their old homes, the replacement houses provide upgraded living conditions for the relocated residents. Furthermore, Xidazhuangke Village has cooperated with local enterprises to establish a collective winter sports business by contributing part of the residential land owned by the village collective. The business provides a stable income source for the villagers. The villagers can also increase their family income and improve their quality of life by renting out houses, participating in relevant support operations of the Beijing 2022 Games, or engaging in the local winter sports industry.



Public opinion solicitation and signing of the property acquisition and compensation agreement



Old homes and new homes of the residents of Xidazhuangke Village

Re-employment Programmes and Training for Local Residents

The governments of Zhangjiakou City and Yanqing District have combined the preparations for the Games with local poverty alleviation efforts and formulated employment plans after taking into consideration the employment opportunities created by venue constructions and the local winter sports industry. For example, many local residents in the Zhangjiakou Zone participated in the green space maintenance training organised by the government and worked as forest rangers in the competition zone, bringing in extra income for their families. Zhangjiakou and Yanqing have created new jobs for local residents in crossover areas between the winter sports industry and catering, tourism, and other industries, benefiting 81,000 residents.

3,801 Chongli residents participated in training of such services as lodging, food and drinks, baking, security, and others that are in demand during the Olympic Winter Games. The Yanqing government cooperated with 102 well-known training institutions at home and abroad to implement training, and set up more than 200 professional types of work such as ski coaches and hotel services; establish post + training adaptability mechanism and carry out order training for 28,400 person times; with Beijing 2022 and a number of skiing institutions, 225 winter posts were developed and 1,905 people were trained. One fifth of the residents in Chongli and Yanqing have been engaged in the snow and ice industry, which has also played an important role in regional poverty alleviation.

The governments of Zhangjiakou City and Yanqing District have provided local residents with various skills training services. From 2017 to 30 June 2021,



Local residents in Yanqing participated in skills training related to the snow and ice industry

Find jobs near homes

In preparations for the Games, young people in Xidazhuangke Village of Yanqing are learning skiing, ice making and other skills. Older villagers are trained in high-end guesthouse management, English language and other skills. In the future, villagers will build high-end guesthouse inns with their resettlement housing and new skills to attract visitors from all over the world. In the meantime, some young people will work in popular ski resorts, achieving employment near their homes and "making a living from the local winter sports industry".

"With the Games just around the corner, we must step up to use what we have learned to welcome visitors from around the world and make them feel at home."

—Xu Jancang, a villager of the Xidazhuangke Village

The first farmer ski team

In July 2017, farmers from Zhangshanying Town, Badaling Town, Jiuxian Town, Xiangying Township and Yongning Town, in Yanqing District formed the first farmer ski team called the Zhangshanying Town Haituo Ski Team. The ski team has 31 members (15 members in the backup team), including eight female members. The oldest member is 38 and the youngest 21, with an average age of 29. With the support from the Yanqing District Government, the team members have participated in a large number of professional ski training sessions successfully improving their skiing skills. Eleven team members have obtained the professional ski instructor qualification

certificates. In the snow seasons between 2017 and 2020, the farmer ski team offered very popular basic skiing courses to a total of 6,500 local young and middle-aged farmers, primary and secondary school students and young volunteers.



From a security guard to a national referee for alpine skiing events

Xie Ting is a native of Chongli District. After graduating from secondary specialized school, he went to Beijing to work. He also ran a shuttle bus and worked as a security guard in Chongli. Later, his life was changed by the Beijing 2022 Games. In 2003, after a chance to get acquainted with winter sports, he began to devote himself to learning and became a professional ski instructor. After learning about the demand for ski referees in the Beijing 2022 Games, he actively participated in the training course for ski referees held by Hebei Province and served as an assistant referee in some winter sports events held in Zhangjiakou. After the training, theoretical examination and practical assessment of various events by the Winter Sports Management Center of the General Administration of Sport of China, he became a national referee of alpine skiing in 2020¹⁶.

4.2

Promoting the Olympic Spirit

The Beijing 2022 and the Ministry of Education have established a special working group on "Beijing 2022" Olympic education covering the education administrative departments of various provinces and cities. We have launched the campaign of "Green Home, Green Games" to advocate green, low-carbon and sustainable development and carry out green home building activities which engage the entire population, so that the public can learn more about the idea of hosting the Games and carry forward the Olympic spirit.

4.2.1

Olympic Education for the Youth

Introducing Winter Sports into Schools

The Beijing 2022 and the educational authorities have selected and built a number of schools featuring winter sports and model schools for education about the Olympic and Paralympic Winter Games (hereinafter referred to as "model schools"). The establishment of schools featuring winter sports and model schools set up models of winter sports education on campus, promote the winter sports on campus, increase teenagers' knowledge and interest in the Olympic Winter Games and Paralympic Winter Games, continuously enrich sports education and teaching activities. In this

way, winter sports teaching, training, competition and support systems adapted to the conditions in China are established, to advocate a positive and healthy lifestyle and the concept of inclusive development, consolidate the foundation for the winter sports among youth and enhance their physical quality. By the end of 2020, there were 835 model schools and 2,062 schools featuring winter sports, forming an overall layout focusing on northeastern, northern and northwest and radiating the whole country.



Olympic education in a primary school in Beijing



Olympic champion Wu Dajing gave a lecture at a middle school in Beijing

¹⁶ Xie Ting: From a security guard to a national referee for alpine skiing events (beijing2022.cn)

Promote the Knowledge about Olympic Games

Beijing 2022 continues to enrich the content of Olympic education, prepare related educational materials for teenagers and provide an effective tool for sports education on campus. It integrated the sustainability of the Games into the curricula and promotes the knowledge about Olympic Games to realise sustainable development of Olympic education. Beijing 2022 organised the preparation of readers on sustainability for primary and middle school students all over China elaborating the basic concepts of sustainable development and related practices of the Beijing 2022 Games, to cultivate the awareness of sustainable development of the young people and carry forward the concept of

sustainability from generation to generation.

Beijing 2022 introduced the general educational materials of the IOC and the IPC in China for the first time, and sent more than 60,000 relevant books to schools cross the country. The textbook was also officially collected in the Capital Library before the Children's Day in 2021. Beijing 2022 takes the lead in making and disseminating four animated educational videos including the Olympic Rings, Paralympic Games and Torch Relay as well as 15 short animated videos about the programme of the Olympic Winter Games. They have been viewed more than 46.475 million times via the official platform and other media.



