

Thoughts on the Agricultural Practice of the Party's Governance Strategy for Xinjiang in the New Era: Based on the Traditional Knowledge and Cultural Heritage

Zhiguo SUN¹, Dongbing XING², Yulan BAI³, Jinjin WANG³, Meng LIU^{1*}

1. Hubei University of Science and Technology, Xianning 437100, China; 2. Intellectual Property Office (Market Supervision and Administration Bureau) of Xinjiang Uygur Autonomous Region, Urumqi 830004, China; 3. Xinjiang College of Science and Technology, Korla 841000, China

Abstract Traditional knowledge, biological genetic resources and folk literature and art are intellectual property rights of cultural heritage that can be shared by regional groups without time limit. This paper studies the traditional knowledge and cultural heritage of Xinjiang agriculture from the aspects of traditional knowledge, important agricultural heritage system, intangible cultural heritage, biological genetic resources, tangible cultural heritage, frontier development and defense culture, and cultural tourism resources. It analyzes the main problems existing in the protection and inheritance of them, and puts forward suggestions such as inheriting and sharing intellectual property rights of cultural heritage, improving the protection system of biological germplasm resources, establishing national-level cultural ecological protection (experimental) zones, promoting agricultural science and technology cultural exchanges, creating Xinjiang's characteristic Great Wall culture, deeply integrating "agriculture + culture + tourism", building national and autonomous region cultural parks, and dynamically inheriting agricultural cultural heritage.

Key words Traditional knowledge, Biological genetic resources, Agricultural intellectual property, Cultural enrichment of Xinjiang, The Party's governance strategy for Xinjiang

0 Introduction

Xinjiang is home to 13 long-established ethnic groups, including the Uyghur, Han, and Kazakh^[1]. The region contains five autonomous prefectures (such as Ili Kazakh, Bortala Mongol, and Bayingolin Mongol) and six autonomous counties, among them Barkol Kazakh, Mori Kazakh, and Hoboksar Mongol. It serves as a corridor of migration and integration among different ethnic groups, and as a meeting ground where the culture of "diversity in unity" converges with both Eastern and Western civilizations.

In Xinjiang, the World Cultural Heritage sites include the Great Wall^[2] and the Silk Roads: the Routes Network of Chang'an – Tianshan Corridor^[3]. The Xinjiang section of the Great Wall consists of beacon towers (watchtowers), garrison forts, post stations, karun (border outposts), and other elements, forming a multi layered defense system. It served the dual functions of safeguarding stability on the northwest frontier and keeping the Silk Road unobstructed, and stands as a physical record of the history of cultivating and guarding the border^[4]. As a pivotal hub along the ancient Silk Road that linked China with the Eurasian continent for exchanges in agricultural science and technology, species resources, and folk customs^[5], Xinjiang witnessed the introduction of many agricultural plant and animal species via the Silk Road. These species not only enriched the diversity of China's agricultural biological genetic resources but also profoundly influ-

enced people's daily life, culture, and art forms, while providing crucial support for the breeding of military horses and the supply of materials in ancient times. Xinjiang abounds in rich and multi layered resources of traditional agricultural knowledge and cultural heritage^[6-8], which have laid a solid agricultural and cultural foundation for advancing the Cultural Enrichment Project in Xinjiang^[9] and for implementing the Party's governance strategy for Xinjiang in the new era^[10].

Rich in cultural diversity, Xinjiang serves as a key area for fostering a strong sense of community for the Chinese nation and for implementing the Project on Inheriting and Developing Fine Traditional Chinese Culture. The major components of this project include the Farming Culture Inheritance and Protection Project, the General Survey of Chinese Cultural Resources Project, the Intangible Cultural Heritage Inheritance and Development Project, the Traditional Chinese Villages Protection Project, the National Cultural Park Construction Project, and the Protection and Utilization Project for Historic and Cultural Cities, Towns, Villages, Blocks, and Historic Buildings.

Traditional knowledge is characterized by its transmissibility, territoriality, collectiveness, ethnic identity, systematic nature, and resource value, and constitutes a form of cultural heritage intellectual property that is perpetually shared by regional communities. Broadly defined, it denotes the holistic knowledge system created and transmitted from generation to generation by a specific ethnic group or local population within a shared human-geographical context. This system finds concrete expression in a wide array of intellectual outputs, such as literary and artistic works, scientific inventions, selective breeding, craft designs, geographical indications, folk symbols, and undisclosed know-how, and spans three principal domains: biological genetic resources, traditional

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Zhiguo SUN, doctoral degree, professor, research fields: specialty products and rural revitalization. * Corresponding author. Meng LIU, doctoral degree, lecturer, research fields: economic geography and human geography.

knowledge in the narrow sense, and folklore. Meanwhile, abundant tangible cultural heritage preserves a wealth of agricultural cultural remains and historical sites. Traditional villages, distinctive ethnic stockades, and designated historic and cultural villages, towns, and cities serve as composite carriers of both tangible and intangible heritage, providing the essential spatial anchors for the living transmission of agricultural traditional knowledge and intangible cultural heritage skills. Taking this as its foundation, this paper adopts the perspective of Greater Agriculture, and uses agricultural traditional knowledge and cultural heritage as an entry point to investigate practical implementation pathways for the Party's governance strategy for Xinjiang in the new era in the agricultural field.

1 Agricultural traditional knowledge and intangible cultural heritage

Agricultural traditional knowledge encompasses agricultural biological genetic resources; traditional knowledge relating to agricultural ecology and environment, crop cultivation and livestock breeding; traditional skills for processing agricultural products (including the preparation of medicinal herbs); names and insignia of traditional specialties, their production areas and workshops; and traditional forms of agricultural cultural expression. Such knowledge is represented in forms such as geographical indications, "hometowns of specialty products," time-honored brands, important agricultural heritage systems, and intangible cultural heritage.