Educational materials for the Beijing 2022 Games



"A sustainable Beijing 2022 Games, a sustainability future", the first class of the new semester in primary and middle schools in Beijing on 2 March 2021

List of education materials prepared for the Beijing 2022 Games:

- Olympic Values Education Programme (OVEP) Chinese Version
- Paralympic Values Education Programme (I'm POSSIBLE) Chinese Version
- Inside Beijing 2022 Games
- A series of Olympic Readers
- Olympic Knowledge Classroom
- Beijing 2022 Teaching Guide of Winter Sports for Primary and Middle School Students
- Knowledge of the Beijing 2022 Games for Teenagers
- Charming Games – Beijing 2022 Reader for the General Public
- Sustainability Knowledge of the Beijing 2022 Games

Organise Olympic Cultural and Educational Activities

Two Olympic-themed winter sports and carnival activities have been carried out successively nationwide. In 2020, a total of 867 teenagers from 19 provinces, regions and cities participated in 51 competitions, attracting about 7,000 teachers and students. Beijing, as the host city, has held winter sports meetings for middle and primary school students in Beijing for five years in a row, attracting more than 6,300 young athletes. By the end of 2020, the city had formed six municipal-level and 126 district-level teenager winter sports teams, with 7,565 registered athletes, an increase of almost 100 times from 2016. Zhangjiakou has formed 19 district-level and county-level winter sports teams with 766 registered athletes, up nearly five times from 2016. Authorities also organised various themed educational activities around various key dates and cultural aspects and set up stages for students to ensure wide participation.

Beijing 2022 and the Ministry of Education jointly carried out the theme activity of collecting stories about the

2022 Olympic mascots, "Bing Dwen Dwen" and "Shuey Rhon Rhon" with the aim of instilling the Olympic and Paralympic values to the students. The activity attracted 15.18 million primary and middle school students from over 37,000 schools in 25 provinces, regions and cities. A total of 4.667 million pieces of work have been collected. The international camp of young journalists themed "My Olympic Dream" was launched and two finals have been held. This event was carried out at 12 stations nationwide in 2019-2020, entered 1,000 primary and middle schools, and involved 1.5 million teenagers. The "Charming Winter Olympics" docent program invited students to participate in online quizzes on the winter Olympics, attracting more than 3,000 students from about 100 schools. The Beijing Winter Olympics Quiz for Primary and Middle School Students has been held for three consecutive years. In 2020, more than 390,000 students from 826 schools across Beijing participated in the quiz.



Organise primary and secondary school students to visit the Winter Olympic Exhibition Centre



Organise primary and secondary school students to participate in the emblem design of the Beijing 2022 Games

4.2.2

Promoting Olympic Values

The Beijing 2022 Games Exhibition Centre Attracts Tens of Thousands of Visitors

Transformed from the old factory buildings in the Shougang Park, the Beijing 2022 Games Exhibition Centre has received around 80,000 visitors in more than 2,300 groups by the end of June 2021 since it was officially open to the public in 2019. As the Games approaches, applications for visiting continue to increase. The Exhibition Centre plays an important role in the promotion of the Olympic Games, showing the concept and vision of the Beijing 2022 Games, as well as the achievements of sustainable development. Meanwhile, it also serves as an education base for winter sports, introducing events of the Beijing 2022 Games, promoting world peace through the Games. The Centre also carries forward the time-honoured winter sports in China encouraging "300 million of Chinese to engage in ice and snow sports".

The Beijing 2022 Education Tour Popularises Olympic Knowledge

On 31 July 2017, Beijing 2022, the Publicity Department and the Lecturers Group of the CPC Beijing Municipal Committee established the Beijing 2022 Education Tour telling the story of the Beijing 2022 Games, providing briefs on the preparation progress, popularising the knowledge of the Olympic Winter Games and spreading the Olympic values among people from all sectors of society. By the end of July 2021, the Education Tour carried out 330 promotional activities, including the "500 Days Countdown", the "300 Days Countdown", the "200 Days Countdown", the "100 Short Videos Played for 100 Days on a Cloud Platform" and the "Beijing 2022's campus events in 100 Universities". The Education Tour visited institutions, enterprises, schools, neighbourhoods, rural areas, as well as major museums and memorial halls, with more than 130,000 on-site audiences. The Tour played 100 short videos including "My Story with the Beijing 2022 Games", reaching over 100 million online audiences.



Beijing 2022 Games publicity activities

4.3

Advocating for a Healthy Lifestyle

Through building a platform for public engagement featuring sports, cultural and educational activities, Beijing 2022 vigorously popularises winter sports, promotes nationwide fitness campaigns, advocates a green and low-carbon lifestyle and guides the public to enhance the awareness of sustainability.

4.3.1

Popularisation of Winter Sports in China

When Beijing was elected to host the 2022 Olympic and Paralympic Winter Games, China made a solemn commitment to the international community: this Games will "encouraging 300 million of Chinese to engage in ice and snow sports" "Vigorous popularisation of winter sports" was introduced into the "the 13th Five-Year Plan". Winter sports are no longer only popular in north China. Since 2016, a large number of ice and snow sports venues have been constructed throughout the country and with these ice and snow facilities, many ice and snow-themed activities have been carried out.

Form A Complete System of Policies for the Development of Winter Sports

Since the beginning of the Games preparation, Beijing 2022 has been working closely with the central and local governments, aiming to encourage 300 million Chinese to engage in ice and snow sports. To achieve this ambitious objective, a policy framework for long-term development of winter sports has been established to encourage all people to participate in winter sports. This framework is aimed at breaking the regional, seasonal, social and cultural boundaries in winter sports, facilitating the national fitness for all programme, popularising the sports culture, and promoting the upgrade of winter sports industry. Thanks to these efforts, the ambitious vision of "encouraging 300 million of Chinese to engage in ice and snow sports" is gradually coming true.

Increased Access and Opportunities to Experience Winter Sports

Winter sports popularisation plans have been formulated and implemented to expand the winter sports from Northeast China and North China to the south and northwest regions of the country, promote the practice of winter sports in four seasons, and hold various events of winter sports for all.



Shichahai skating rink

National Public Ice and Snow Season

Starting from 2014, National Public Ice and Snow Season has been held every December for seven consecutive years, gradually growing into a nationwide popular event. To date, this event has become an influential platform to spread the ice and snow culture, promote winter sports and

motivate people to participate in winter sports. During the Seventh National Popular Ice and Snow Season in 2020, a lot of large-scale winter sports events were held across the country, attracting more than 100 million participants.

Popularising winter sports among people with impairments

In the whole country each year, more than 1,000 ice and snow activities are organised in diverse forms for people with impairments, such as

floorball, table curling, floor curling, ice cuqiu and VR snow sports, providing a platform for them to participate in winter sports.

"Happy Ice and Snow Season" attracting a great number of winter sport enthusiasts

Since 2016, Beijing has launched a total of 15,643 mass ice and snow activities as part of the Happy Ice and Snow Season, attracting 20.38 million participants. At the same time, the online

Happy Ice and Snow Season has also drawn wide attention. Online activities were also held in consideration of the current pandemic.

Improved Engagement of Social Organisations in Winter Sports

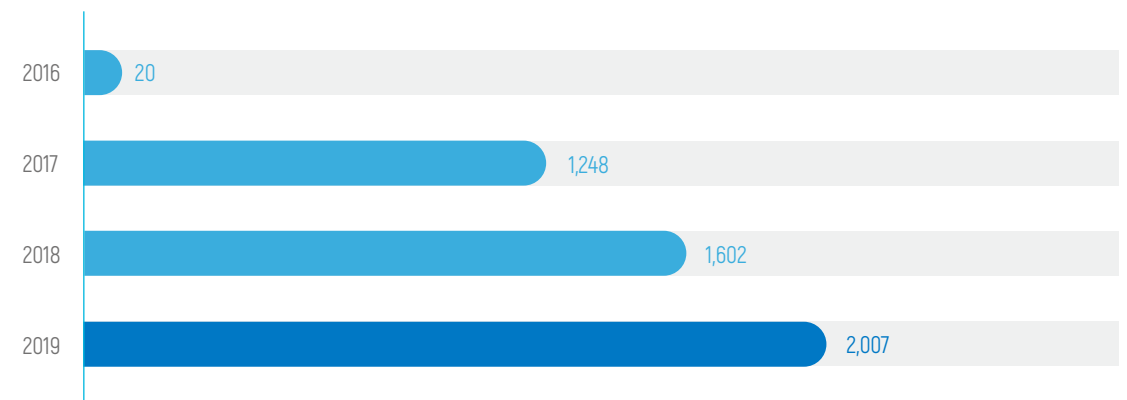
Pilot programmes have been launched to improve and reform the national winter sports federations, and boost their roles in sports for all, sports culture and other aspects. Local winter sports associations are encouraged to enhance their capacity to deliver winter sports services on governmental orders. Efforts are being made to accelerate the development of winter sports activities in local communities and rural areas. Beijing facilitates the establishment of 14 winter sports associations at both municipal and district levels, and coordinates the resources of winter sports venue operators and clubs. These winter sports associations are encouraged to establish local clubs for skating, ski, and curling, to provide more convenience for the local residents to participate in winter sports. The number of trained winter sports instructors in Beijing has reached 23,000. Hebei Province and the city of Zhangjiakou also support the local winter sports associations to offer

services to facilitate people's participation in winter sports. To date, the total number of winter sports clubs in Hebei Province has reached 162. The number of trained winter sports instructors in Hebei currently is 20,000.



Children practicing speed skating

Beijing Youth Ice Hockey Athletes Registered in Winter Sports



Promotion of Winter Sports among the Youth

The World Snow Day & International Children's Skiing Festival (a designated event for teenagers held during the National Public Ice and Snow Season), the National Public Ice and Snow Week (held during the summer vacation), the Youth Ice and Snow Winter Camp, and a series of free ice and snow events for the youth held in winter have attracted more and more teenagers. The Chinese Ice Hockey Association organised the National Youth U Series Ice Hockey Championships (Primary and Middle School Students). The Beijing Minor Hockey League has become the largest youth ice hockey tournament in Asia. It has successfully held the Beijing Youth Winter Events Championship and

U-series Championship, and created a Youth Ice Hockey Club League. From 2020 to 2021, 24 clubs, 213 teams and 3,127 athletes participated in the league, with 890 games, and the scale of the event continues to rank first in Asia. At the same time, it implemented the coordinated development strategy of Beijing-Tianjin-Hebei Region held 14 ice and snow events such as Beijing-Tianjin-Hebei Youth U-series Short Track Speed Skating Championship and Youth ice hockey Invitational Tournament, with nearly 5,000 participants, which promoted sports exchanges between Beijing-Tianjin-Hebei Region.



Popularization and promotion of winter sports for primary school students in Beijing

4.3.2

Promoting National Fitness Campaign

An important goal of Beijing's bid for the 2022 Olympic and Paralympic Winter Games is to promote the solid progress of winter sports in China and carry out extensive public fitness activities. The Chinese government has planned the National Fitness Programme as one of the 15 special actions of the Healthy China Initiative (2019 - 2030), developing varied mass fitness and leisure activities to improve people's health.

- Fitness has become a common way of life, and the number of people who regularly participate in physical exercise has reached 10 million
- A "15-minute fitness circle" is promoted, providing physical exercise facilities that residents can reach within 15 minutes
- The per-capita sports area is up to 2.25 square metres; and the total sports consumption is up to RMB 57 billion

Beijing

- Winter sports associations at the municipal and county levels are fully covered
- The indoor skating halls at the municipal and county levels are fully covered
- More than 100 winter sports events are held every year

Zhangjiakou

According to the results of a national physical exercise survey in 2020, 37.2% of Chinese citizens regularly participated in physical exercise in 2020, which is 3.3 percentage points higher than in 2014. It means China has already achieved the "37% by 2022" goal proposed in the Healthy China Initiative (2019 - 2030).

By the end of 2020, there were 3.713 million stadiums nationwide, with a total area of 3.1 billion square metres, averaging 2.2 square metres per person. There were 2.6 million sports instructors in China, averaging 1.86 instructors per every 1,000 people. There were 47,300 social sports organisations and three fitness sites per every 1,000 people in urban communities.¹⁷

¹⁷ Blue Book of Sports: Report on the Development of Sports Industry of China 2020

The First Beijing 2022 Community in Beijing Unveiled

At the Celebration of 1,000-Day Countdown to Beijing 2022 Games & Unveiling Ceremony for the "Beijing 2022 Community" held in Shijingshan District on May 11, 2019, Gaojing Road Community at Guangning Street of Shijingshan District became the first "Beijing 2022 Community" entitled in Beijing.

Since 2018, Guangning Street has frequently organised its residents to practise Olympic winter sports such as skating and curling and attend

Olympic knowledge lectures. Today, all local communities in the Street have established their winter sports teams, including dry curling teams, dry hockey teams, and youth skating teams.

The Street took the "Beijing 2022 Community" naming as an opportunity to accelerate community construction in eight aspects such as livelihood improvement, living environment upgrade, leisure and recreation bringing a strong sense of gain, contentment and safety to community residents.



4.4

Fostering a Good Social Atmosphere

The Beijing 2022 Games is a window for China to showcase its image to the world and an important booster for promoting volunteerism, raising the awareness of inclusion, and strengthening cultural exchanges.