1.1 Geographical indication (GI) specialties The signs and names of traditional specialty products, the humanistic elements of GI, and the natural factors of GI that are closely linked to biological genetic resources all form part of agricultural traditional knowledge and cultural heritage.

Xinjiang currently has 128 GI products and 128 GI trademarks, totaling 216 GI specialties^[11]. Among them, there are 20 types of grain and grain products: Qapqal rice, Wensu rice, Regiment 68 rice, Regiment 73 rice, Miqan rice, Jeminay spring wheat, Qitai flour, Qitai fine dried noodles, Qitai steamed bread, Qitai buckwheat noodles, Mori chickpea, Wushi chickpea, Kanas soybean, Wugongtai sweet potato, Qitai white potato, Qitai potato, Zhaosu potato, Qitai starch noodles, Ili liquor, and Gucheng liquor.

Edible oilseed (one kind): Zhaosu rapeseed.

Nuts (14 kinds): Aksu walnut, Aksu fresh walnut, Yecheng walnut, Kashgar walnut, Aral walnut, Regiment 3 walnut, Hotan thin-skinned walnut, Shache almond, Kashgar almond, Shufu pistachio, Dingshan edible sunflower, Beitun sunflower seeds, Fukang seeded watermelon seeds, and Yanqi large white pumpkin seeds.

Melon fruits (15 kinds): Hami melon, Jiashi melon, Lapa melon, Kashgar melon, Hotan melon, Shache melon, Wujiacqu melon, Yuli melon, Paotai melon, Andier melon, Kanas honey melon, Urho Reclamation Area Bailan melon, Xiayedi watermelon, Yuli watermelon, and Laolonghe watermelon.

Stone fruits (35 kinds): Shihezi yellow peach; Regiment 143 flat peach; Huocheng cherry plum; Yengisar Semait apricot, Shufu Muyage apricot, Akto Baren apricot, Toksun apricot, Yengisar apricot, Kashgar sweet apricot, Kuqa small white apricot, Kuqa white apricot, and Luntai white apricot; Yengisar Semait dried apricot; Almali and Huocheng dried-on-tree apricots; Kuqa sour plum; Jiashi prune and Kashgar prune; Xiayedi cherry; and the following jujube varieties: Kashgar jujube, Cele jujube, Regiment 48 jujube, Aral jujube, Ruoqiang jujube, Qiemo jujube, Toksun jujube, Aksu jujube, Hotan large jujube, Hami large jujube, Minfeng large jujube, Hotan jade jujube, Zepu Junzao jujube, Hotan imperial jujube, Makit grey jujube, and Tumxuk winter jujube.

Pome fruits (11 kinds): Korla fragrant pear, Qitai crabapple, Aksu apple, Ili apple, Zepu apple, Tekes apple, Karabula apple, Regiment 5 apple, Regiment 6 apple, Regiment 184 apple, and Regiment 223 apple.

Berry fruits (21 kinds): Turpan grape, Turpan raisin, Mohur grape, Toutunhe grape, Xinhe grape, Hoxud grape, Hotan grape, Kashgar grape, Artux Munage grape, Kuqa Akeshayiwa grape, Bole Red Globe grape; Wushi sea buckthorn, Regiment 170 sea buckthorn, Altay large-fruit sea buckthorn; Artux fig, Yopurga fig; Kashgar pomegranate, Hotan pomegranate, Cele pomegranate, Kashgar Ga'er pomegranate, and Piyalma sweet pomegranate.

Grape wines (4 kinds): Turpan grape wine, Yanqi Basin grape wine, Hoxud grape wine, and Awat Musalais.

Vegetables (16 kinds): Yanqi Chinese cabbage, Bohu chili pepper, Jimsar chili pepper, Qitai Sipingtou chili pepper, Yanqi red chili pepper, Kalpin chamagur (turnip), Huiyuan carrot, Jimsar white-skinned garlic, Jimsar garlic, Zhaosu garlic, Cele cumin, Kashgar cumin, Tielimu cumin, Yanqi cumin, Yopurga cumin, and Wuqia ferula mushroom.

Cotton (2 kinds): Awat long-staple cotton and Regiment 148 colored cotton.

Livestock products (30 kinds): Qitai pork, Wuqia yak, Hejing yak, Hutubi dairy cow, Qitai beef, Dayinsu beef, Altay sheep, Tacheng Bashibai sheep, Manas Suffolk sheep, Makit Duolang sheep, Wuqia sheep, Yumin Bashibai sheep, Barchuk sheep, Qiemo sheep, Yuli Lop sheep, Turpan black sheep, Toksun black sheep, Emin Yemule white sheep, Yuli Lop mutton, Hami mutton, Kalpin mutton, Mori mutton, Qitai mutton, Kashgar mutton, Niya mutton, Hotan mutton, Hotan Yimuchang mutton, Jiashi mutton, Zhaosu heavenly horse, and Ili horse.

Poultry products (9 kinds): Ili chicken, Turpan gamecock, Qitai free-range chicken, Baicheng oil chicken, Niya black chicken, Hotan black chicken, Shawan big plate chicken, Xinhe pigeon, and Shache pigeon meat.

Bee products (2 kinds): Ili honey and Hemu honey.

Aquatic products: Beitun white-spotted pike, Altay pike, Bosten Lake grass carp, and Bosten Lake common carp.