4.4.1

Promoting Volunteerism

In December 2019, Beijing 2022 issued an announcement on recruiting volunteers around the world for the Beijing 2022 Games, to select volunteers in strict accordance with the recruitment conditions and procedures, which gave an equal opportunity for applicants, so as to gather people from all walks of life in China and abroad to provide volunteer services for the opening and closing ceremonies and various events of the Olympic Winter Games Beijing 2022. By 30 June 2020, there had been more than 1 million online applicants, including students and people from all walks, also including overseas volunteer applicants and people with impairments. Since Beijing was elected as the host for the 2022 Olympic and Paralympic Winter Games in 2015, the number of registered volunteers on the Beijing Volunteers platform had increased from 3.2 million to over 4.4 million as of 30 June 2021. The concept of volunteerism has been widely spread, the number of volunteer organisations has rapidly increased, and volunteer service activities have been carried out vigorously. Volunteer management and training has realised seamless transition between the Beijing 2008 and the Beijing 2022 Games.

Beijing 2022 has selected professionals with intermediate and advanced skiing skills from all over China. By the end of July 2021, a talent pool of 7,800 professionals was established, of which 322 people have been contacted and trained to form the Beijing 2022 Skiing Service Team. Besides, Beijing 2022 has entered into cooperation agreements on the development, education, and training of professionals with 11 colleges and universities in Beijing and Hebei. Winter sports professionals have been trained on general knowledge, job-specific knowledge in venues, and professional knowledge, etc. about the Beijing 2022 Games, so that they are equipped with the necessary skills to better assist future large-scale winter sports events.



Launching ceremony of global recruitment of competition volunteers

Skiing Service Team - a precious legacy of professionals of the host city

The Beijing 2022 Skiing Service Team was established by the Human Resources Department of Beijing 2022, the Beijing Municipal Bureau of Sports, and the Hebei Provincial Sports Bureau. From the establishment in October 2018 to July 2021, a total of 600 professionals had been successfully trained. Practical training and operational knowledge learning activities of 900 hours have been conducted, and after the outbreak of COVID-19, regular online training has been held. Thanks to these training and learning activities, a team of professionals has been identified to provide efficient services.

The Skiing Service Team has two roles. One is to serve as a supplement workforce for the Games-time professionals by selecting personnel based on the requirements of being able to come at the first call and engage in support services, track operations, and equipment maintenance as supplementary personnel, and also being able to work as national technical officials, temporary staff of venue owners and professional volunteers. The other one is to act as trainers for the Beijing 2022 Games to promote public welfare education activities and popularise the knowledge about the Beijing 2022 Games.



Actively promote the transformation of public facilities and fitness facilities in fitness demonstration areas into accessible ones, and strive to build a wide-range accessible space for the movements of people with impairments.



4.4.2

Protecting the Rights and Interests of People with Impairments

With the preparations for the Beijing 2022 Games, the concept of accessibility has been taking roots among the Chinese people. Over 800 government departments have built accessible public information service platforms, and 32,000 websites for government affairs and public services have made information services accessible. By the end of 2019, half of the students with impairments in China had been able to attend regular primary schools. In the last five years, the number of students with impairments participating in inclusive education has increased by 50%.



On the National Day of People with Impairments, a themed activity was held by Beijing 2022 to promote the awareness of helping people with impairments and donate supplies to the Foundation for Disabled Persons



National Olympic Committee and Paralympic Committee Open Day

4.4.3

Strengthening Cultural Exchanges

Beijing 2022 has integrated Chinese traditional culture with the Olympic values, strengthened cultural exchanges with all sectors of society, created a rich cultural atmosphere, ignited the enthusiasm of the public to pay attention to, participate in and support the Beijing 2022 Games and related activities, and created significant cultural legacies of the Beijing 2022 Games.

Chinese Traditional Culture and Olympic Culture Enriching Each Other

Embodied with such qualities as perseverance, solidarity and the unyielding patriotism of the Chinese people, the Great Wall of China has become a symbol of the Chinese nation and its civilisation. The three competition zones of the Beijing 2022 Games - the Beijing Zone, the Yanqing Zone, and the Zhangjiakou Zone - are important areas along the Great Wall. In particular, the National Cross-Country Skiing Centre is built on a mountain only a few metres away from the nearest section of the Ming Great Wall. Skiing at the foot of the Great Wall, athletes will feel the richness of history adding a strong cultural aspect to the sports event.

The Beijing 2022 held the "invitation from the Great Wall" commemorative activity at the foot of the Badaling Great Wall to solicit designs of the emblem of the Beijing 2022 Games from all over the world. On 20 September 2020, the 500 day countdown to the Beijing 2022 Games was held.

The opening of the Olympic Winter Games Beijing 2022 in February 2022 coincides with the Spring Festival, a traditional Chinese festival on the lunar calendar, also an important time when Chinese people reunite with their families and welcome friends from all over the world. The passion of winter sports will add new vigour to the popular customs and traditional culture of the Spring Festival, where the appeal of ice and snow is even greater amid the inclusive Chinese culture.

The Beijing 2022 Games is a unique cultural occasion with Chinese elements. A series of designs such as the

Beijing 2022 emblems, mascots, and torches convey rich Chinese cultural elements, reflecting the common values and mutual learning opportunities of Chinese culture and the Olympic Movement.

Conducting International Exchanges Through Ice-Snow Culture

A series of cultural exchange activities themed on the Beijing Games have already been held abroad, including cultural promotion activities such as the Hello Panda Festival and the Happy Chinese New Year, and some Beijing 2022 Games themed activities such as the Chinese Red for the Beijing 2022 Games, to promote international cultural relations and art exchanges. Efforts have been made to integrate Beijing 2022 elements into activities such as the Northeast Asia Peace and Cooperation Forum 2019, the International Horticultural Exhibition 2019 Beijing, and the Conference on Dialogue of Asian Civilisations, to tell compelling stories about the Beijing 2022 Games to the world.



500 day countdown to the Beijing 2022 Games

Appendix

1. Communications and Participation Methods of Stakeholders

Stakeholders	Expectations and Requirements	Communications Methods and Participation
International Olympic Committee / International Paralympic Committee	Implement the host city contract	Through the regular coordination committee meetings, venue development and operations review meetings, project review meetings, as well as the regular telephone and video conferences and emails, communicate the sustainability progress of the Beijing 2022 Games and exchange the experience of previous Olympic Games
	Fulfil the sustainability bid promise	
National Olympic Committees / National Paralympic Committees	Enjoy thoughtful event services	Through the regular coordination committee meetings, venue development and operations review meetings, project review meetings, as well as the regular telephone and video conferences and emails, communicate the sustainability progress of the Beijing 2022 Games and exchange the experience of previous Olympic Games
	Share sustainability experiences	
International Winter Sports Federations	Promote the popularisation of ice and snow sports	Provide support for Winter Olympic venues and event preparations through meetings, reviews, and training sessions
	Host high-level events	
Central and local government departments	Implement the "Four Olympic Games" concept	Jointly promote the implementation of sustainability commitments and plans by holding sustainability commitment scheduling meetings, and Olympic Winter Games preparations special meetings
	Promote regional coordinated development	
	Drive the development of the ice and snow industry	
Venue owners	Provide sustainability guidance	Organise and carry out venue sustainability training, venue sustainability evaluations, and venue sustainability report meetings, regularly inspect and communicate the progress of sustainability work, and organise media reports.
	Promote sustainability highlights	
Corporate partners	Implement contract terms	Convene a conference of sponsors to introduce the sustainability policies and other requirements of the Beijing Olympic Winter Games; launch a low-carbon Winter Olympic initiative with the official partners; and publish bidding information.
	Enhance brand influence and competitiveness	
	Create sustainability highlights	
Organisation involved in Supply Chains	Implement contract requirements	Support the sustainability work of the Beijing Olympic Winter Games through sustainable procurement and the implementation of relevant contractual requirements.
	Comply with the sustainability policies of Beijing 2022	
	Enhance competitiveness	

Stakeholders	Expectations and Requirements	Communications Methods and Participation
NGOs	Reduce the adverse impact of the Olympic Winter Games on people and the environment	Carry out sustainable participation activities through communications, and solicitation of opinions, such as inviting the World Conservation Union to provide recommendations on the ecosystem and biodiversity management of the Yanqing Zone (see details); signing a strategic cooperation framework agreement with the Energy Foundation to promote Beijing. The in-depth development of the sustainability work of the Olympic Winter Games promotes the exchange and dissemination of the sustainability achievements of the Beijing Winter Olympic Games in the international community
	Ensure transparency in the preparations for the Olympic Winter Games	
Media and broadcasters	Evaluate and report on the progress of the preparations for the Olympic Winter Games	Hold media/broadcaster conferences, and continue to communicate with the media to share sustainability information
	Enjoy convenient event services	
Athletes	Enjoy thoughtful and convenient services	Through participation in sustainability-related activities, learn about sustainability and experience sustainability service guarantees
Staff / Volunteers	Protect employee rights	Learn about sustainability knowledge and improve sustainability skills through sustainability training; implement sustainability requirements
	Ensure workplace health and safety	
Spectators	Receive timely information about competition schedules	Show the sustainability information of the Olympic Winter Games by opening the Olympic Winter Games Exhibition Hall and carrying out experience activities
	Enjoy convenient event services	
District residents	Properly settle matters through negotiations	Through negotiations, observe the requirements of local residents in the areas around the competition venues and provide opportunities to participate in the preparations of the Olympic Winter Games
	Provide new job opportunities	
	Ensure better public services	
Communities and the general public	Reduce the adverse impact of the preparations of the Olympic Winter Games	Give full attention to social trends and the spirit of citizen participation, guide public engagement, supervise the preparations for the Olympic Winter Games, and effectively handle public concerns by setting up a sustainability page on the official website, and opening official websites on social platforms such as WeChat and Weibo. to make sustainability information available through official releases, media reports, international conferences, large-scale events, public engagement, and sports competitions.
	Participate in the preparations and activities of the Olympic Winter Games	
	Benefit from the preparations for the Olympic Winter Games	

2. Sustainability Training for the Beijing 2022 Games

No.	Date	Description	Training Objectives and Content	Number of Participants
1	2017.5	Sustainability OGKM Conference	IOC experts introduced the requirements, content and previous experience of sustainability work to the staff of Beijing 2022	55
2	2017.8.11	Bi-weekly Lecture Series	The value, significance, standards and ideas of the Olympic Winter Games to all Beijing 2022 staff	128
3	2017.8.28-29	First sustainability training session for auditors	The requirements of ISO 20121\14001\26000 and other guidelines to the internal auditors of various FAs and the personnel of the general office of various departments, as well as 43 people related to the Olympic Games sustainability cases	86
4	2017.11.20	Sustainability management system document preparation training	The management system document preparation requirements to internal auditors in various FAs	45
5	2018.5.15	Sustainable Procurement Trial Operation Deployment and Training Conference	The requirements of the Sustainable Sourcing Guide and supporting documents to relevant departments in the committee and the owners of the demonstration venues	42
6	2018.7.2	Sustainability work deployment and training session for the Beijing 2022 venues	The venue sustainability management work objectives, green building certification procedures and related requirements to relevant government departments in Beijing and Hebei Province, and 26 venue owners in the 3 competition zones, with venue sustainability experience sharing	98
7	2018.8.23	FAOP Preparation Work Training Seminar-Sustainability Topics	The sustainability requirements and main work content of Beijing 2022 to the staff in various FAs, as well as related sustainability matters in each FA	42
8	2018.9.14	Bi-weekly Lecture Series	The Beijing 2022 Games and the sustainable development to the Beijing 2022 staff	115
9	2018.11.7	The second working meeting of the venue sustainability team	The main content of the Venue and Infrastructure Sustainability Guide (Planning and Design Phase) to the venue owners and their design units and the implementation of the review requirements	67

No.	Date	Description	Training Objectives and Content	Number of Participants
10	2019.4.23	Training of internal auditors	The requirements of ISO 20121\14001\26000 and other guidelines to the internal auditors of various FAs and the personnel of the general office of various departments, as well as related sustainability cases of the Olympic Games	58
11	2019.5.30	Venue sustainability work summary meeting and the third work meeting of the venue sustainability team	Detailed introduction of the main content and requirements of the Venue and Infrastructure Sustainability Guide (Construction Phase) to relevant government departments in Beijing and Hebei Province and representatives of venue owners	46
12	2019.8.30	The second phase of procurement work operation training	How to implement the requirements of the Sustainable Sourcing Guide in the procurement process to the heads of the general offices of the various departments (centres), procurement staff, and bidding agencies	95
13	2019.11.14	Seminar on sustainable sourcing codes and technical criteria	The main content of the sustainable sourcing codes and technical criteria to the various departments (centres) of Beijing 2022	60
14	2020.6.29	Training for internal auditors of sustainability management system	The international trends of the sustainability management system for large-scale events, the requirements of ISO 20121\14001\26000 and the relevance to the Beijing 2022 sustainability management system, Beijing 2022 ISO 20121\14001 initial certification and ISO 26000 certification key points	97
15	2020.10.28, 2021.4.26	Temporary facility sustainability work meeting	The main content of the Sustainability Guidelines for Temporary Venues and Infrastructure and the specific implementation of sustainability requirements in the procurement process of temporary facilities to relevant government departments and venue owners in Beijing and Hebei Province	46
16	2021.7.7	Sustainability management system supervision and evaluation training	The sustainability management system supervision and review requirements, main content of internal audit work, materials to be prepared and related practical cases to various FAs	58

3. Classification for Water Area Functions

Surface water is divided into five classes according to its purpose for use and protection target.