Medicinal materials (19 kinds): Gongliu Tianshan yibei (fritillary bulb), Hotan roucongong (cistanche), Hotan dayun

(cistanche), Yutian hongliu dayun (tamarisk cistanche), Yumin thornless safflower, Jimsar safflower, Hotan Yimuchang snow chrysanthemum, Keliyang snow chrysanthemum, Niya Kunlun snow chrysanthemum, Wuqia snow chrysanthemum, Hotan rose, Yutian desert rose, Jinghe goji berry, Xiayedi goji berry, Kuqa yao sang (medicinal mulberry), Tarim Reclamation Area red deer antler base, Tarim Reclamation Area red deer gelatin, and Tarim Reclamation Area red deer velvet antler.

Others (13 kinds): Regiment 27 hops, Yuli apocynum (luobuma), Regiment 31 apocynum, Yuli apocynum tea, Shaya apocynum tea, Huocheng lavender, Ili lavender, Ili lavender essential oil, Regiment 84 color chrysanthemum, Hotan carpet, Shaya small knife, Manas jasper, and Pamir glacier mineral water.

1.2 China's hometowns of specialty products The designation "China's Hometown of Specialty Products" plays a positive role in enhancing the competitiveness and visibility of characteristic industries and in promoting the formation and development of local specialty industries. Xinjiang is rich in specialty resources and is home to numerous "China's Hometowns of Specialty Products"^[11]. Among them are: China's Hometown of Fruits: Turpan City, Hami City, Ili Prefecture, Bayingolin Prefecture, Aksu Prefecture, Kashgar Prefecture, Hotan Prefecture, *etc.*; China's Hometown of Wine: Turpan City, Changji Prefecture, Hoxud County, *etc.*; China's Hometown of Long-staple Cotton: Aksu Prefecture, Tumxuk City, *etc.*; China's Hometown of High-quality Cotton: Manas County; China's Hometown of Tribute Rice: Qapqal Autonomous County; China's Hometown of Chickpeas: Mori Autonomous County; China's Hometown of Apocynum: Yuli County, Shaya County; China's Hometown of Goji Berries: Jinghe County; China's Hometown of Snow Lotus: Hejing County; China's Hometown of Lavender: Huocheng County; China's Hometown of Cumin: Yanqi Autonomous County; China's Hometown of Dairy Cows: Hutubi County; and China's Hometown of Xinjiang Black Bee Honey: Nilka County.

1.3 China Time-honored Brand China Time-honored Brand refers to brands with a long history, offering products, techniques, or services passed down from generation to generation. These brands possess distinctive traditional Chinese cultural backgrounds and profound cultural heritage, and have gained widespread social recognition and established good reputations. In Xinjiang, there are four China Time-honored Brands: Qiyi Sauce Garden (Xinjiang Qiyi Sauce & Brewing Co., Ltd.), Yili Brand (Xinjiang Yilite Industrial Co., Ltd.), Gucheng (Xinjiang First Cellar Gucheng Liquor Co., Ltd.), and Santai (Xinjiang Santai Liquor (Group) Co., Ltd.). Among them, Qiyi Sauce Garden is a brand of condiments brewed using traditional Chinese methods, while Yili Brand, Gucheng, and Santai are brands of traditional Chinese brewed baijiu (white liquor).

1.4 Important agricultural heritage systems The Important Agricultural Heritage Systems (IAHS) are unique land-use systems and agricultural landscapes formed through long-term co-evolution and dynamic adaptation between rural communities and

their surrounding environment^[6]. Such systems and landscapes harbor rich diversity in agricultural biological and genetic resources and are a complex of both tangible and intangible cultural heritage.

In Xinjiang, there are eight IAHS sites in China: the Hami City Hami Melon Cultivation and Tribute Melon Culture System, the Turpan Karez Agricultural System, the Yecheng Walnut Cultivation System, the Shache Almond (Badam) Cultivation System, the Qitai Dryland Farming System, the Ili Qapqal Buha Agricultural System, the Ili Huangqu Canal Agricultural System (spanning Yining County, Yining City, and Huocheng County), and the Zhaosu Grassland Horse Husbandry System.

1.5 Representative list of the intangible cultural heritage of humanity China currently has 44 items inscribed on the UNESCO Intangible Cultural Heritage Lists, among which 39 are on the Representative List of the Intangible Cultural Heritage of Humanity. Those related to Xinjiang's agriculture include two items: *The Twenty-Four Solar Terms; Knowledge of Time and Practices Developed in China through Observation of the Sun's Annual Motion and Sericulture and Silk Craftsmanship of China*. The mulberry silk production areas in Xinjiang, which are also the places where China's sericulture and silk craftsmanship is inherited and practiced in Xinjiang, mainly include Hotan City, Moyu County, Lop County, and Usu City. These areas are also home to a nationally recognized intangible cultural heritage item: the Xinjiang Uyghur Atlas Silk Weaving and Dyeing Craft.

1.6 National-level representative items of intangible cultural heritage There are 38 national-level representative items of intangible cultural heritage related to agricultural traditional knowledge and agricultural cultural heritage in Xinjiang. Among them, there are 4 items under the category of traditional sports, games, and acrobatics: VI-37 Tajik Polo, VI-43 Kazakh Horse Racing, VI-44 Uyghur Buzkashi (Goat Snatching), and VI-103 Kyz Kuu (Girl Chase).

There are Eight items under traditional fine arts: VII-54 Kazakh Straw Plaiting Skills, VII -55 Uyghur Wicker Plaiting Article, VII -79 Uyghur Embroidery, VII -81 Mongol Embroidery, VII -82 Kirgiz Embroidery, VII-83 Kazakh Felt Embroidery and Cloth Embroidery, VII-108 Xibe Embroidery, and VII-133 Kazakh Embroidery.