Class I : mainly for source of water and national nature protection areas;

Class II : mainly for class one protection areas for centralized potable water source, protection areas for rare fishes, spawn ground for fishes and shrimps, etc.

Class III: mainly for class one protection areas for centralized potable water source, protection areas for

general fishes and swimming areas.

Class IV: mainly for general industrial water areas and entertainment water areas not directly touched by body.

Class V : mainly for farmland water areas and water areas for general landscape requirement.

If there are several classes of function in the same water areas, the highest class of function will be taken for classification.

GRI Index

The GRI Content Index shows readers at a glance how our report meets the Global Reporting Initiative's Sustainability Reporting Guidelines. The "core" indexes selected by us to disclose are closely related to the preparations for the Beijing 2022 Games.

Disclosure number and description	Location	Comments
GRI101: Foundation		
Disclosure number and description		
Organisational Profile		
102-1 Name of the organisation	About this Report	
102-2 Activities, brands, products, and services	00 About the Beijing 2022 Games	
102-3 Location of headquarters	2.1.1 Making full use of existing venues and facilities	
102-4 Location of operations	00 About the Beijing 2022 Games	
102-5 Ownership and legal form	00 About the Beijing 2022 Games	
102-6 Markets served	00 About the Beijing 2022 Games	
102-7 Scale of the organisation	00 About the Beijing 2022 Games	
102-8 Information on employees and other workers	4.1 Promoting human development	
102-9 Supply chain	2.3 Sustainable sourcing	
102-10 Significant changes to the organisation and its supply chain	Message from President of Beijing 2022	
102-11 Precautionary principle or approach	1.6 The sustainability management system	
102-12 External initiatives	1.8 Stakeholder communication and engagement	
102-13 Membership of associations	0.3 Organisational structure	
Strategy		
102-14 Statement from senior decision-maker	Message from President of Beijing 2022	
Ethics and Integrity		
102-16 Values, principles, standards, and norms of behaviour	1.1 The sustainability vision and objectives / 1.2 Bid commitments on sustainability / 1.3 The sustainability policy	
Governance		
102-18 Governance structure	1.5 The organisational structure for sustainability management	
Stakeholder Engagement		
102-40 List of stakeholder groups	Appendix Communication and participation methods of stakeholders	
102-41 Collective bargaining agreements	N/A	Most staff members are from related government departments
102-42 Identifying and selecting stakeholders	1.8 Stakeholder communication and engagement	
102-43 Approach to stakeholder engagement	Appendix Communication and participation methods of stakeholders	
102-44 Key topics and concerns raised	Appendix Communication and participation methods of stakeholders	
Reporting Practice		
102-45 Entities included in the consolidated financial statements	About this Report	
102-46 Defining report content and topic boundaries	About this Report	
102-47 List of material topics	1.4 The sustainability plan	
102-48 Restatements of information	N/A	The first report
102-49 Changes in reporting	N/A	The first report

Disclosure number and description	Location	Comments
Reporting Practice		
102-50 Reporting period	About this Report	
102-51 Date of the most recent report	N/A	The first report
102-52 Reporting cycle	About this Report	
102-53 Contact information for questions regarding the Report	About this Report	
102-54 Claims of reporting in accordance with the GRI standards	About this Report	
102-55 GRI content index	Appendix GRI Index	
102-56 External authentication	Assurance statement	
GRI200 Economic		
GRI201 Economic Performance		
GRI103 Management Approach		
201-1 Direct economic value generated and distributed	1.6 The sustainability management system	Confidentiality restrictions
201-2 Financial implications and other risks and opportunities due to climate change	2.2 Promoting low-carbon management	
201-3 Defined benefit plan obligations and other retirement plans	N/A	
201-4 Financial assistance received from government	Confidentiality restrictions	
GRI202 Market Presence		
GRI103 Management Approach		
202-1 Ratios of standard entry level wage by gender compared to local minimum wage	1.6 The sustainability management system	N/A
202-2 Proportion of senior management hired from the local community	N/A	Senior management is mainly from government departments
GRI203 Indirect Economic Impacts		
GRI103 Management Approach		
203-1 Infrastructure investments and services supported	3. New development for the region	3.1 Accelerating infrastructure projects
203-2 Significant indirect economic impacts	3.3 Promoting winter sports industry / 3.4 Settling an example of urban regeneration and high-quality development	
GRI204 Procurement Practices		
GRI103 Management Approach		
204-1 Proportion of spending on local suppliers	2.3 Sustainable sourcing	
GRI205 Anti-corruption		
GRI103 Management Approach		
205-1 Operations assessed for risks related to corruption	2.3.2 Implementation of sustainable sourcing	
205-2 Communication and training about anti-corruption policies and procedures	2.3.2 Implementation of sustainable sourcing	
205-3 Confirmed incidents of corruption and actions taken	2.3.2 Implementation of sustainable sourcing	
GRI206 Anti-competitive Behaviour		
GRI103 Management Approach		
206-1 Legal actions for anti-competitive behaviour, anti-trust, and monopoly practices	2.3.2 Implementation of sustainable sourcing	
GRI103 Management Approach		
GRI103 Management Approach		
16 The sustainability management system / 2.1 Prioritising ecological conservation in venue construction and use		
GRI301 Materials		
301-1 Materials used by weight or volume	2.2 Promoting low-carbon management	
301-2 Recycled input materials used	2.2 Promoting low-carbon management	