There are 11 items under traditional craftsmanship: VIII-23 Uyghur Floral Felt and Printed Cloth Weaving and Dyeing; VIII-70 Uyghur Mulberry Bark Paper Making; VIII-100 Traditional Cotton Spinning and Weaving; VIII-101 Wool Weaving and Felting; VIII-109 Xinjiang Uyghur Atlas Silk (Aidelaisi) Weaving and Dyeing; VIII-110 Uyghur Carpet Weaving; VIII-114 Uyghur Karakul Lamb Fur Hat Making; VIII-124 Uyghur Musical Instrument Making; VIII-160 Traditional Wheat-Based Food Making; VIII-183 Kazakh Yurt Construction; and VIII-236 Karez Well Digging.

There are two items under traditional medicine category: IX-21 Uyghur Medicine, which encompasses traditional Uyghur medicine processing skills, Muniziqi-Musili decoction making skills,

Hotan medicinal tea preparation, dietary therapy, and Kuxitai therapy (a therapeutic method); and IX-23 Kazakh Medicine, which includes Bulawu medicinal bath and fumigation therapy and frostbite treatment.

There are 13 items are classified under folklore, encompassing festivals, customs, and traditional costumes. These include: the Xibe Westward Migration Festival (X-9), the Tajik Water Diversion and Sowing Festival (X-28), the Daur Woqibei Festival (X-40), the Nadam Fair (X-48), the Xinjiang Uyghur Meshrep (X-49), the Tatar Saban Festival (X-80), the Nowruz Festival (X-126), and the Kirgiz Eagle Hunting Custom (X-143). The costume traditions are represented by the Mongol (X-108), Uyghur (X-117), and Kirgiz (X-159) costumes, along with two separately listed Kazakh Costume entries (X-118 and X-144), likely designating variant local styles.

1.7 Regional-level representative items of intangible cultural heritage Xinjiang has 363 regional-level representative items of intangible cultural heritage, of which 161 are related to agricultural traditional knowledge and agricultural folk literature and art (forms of traditional agricultural cultural expression). Among them, there are 13 items of traditional dance: Tajik Eagle Dance, Hami Uyghur Animal Imitation Dance, Kazakh Folk Labor Dance, Daur Labor Dance, Uyghur Sapayi Dance, *etc.* Twelve items belong to traditional sports, games, and acrobatics: Buzkashi (goat snatching), Tajik Polo, camel racing, horse racing, cockfighting, *etc.* Fifteen items are under traditional fine arts: straw weaving, gourd carving, woolen yarn weaving craft, leather weaving craft, felt embroidery and cloth embroidery, *etc.* Eighty-four items are in traditional craftsmanship: karez well digging craft, beekeeping craft, hops yeast making craft, wine brewing craft, wool weaving and felting craft, *etc.* Five items are related to traditional medicine: Uyghur medicine, Kazakh medicine, Xinjiang Mongol medicine, traditional Chinese medicine diagnosis and treatment, and sheepskin wrapping therapy. Thirty-two items are in folklore: Tajik Water Diversion Festival and Sowing Festival, Xibe Face Smearing Festival, livestock transhumance custom, Ulungur Lake winter fishing custom, milk tea custom, *etc.*

1.8 National demonstration bases for the productive protection of intangible cultural heritage Xinjiang has four national-level demonstration bases for the productive protection of intangible cultural heritage: Hotan Totiwak Mulberry Bark Paper National Trade Co., Ltd. (Uyghur mulberry bark paper making craft), Lop County Shidai Carpet Factory (Uyghur carpet weaving craft), Wujiacqu Hongqi Farm Xiulimei Ethnic Embroidery Professional Cooperative (Kazakh felt embroidery and cloth embroidery), and Xinjiang Lanpai Cultural and Creative Industry Co., Ltd. (Xibe embroidery).

2 Agricultural biological genetic resources

Biological genetic resources (germplasm resources) refer to biological genetic materials derived from plants, animals, microorganisms, and other organisms that contain genetic information and possess economic value. Agricultural biological genetic diversity is

an important component of biodiversity, the foundation of agricultural breeding, the cornerstone of sustainable economic and social development, a vital guarantee of national ecological security, and a new frontier in international competition. Xinjiang is a region in China rich in agricultural biological genetic diversity.

2.1 Agricultural, forest, and grassland plants Xinjiang is rich in agricultural, forest, and grassland plant genetic resources. Among them, grain crops include rice, proso millet, foxtail millet, maize, wheat, barley, highland barley, buckwheat, rye, sorghum, chickpea, soybean, mung bean, pea, faba bean, kidney bean, adzuki bean, sweet potato, potato, *etc.* Oil crops include sunflower, oil flax, rapeseed, sesame, tiger nut, *etc.*

Nut-bearing trees include walnut, almond, pistachio, and hazelnut.

Fruit plants encompass melon and watermelon, as well as stone fruits (peach, plum, apricot, Chinese plum, jujube, and cherry), pome fruits (pear, apple, and crabapple), and berries and other soft fruits (grape, pomegranate, fig, mulberry, sea buckthorn, raspberry, and strawberry).