Disclosure number and description	Location	Comments
301-3 Reclaimed products and their packaging materials	2.2.3 Promoting the construction of low-carbon venues / 2.3.2 Implementation of sustainable sourcing	
GRI302 Energy		
302-1 Energy consumption within the organisation	2.2.2 Promoting the use of low-carbon energy	
302-2 Energy consumption outside of the organisation	2.2.2 Promoting the use of low-carbon energy	
302-3 Energy intensity	Information unavailable	To be provided in the post-Games report
302-4 Reduction of energy consumption	2.2 Promoting low-carbon management	
302-5 Reductions in energy requirements of products and services	2.2 Promoting low-carbon management	
GRI303 Water		
303-1 Water withdrawal by source	2.1.6 Advancing water resource management	
303-2 Water sources significantly affected by withdrawal of water	2.1.6 Advancing water resource management	
303-3 Water recycled and reused	2.1.6 Advancing water resource management	
GRI304 Biodiversity		
304-1 Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	2.1.3 Wildlife Conservation in the Yanqing Competition Zones / 2.1.4 Plant Conservation in the Yanqing Competition Zones / Ecological restoration in competition zones / 2.1.7 Environment monitoring	
304-2 Significant impacts of activities, products, and services on biodiversity	2.1.3 Wildlife Conservation in the Yanqing Competition Zones / 2.1.4 Plant Conservation in the Yanqing Competition Zones / Ecological restoration in competition zones / 2.1.7 Environment monitoring	
304-3 Habitats protected or restored	2.1.3 Wildlife Conservation in the Yanqing Competition Zones / 2.1.4 Plant Conservation in the Yanqing Competition Zones / Ecological restoration in competition zones / 2.1.7 Environment monitoring	
304-4 IUCN Red List species and national conservation list species with habitats in areas affected by operations	2.1.4 Plant Conservation in the Yanqing Competition Zones	
GRI305 Emissions		
305-1 Direct (Scope 1) GHG emissions	2.2 Promoting low-carbon management	
305-2 Energy indirect (Scope 2) GHG emissions	2.2 Promoting low-carbon management	
305-3 Other indirect (Scope 3) GHG emissions	2.2 Promoting low-carbon management	
305-4 GHG emissions intensity	2.2 Promoting low-carbon management	
305-5 Reduction of GHG emissions	2.2 Promoting low-carbon management	
305-6 Emissions of ozone-depleting substances (ODS)	Information unavailable	Identification and statistics of the related emissions have not been conducted
305-7 Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	2.1.7 Environment monitoring	
GRI306 Effluents and Waste		
306-1 The generation of effluents and waste and significant impacts related to effluents and waste	2.2.3 Promoting the construction of low-carbon venues	
306-2 Management of significant impacts related to effluents and waste	2.2.3 Promoting the construction of low-carbon venues	
306-3 Effluents and waste generated	Information unavailable/Beijing 2022 data, and the data websites of Beijing Environmental Protection Bureau and Zhangjiakou Environmental Protection Bureau	
306-4 Effluents and waste removed from disposal	Information unavailable/Beijing 2022 data, and the data websites of Beijing Environmental Protection Bureau and Zhangjiakou Environmental Protection Bureau	
306-5 Effluents and waste to be disposed	Information unavailable/Beijing 2022 data, and the data websites of Beijing Environmental Protection Bureau and Zhangjiakou Environmental Protection Bureau	
GRI307 Environmental Compliance		
307-1 Non-compliance with environmental laws and regulations	2.1 Prioritising ecological conservation in venue construction and use	

Disclosure number and description	Location	Comments
GRI308 Supplier Environmental Assessment		
308-1 New suppliers that were screened using environmental criteria	2.3.2 Implementation of sustainable sourcing	
308-2 Negative environmental impacts in the supply chain and actions taken	2.3.2 Implementation of sustainable sourcing	
GRI400 Social		
GRI103 Management Approach		
4. Better Life for the People		
GRI401 Employment		
401-1 New employee hires and employee turnover	4.1 Promoting professional development	
401-2 Benefits provided to full-time employees that are not provided to temporary or part-time employees	4.1 Promoting professional development	
401-3 Parental leave	4.1 Promoting professional development	
GRI402 Labour/Management Relations		
402-1 Minimum notice periods regarding operational changes	N/A	The preparation period of the Beijing 2022 Games is fixed and made public
GRI403 Occupational Health and Safety		
403-1 Occupational health and safety management system	4.1 Promoting professional development	
403-2 Hazard identification, risk assessment, and incident investigation	4.1 Promoting professional development	
403-3 Occupational health services	4.1 Promoting professional development	
403-4 Worker participation, consultation, and communication on occupational health and safety	4.1 Promoting professional development	
403-5 Worker training on occupational health and safety	4.1 Promoting professional development	
403-6 Promotion of worker health	4.1 Promoting professional development	
403-7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	2.1.2 Construction of green venues / 2.3 Sustainable sourcing / 4.1 Promoting human development	
GRI404 Training and Education		
404-1 Average hours of training per year per employee	4.1 Promoting professional development	
404-2 Programmes for upgrading employee skills and transition assistance programmes	4.1 Promoting professional development	
404-3 Percentage of employees receiving regular performance and career development reviews	4.1 Promoting professional development	
GRI405 Diversity and Equal Opportunity		
405-1 Diversity of governance bodies and employees	4.1 Promoting professional development	
405-2 Ratio of basic salary and remuneration of women to men	4.1 Promoting professional development	
GRI406 Non-discrimination		
406-1 Incidents of discrimination and corrective actions taken	4.1 Promoting professional development	
GRI407 Freedom of Association and Collective Bargaining		
407-1 Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	2.3.2 Implementation of sustainable sourcing	
GRI408 Child Labour		
408-1 Operations and suppliers at significant risk for incidents of child labour	2.3.1 Formulating rules for sustainable sourcing	
GRI409 Forced or Compulsory Labour		
409-1 Operations and suppliers at significant risk for incidents of forced or compulsory labour	2.3.1 Formulating rules for sustainable sourcing	
GRI410 Security Practices		
410-1 Security personnel trained in human rights policies or procedures	Information unavailable	To be provided in the post-Games report

Disclosure number and description	Location	Comments
GRI411 Rights of Indigenous Peoples		
411-1 Incidents of violations involving the rights of indigenous peoples	4.1.3 Support from residents in competition zones	
GRI412 Human Rights Assessment		
412-1 Operations that have been subject to human rights reviews or impact assessments	2.3.2 Implementation of sustainable sourcing / 4.1.3 Support from residents in competition zones	
412-2 Employee training on human rights policies or procedures	2.3.2 Implementation of sustainable sourcing	
412-3 Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	2.3.2 Implementation of sustainable sourcing	
GRI413 Local Communities		
GRI103 Management Approach		3.4 Setting an example of urban regeneration and high-quality development / 4.1.3 Support from residents in competition zones
413-1 Operations with local community engagement, impact assessments, and development programmes	3.4 Setting an example of urban regeneration and high-quality development / 4.1.3 Support from residents in competition zones	
413-2 Operations with significant actual and potential negative impacts on local communities	3.4 Setting an example of urban regeneration and high-quality development / 4.1.3 Support from residents in competition zones	
GRI414 Supplier Social Assessment		
414-1 New suppliers that were screened using social criteria	2.3.2 Implementation of sustainable sourcing	
414-2 Negative social impacts in the supply chain and actions taken	2.3.2 Implementation of sustainable sourcing	
GRI415 Public Policy		
415-1 Political contributions	N/A	
GRI416 Customer Health and Safety		
GRI103 Management Approach		3.2 Improving capacity for service provision
416-1 Assessment of the health and safety impacts of product and service categories	To be provided in the post-Games report	
416-2 Incidents of non-compliance concerning the health and safety impacts of products and services	To be provided in the post-Games report	
GRI417 Marketing and Labelling		
417-1 Requirements for product and service information and labelling	N/A	Information unavailable
417-2 Incidents of non-compliance concerning product and service information and labelling	N/A	Information unavailable
417-3 Incidents of non-compliance concerning marketing	N/A	Information unavailable
GRI418 Customer Privacy		
418-1 Substantiated complaints concerning breaches of customer privacy and losses of customer data	Information unavailable	To be provided in the post-Games report
GRI419 Socioeconomic Compliance		
GRI103 Management Approach		2.3.2 Implementation of sustainable sourcing
419-1 Non-compliance with laws and regulations in the social and economic area	2.3.2 Implementation of sustainable sourcing	

Assurance Statement



ASSURANCE STATEMENT

SGS-CSTC STANDARDS TECHNICAL SERVICES CO., LTD.'S REPORT ON SUSTAINABILITY ACTIVITIES IN THE CORPORATE SOCIAL RESPONSIBILITY REPORT OF BEIJING 2022 PRE-GAMES SUSTAINABILITY REPORT

NATURE AND SCOPE OF THE ASSURANCE

SGS-CSTC (hereafter as "SGS") was commissioned by the Organising Committee for the Olympic and Paralympic Winter Games Beijing 2022 (hereafter as "Beijing 2022") to conduct an independent assurance of Beijing 2022 Pre-Games Sustainability Report (hereafter as "the Report"). Based on SGS Sustainability Report Assurance methodology, the scope of the assurance included the text contained in the Report and attached data, graphs and statements. Other disclosed data and information were not included in this assurance process. We conducted online verification for the data and information provided by Beijing 2022 which located in 68th, Shijingshan Road, Shijingshan District, Beijing, P.R. China.

The information in the Report and its presentation are the responsibility of the management working group and relevant functional departments of Beijing 2022.

Our responsibility is to express an opinion on the text, data, graphs, and statements within the scope of assurance set out below with the intention to inform all Beijing 2022's stakeholders.

SGS sustainability report assurance procedure developed was based on international accredited standards and guidance, including the Accuracy and Reliability Principles contained in the GRI STANDARDS and guidance on assurance level by AA1000 series.

This report has been assured at a moderate level of scrutiny using our protocols for:

- Evaluation of content veracity; and
- Evaluation of the compliance of the Report based on the GRI STANDARDS.

The assurance comprised a combination of pre-assurance research, interviews with relevant employees of Beijing 2022, documentation and record review and confirmation, and exchanges with external agencies and/or stakeholders if necessary.

Financial data and carbon emission drawn directly from independently audited by other third parties, has not been checked back to source as part of this assurance process.

STATEMENT OF INDEPENDENCE AND COMPETENCE

SGS is the world's leading inspection, verification, testing and certification company. We are recognized as the global benchmark for quality and integrity with a network around the world. SGS affirms our independence from Beijing 2022, being free from bias and conflicts of interest with the organization, its subsidiaries and stakeholders.

The assurance team was assembled based on their knowledge, experience and qualifications for this assignment, including chief auditors of social responsibility reports, ISO 37001 auditors, ISO 9001, ISO 14001 and ISO 45001 auditors registered with CCAA.

ASSURANCE OPINION

On the basis of the methodology described and the verification work performed, the information and data contained within the Report verified is accurate, reliable, and the representation of Beijing 2022 sustainability activities in pre-Games is fair and pertinent.

SGS believe that the organization has chosen an appropriate level of assurance for this stage in their reporting.

GRI STANDARDS CONCLUSIONS, FINDINGS AND RECOMMENDATIONS

In our opinion, the Report has met all the requirements of the core option for GRI Standards on reporting content and principles.

Stakeholder Inclusiveness

Beijing 2022 had identified its stakeholders who affected by the preparation and hosting for the Games, considered the reasonable expectations and interests from the stakeholders, established a diversified stakeholder dialogue mechanism to ensure the effective participation of stakeholders in sustainability management.

Sustainability Context

Beijing 2022 had taken into account the global and Chinese sustainability context, and had presented its efforts and performances in the sustainable development from economic, environmental and social aspects.

Materiality

Based on the concerns of the stakeholders and the important impact from the preparation for the Games on the economy, environment and society, the Beijing 2022 had reasonably selected and demonstrated the materiality topics which would have a significant impact on the evaluation and decision concerns of the stakeholders.

Completeness

The Report reflected the materiality topics and its scope, and performance of significant economic, environmental and social topics, thus stakeholders can evaluate the sustainability performance of the Beijing 2022 during the preparation for the Games.

Balance

The Report basically complies with the principle of balance, and truthfully discloses the positive and non-positive information.

Comparability

The Report discloses the relevant performance of Beijing 2022 during the preparation for the Games, some of the performance disclosed previous data of years, which enable stakeholders to visually compare and understand the sustainable development performance result.

Accuracy

The Report shared accurately expressed the information, publicly disclosed many qualitative and quantitative information to the stakeholders.

Timeliness

According to the relevant requirements from the Olympic Committee, the Beijing 2022 issues the Report in a timely manner.

Clarity

The Report was presented in different ways with words, data tables, charts, photos and case analysis to clearly present the sustainability information and facilitate stakeholders to fully understand.

Reliability

The Beijing 2022 had established a management process for the sustainability report, the information and data in the Report were collected, recorded and analysed. The disclosed information and data were traced and verified.

Management Approach

The Report discloses the effectiveness of evaluating the management approaches for the selected special topics.

General Disclosures

The general disclosures were presented in accordance with the core option of GRI Standards.

Topic-Specific Disclosures

The Beijing 2022 has disclosed the special topics related to the identified important economic, environmental and social substantive issues, which is in accordance with the requirements of the GRI standards core plan.

Findings and Recommendations

Good practices and recommendations for sustainability report and management process were described in our internal management report which has been submitted to Beijing 2022 for continuous improvement of post-Game Report.

Limitations of Assurance

Affected by the COVID-19 prevention and control requirements of Beijing 2022, the assurance team did not make an onsite visit and traced the information disclosed in the Report online.

The assurance traced to Beijing 2022, and the original data of competition venues of Beijing, Yanqing and Zhangjiakou has not been traced.

Signature: 

For and on behalf of SGS-CSTC

David Xin

Director, Knowledge

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March 12th, 2021

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