Vegetables include Chinese cabbage, chamagur (turnip), carrot, Chinese yam, celtsuce (stem lettuce), asparagus, cowpea, tomato, eggplant, chili pepper, onion, garlic, Chinese chive, fennel, luffa, cucumber, pumpkin, calabash gourd, *etc.*

Edible fungi include ferula mushroom (bailing mushroom), shiitake mushroom, flower mushroom, morel mushroom, black wood ear mushroom, *etc.*

Medicinal plants include wolfberry (goji), sour jujube seed, safflower, chamomile, chrysanthemum, snow chrysanthemum, chicory, snow lotus, rose, water lily, saffron crocus, honeysuckle, sharp-pointed hyssop, rose root (*Rhodiola rosea*), cistanche, cynomorium, Xinjiang fritillary, astragalus, licorice, ephedra, woad, ferula (asafoetida), cumin, Artemisia rupestris, mint, fenugreek, Moldavian dragonhead, violet, Chinese lantern (*Physalis*), peony, codonopsis, saposchnikovia, baical skullcap, bupleurum, coltsfoot, dandelion, rehmannia, snake gourd fruit, blackberry lily, perilla, angelica dahurica, tatarian aster, anemarrhena, *Salvia miltiorrhiza*, scrophularia, sophora flavescens, forsythia, *etc.*

Fiber plants include Sea Island cotton, upland cotton, colored cotton, apocynum (luobuma), and fiber flax. Other plants include lavender, hops, sugar beet, alfalfa, tobacco leaf, *etc.*

In Xinjiang Uygur Autonomous Region, there are the National Wild Apple Germplasm Nursery (Ili), the National Germplasm Nursery for Fruit Trees Endemic to Xinjiang (Luntai), the National Medium-term Genebank for Characteristic Crops of Central Asia (Urumqi), and the National Fertilizer Microbial Germplasm Bank (Xinjiang), as well as a number of regional-level crop germplasm repositories (nurseries and genebanks), including the Xinjiang Small Berry Germplasm Nursery (Urumqi), the Xinjiang Jujube Germplasm Nursery (Makit), the Xinjiang Mulberry Germplasm Nursery (Hotan), the Xinjiang Crop Wild Relatives Germplasm Bank (Urumqi), the Xinjiang Ili Prefecture Crop Germplasm Bank (Ili), and the Xinjiang Cotton Germplasm Bank

(Kuqa).

Xinjiang also has national forest germplasm repositories for wild fruit trees in Tekes County, yellowhorn and hazelnut in Shihezi, wild almond in Regiment 161 of the 9th Division, apricot in Yengisar County, peach and mulberry in Xinhe County, broad-leaved tree species in the Altay Valley of Fuhai County, and branchy tamarisk in Kunyu City. It also has regional-level forest germplasm repositories for grapes in Turpan City and Korla City, walnut in Yecheng County, almond and pistachio in Shache County, fruit trees in Luntai of the Xinjiang Academy of Agricultural Sciences, cold-resistant tree species in Manas of the Xinjiang Academy of Forestry Sciences, and rare tree species in Urumqi, as well as regional-level forage germplasm nurseries for forage and turf grasses at Sanping of Xinjiang Agricultural University, and ecological restoration grasses at Hutubi of the Xinjiang Grassland Station.

There are also national nature reserves such as the Tarim *Populus euphratica* (diversiform-leaved poplar) Nature Reserve, Ganjiahu Saxaul Forest Nature Reserve, Ili Small-leaved Ash Nature Reserve, Barluk Mountain Nature Reserve, West Tianshan Nature Reserve, Tomur Peak Nature Reserve, and Kanas Nature Reserve, as well as 21 national forest parks, including the Tianshan Grand Canyon, Xata Ancient Road, Jushi Ancient Road, and Hami Tianshan forest parks.

2.2 Livestock and poultry animals According to the *National Catalogue of Livestock and Poultry Genetic Resources* (2024 Edition), Xinjiang has 29 local breeds of livestock: Kazakh cattle, Altay white-headed cattle, Bayingolin yak, Pamir yak, Kazakh sheep, Altay sheep, Bashibai sheep, Turpan black sheep, Bayanbulak sheep, Lop sheep, Barchuk sheep, Cele black sheep, Duolang sheep, Kirgiz sheep, Taxkorgan sheep, Yecheng sheep, Hotan sheep, Pishan red sheep, Xinjiang goat, Kazakh horse, Barkol horse, Yanqi horse, Kirgiz horse, Xinjiang donkey, Turpan donkey, Hotan grey donkey, Xinjiang Tarim Bactrian camel, Xinjiang Junggar Bactrian camel, and Altay red deer. There are also 16 cultivated livestock breeds: Ili white pig, Xinjiang brown cattle, Chinese Holstein cattle, Chinese Simmental cattle, Huaxi cattle, Xinjiang fine-wool sheep, Chinese Merino (Xinjiang type), Subo Merino sheep, Chinese Karakul sheep, Xinji fine-wool sheep, Dixin mutton fine-wool sheep, Jiangnan cashmere goat, Yiwu horse, Ili horse, Tahe red deer, and Yihe red deer. Xinjiang has 6 local poultry breeds: Baicheng oil chicken, Hotan black chicken, Turpan gamecock, Yutian spotted duck, Ili goose, and Tarim pigeon.

Xinjiang has the National Regional Gene Bank for Livestock and Poultry (Xinjiang), the national-level Hotan Sheep Conservation Area, the national-level Xinjiang Donkey Conservation Area, as well as the National Duolang Sheep Conservation Farm, the National Yanqi Horse Conservation Farm, the National Baicheng Oil Chicken Conservation Farm, and the National Ili Goose Conservation Farm.

According to the *National Catalogue of Bee Genetic Resources* (2024 Edition), along with the sinicization and development of

the Western honey bee, Xinjiang Black Bee (Ili Black Bee) and Xiyu Black Bee have been recognized as local Xinjiang breeds in the National Bee Genetic Resources. Among them, Xiyu Black Bee is China's first native natural population of the Western honey bee, distributed in Xinyuan County, Ili Prefecture. The autonomous region also has the National Xinjiang Black Bee Conservation Area and the National Xinjiang Black Bee Conservation Farm.

Among the above-mentioned livestock and poultry genetic resources, 15 breeds, including Pamir yak, Duolang sheep, Altay sheep, Pishan red sheep, Bashibai sheep, Bayanbulak sheep, Kazakh sheep, Turpan black sheep, Yanqi horse, Kazakh horse, Xinjiang donkey, Xinjiang Junggar Bactrian camel, Baicheng oil chicken, Ili goose, and Xinjiang black bee, have been incorporated in the *National List of Protected Livestock and Poultry Genetic Resources* (2025 Edition).

There are also national nature reserves such as the Lop Nur Wild Camel National Nature Reserve and the Altun Mountains National Nature Reserve, as well as nationally important habitats for terrestrial wild animals including the Gongliu West Tianshan Mammal Habitat, the Qiemo Central Kunlun Plateau Ungulate Habitat, the Taxkorgan Pamir Argali Sheep Habitat, and the Shaya Upper Tarim River Wetland Mammal and Bird Habitat.

2.3 Aquatic animals In recent years, Xinjiang has comprehensively utilized water resources to develop aquaculture in rivers, lakes, reservoirs, mudflats, and saline-alkali lands through technological innovation, making it an important fishery province in China. Its aquatic product output ranks first among the five northwestern provinces.

The autonomous region boasts a wide variety of aquatic species, including cold-water fish such as white-spotted pike, oriental bream, burbot (mountain catfish), salmon (rainbow trout), and peled (northern whitefish). It also has characteristic freshwater fish such as Xinjiang ide, flat-snout fish, Tarim schizothoracin, and Ili schizothoracin. There are also species such as grass carp, silver carp, common carp, naked carp, crucian carp, catfish, Pacific white shrimp, South African tiger prawn, mullet, tilapia, European perch, pike-perch, Australian freshwater lobster, giant freshwater prawn, red swamp crayfish, and Chinese mitten crab.

Xinjiang has nine national aquatic germplasm resources conservation areas, including those for Arctic grayling in the Kuyirt River, endemic fish in the Yarkant River, endemic fish in Kanas Lake, endemic fish in Ebinur Lake, endemic fish in Ulungur Lake, endemic fish in the Kaidu River, endemic fish in the Kokesu section of the Irtysh River, Bosten Lake, and the Haba River. There are also 57 national wetland parks, such as Sayram Lake, Yukunlun Lake, Zepu Yarkant River, Yutian Keriya River, and Pamir Plateau Aral wetland parks, as well as national nature reserves including the Wenquan Xinjiang Salamander, Huocheng Four-clawed Tortoise, Burgin Beaver, Ebinur Lake Wetland, Altay Kekesu Wetland, and Bayanbulak nature reserves.

3 Agricultural tangible cultural heritage

3.1 World cultural heritage The World Cultural Heritage

sites in Xinjiang include the Great Wall and the Silk Roads; the Routes Network of Chang'an – Tianshan Corridor.

3.1.1 The Xinjiang Section of the Great Wall. The Great Wall is a defensive engineering system built by agricultural cultures to resist northern nomadic cultures. It consists of various defensive fortifications, including walls, enemy towers (watchtowers), passes, dunbao (small forts), garrison towns, guard posts, and beacon towers. It has witnessed and participated in the historical process of the Chinese nation's development toward diversity in unity.

The Xinjiang section of the Great Wall currently has 212 remaining Great Wall relics from the Han and Tang dynasties to the Qing Dynasty, including 186 beacon towers and 26 garrison forts, distributed across 10 prefectures and cities in eastern Xinjiang (Hami City and Turpan City), northern Xinjiang (Changji Hui Autonomous Prefecture, Urumqi City, Tacheng Prefecture, and Ili Kazakh Autonomous Prefecture), and southern Xinjiang (Bayingolin Mongol Autonomous Prefecture, Aksu Prefecture, Kashgar Prefecture, and Hotan Prefecture)^[2]. These relics fully demonstrate the historical fact of extensive contacts, all-around exchanges, and deep integration between ancient Xinjiang and the Central Plains and other parts of the motherland, and embody the recognition of the great motherland, the Chinese nation, and Chinese culture by all ethnic groups in Xinjiang.

Among them, the relics unearthed from the Kiyak Kuduk Beacon Tower in Yuli County include objects made of wood, lacquer, leather, grass, and textiles. A large number of animal and plant specimens were also unearthed from the ash heaps, such as grain crops like rice, highland barley, barley, wheat, foxtail millet, broomcorn millet, black soybean, and pea; horticultural crops like peach, apricot, jujube, onion, walnut, Russian olive, melon, prune, flax, and bottle gourd; forages and weeds like alfalfa, ephedra, sweet clover, green bristlegrass, and camel thorn; and animal bones of red deer, Mongolian gazelle, wild boar, hare, horse, cattle, sheep, donkey, dog, chicken, camel, swan, and fish.

3.1.2 The Silk Roads; the Routes Network of Chang'an – Tianshan Corridor (Xinjiang Section). The ancient Silk Road in Xinjiang had three trunk routes: the South Route, the Middle Route, and the North Route^[3]. The South Route started from Yangguan in Gansu in the east, skirted the southern edge of the Taklimakan Desert, and passed through Shanshan/Loulan (Lop Nur), Qiemo, Jingjue (Minfeng), Yutian (Hotan), Pishan (Yecheng), Shache, Shule (Kashgar), and onward to the Pamir Plateau. The Middle Route began at Yumenguan in Gansu, followed the northern rim of the Taklimakan Desert, and went by the Gaochang Ancient City, Jiaohe Ancient City, Yanqi (Yuli), Qiuci (Kuqa), Gumo (Aksu), Shule (Kashgar), and then to Ferghana (Fergana Valley, Uzbekistan). The North Route originated in Anxi (Guazhou County) in Gansu, passed through Yiwu (Hami), Pulei (Barkol), Mori, Tingzhou (Jimsar), and Luntai (Urumqi), continued westward along the northern foot of the Tianshan Mountains through present-day Shihezi and Kuytun, then traversed the Guozi Valley (Talqi Pass) over the Tianshan

Mountains to Yining and Huocheng, and finally reached Suiye City (Ak-Beshim, Kyrgyzstan).

Its main ancient routes include the Dahai, Loulan, Jushi, Pulei, Xizhou, Baishuijian, Yinshan, Wusun, Xata, Mengked, Gongyue, Guozigou, Zhaisang, Tasha, Puli, Panlong, Sangzhu, Keliya routes, and others.

The Xinjiang section of the Silk Road includes six World Cultural Heritage sites: Gaochang Ancient City, Jiaohe Ancient City, Beiting Ancient City Site, Kizilgaha Beacon Tower, Subashi Buddhist Temple Site, and Kizil Caves. It also includes Major Historical and Cultural Sites Protected at the National Level, such as the Shichengzi Site in Qitai County, the Jirentai Gou Site in Nilka County, and the Kiyak Kuduk Beacon Tower Site in Yuli County.

The ancient Silk Road was not only a major trade route for the exchange of goods between Asia and Europe, but also a road of friendship for the exchange of agricultural science, technology, and culture between China and the countries of Asia and Europe^[5]. A large number of agricultural biological varieties were introduced into China through the ancient Silk Road, mainly including walnut, almond, Hami melon, watermelon, grape, pomegranate, fig, garlic, cucumber, buckwheat, sorghum, faba bean, pea, mung bean, cowpea, chickpea, sesame, carrot, lettuce, celery, spinach, coriander, pepper, cumin, fennel, picrorhiza, cotton (herbaceous cotton), flax, water lily, alfalfa, as well as lion, camel, Akhal-Teke horse (blood-sweating horse, Ferghana horse), parrot, ostrich, and so on. Although barley, wheat, highland barley, jujube, and others had already been introduced into northwestern China via Central Asia before the opening of the Silk Road, their large-scale dissemination to the interior of China was still closely related to the Silk Road network.

3.2 Major historical and cultural sites protected at the national level Xinjiang has a total of 9 542 immovable cultural relics (including those of the Xinjiang Production and Construction Corps, XPCC). Apart from the six World Cultural Heritage component sites mentioned above, there are 133 Major Historical and Cultural Sites Protected at the National Level and 620 autonomous region-level cultural relics protection sites. Among the national-level protected sites, the Karez underground water conservancy project and the Xiaolizhuang Military Reclamation Site are themselves agricultural tangible cultural heritage.

Among the Major Historical and Cultural Sites Protected at the National Level, a considerable number have yielded agricultural cultural relics. In eastern Xinjiang, these include the Dahe Ancient City, the Shirenzigou Site Group, the Wubao Tombs, the Astana Ancient Tombs, and the Yanghai Tombs. In northern Xinjiang, there are the Beiting Ancient City Site, the Shichengzi Site, the Jirentai Goukou Site, the Tongtiandong Cave Site, and the Adunqiaolu Stone Fence Tombs and Petroglyphs. In southern Xinjiang, they include the Niya Site, the Dandan Oilik Site, the Kizilgaha Caves, the Ush Tur and Shah Tur Sites, the Tongguzibashi City Site, the Tokuzsara Site, the Chawuhu Tombs, and the Shanpula Tombs.

3.3 Movable cultural relics Xinjiang is rich in cultural relic resources^[7-8]. The protection of movable cultural relics relies on museums, memorial halls, libraries, and private collections, with museums playing the predominant role. Xinjiang has 150 various cultural and museum venues, many of which feature special collections and exhibitions of agriculture-related movable cultural relics. Typical examples include the Changji Qing Dynasty Granary Site Museum, the Changji Mori Grassland Karez Museum, the Bumurahan Maoleduo Border Defense Museum, the Kekeya Memorial

Hall in Aksu Prefecture, the Altai Mountains Chinese Herbal Medicine Museum, and the Nilka County Bee Breeding Farm Black Bee Science and Technology Museum.

3.4 Chinese traditional villages Xinjiang has 53 Chinese traditional villages (Table 1). Apart from Urumqi City, Karamay City, Tacheng Prefecture, and the 12 county-level cities directly administered by the autonomous region, which do not have any Chinese traditional villages, they are distributed across all other prefectures and cities.

Table 1 Chinese traditional villages in Xinjiang

Region	Number of villages	Traditional villages
Turpan City	9	Mazha Village, Baiximaili Village, Dihansu Village, Kuanaxia Village, Mukamu Village, Saierkefu Village, Sangeqiao Village, Tugemanboyi Village, Yingxiamaili Village.
Hami City	2	Aletun Village, Bositan Village
Aksu region	1	Jiayi Village
Kashgar region	2	Kalabashilangan Village, Qiakelikuyi Village
Hotan region	4	Kapake'asigan Village, Buda Village, Kang'azi Village, Pulu Village
Changji Prefecture	10	Guoshuyuanzi Village, Shuimogou Village, Tunzhuangzi Village, Jiejiezi Village, Machangwozi Village, Yinggebao Village, Yueliangdi Village, Hebayan Village, Miao'ergou Village, Daquanhu Village
Bortala Prefecture	5	Aliongbai New Village, Jiegedebulage Village, Minggetaoleha Village, Huhehaxia North Village, Arixate Village
Bayingolin Prefecture	11	Baluntai Village, Baxilige Village, Hao'erhate Village, Akeya Village, Jianggalesayi Village, Kulamuleke Village, Outula'airike Village, Tuogelakeleke Village, Guolewusitang Village, Tuogelakeleke Village, Huo'erjia Village
Kizilsu Prefecture	2	Aijieke Village, Azihan Village
Altay region	5	Hezilehayin Village, Hemu Village, Talate Village, Baihaba No.1 Village, Wulasite Village
Ili Prefecture (directly affiliated counties and cities)	2	Yichegashan Village, Qiongkushitai Village

3.5 Chinese ethnic minority characteristic villages Xinjiang has 57 Chinese ethnic minority characteristic villages (Table 2). Apart from Urumqi City, Hami City, Tacheng Prefecture, and Ho-

tan Prefecture, which do not have Chinese traditional villages, they are distributed across all other prefectures and cities as well as the XPCC.

Table 2 Chinese ethnic minority characteristic villages in Xinjiang

Region	Number of villages	Characteristic villages
Karamay City	1	Xiaoguai Village
Turpan City	4	Puchang Village, Mazha Village, Nanhu Village, Guoruo Village
Aksu region	2	Kumu Airike Community, Jiayi Village
Kashgar region	1	Buyiluke Village
Changji Prefecture	1	Daquanhu Village
Bortala Prefecture	2	Minggetaoleha Village, Bogeda'er Village
Bayingolin Prefecture	6	A'xian Guole Village, Wulezete Village, Guolewusitang Village, Huolashan Village, Xiachahe Village, Baxilike Village
Kizilsu Prefecture	1	Kekeqiaoku'er Folk Culture Village
Altay region	8	Bulanaicun Village, Hare'abulake Village, Hemu Village, Baihaba Village, Hatai Village, Yelaman Village, Kezilejia'er Village, Keziletuogai Village
Ili Prefecture (directly affiliated counties and cities)	21	Nadaqiniulu Village, Qiongbula Village, Qimingbake Village, Qibalagaxi Village, Xiasangong Village, Kuoyitasi Village, Dolaitibage Sub-district Office, Liuxingjie Community, Dongliang Village, Gukuretiman Village, Sala Village, Yuqunweng Village, Yangbulake Village, Keziletumusike Village, Aimierbulake Team, Qiongkushitai Village, Kezikuola Village, Bositan Village, Huosikule Village, Bulake Village, Sa'erkuobu Village
XPCC	10	Company 14 of Regiment 64, Company 8 of Regiment 73, Company 3 of Regiment 78, Company 9 of Regiment 89, Livestock Company of Regiment 104, Shimen Village of Regiment 143, Company 4 of Regiment 165, Company 5 of Junhu Farm, Tashuihe Ranch Company of Hongxing No.4 Farm, Miao'ergou Village of Huangtian Farm

3.6 Chinese historic and cultural villages, towns, and cities

Xinjiang has 4 Chinese historic and cultural villages: Aletun Village and Bositan Village in Yizhou District, Mazha Village in Shanshan County, and Qiongkushitai Village in Tekes County; 3 Chinese historic and cultural towns: Lukeqin Town in Shanshan County, Huiyuan Town in Huocheng County, and Keketuohai Town in Fuyun County; and 5 Chinese historic and cultural cities: Turpan City, Tekes County, Yining City, Kuqa City, and Kashgar City.

4 Frontier development and defense culture

Xinjiang's frontier development and defense cause has a long history, spanning seven historical stages: the Western and Eastern Han, Wei, Jin, Southern and Northern Dynasties, Sui and Tang, Song and Yuan, Ming and Qing, the Republic of China, and the contemporary era^[4,12]. It has left behind the Xinjiang section of the Great Wall^[2] and other important cultural relics^[7-8], promoted exchanges, interactions, and integration among different ethnic groups, as well as agricultural science and technology exchanges and species transfer between Xinjiang and the interior, and formed the frontier development and defense culture. In contemporary Xinjiang, the XPCC spirit^[12-14] and the desert poplar spirit have also been practiced, thereby enriching both fine traditional Chinese culture and advanced socialist culture.

The Hui people, as early as the Yuan Dynasty, followed the "Tamma Army" to garrison and farm locally. In the middle of the Qing Dynasty, officers and soldiers along with their families were systematically recruited from across the country and dispatched to Xinjiang for frontier development and defense, putting down roots through the practice of "serving as soldiers in wartime and farming in peacetime." Among them, the Xibe, Manchu, and Ewenki peoples who originated from the northeast were relocated westward to Ili, while the Daur people moved westward to Tacheng. The Chahar Mongols migrated from Zhangjiakou to Bortala, and descendants of the former Dzungar tribe were stationed in the Ili River valley as the "Oirat Battalion." Uyghurs from southern Xinjiang were recruited to the Ili Valley. As the main force of frontier development and defense, large numbers of Han "Green Standard" Army and Hui soldiers and civilians from Shaanxi and Gansu were requisitioned and dispatched throughout Xinjiang.

The XPCC shoulders the duty of frontier development and defense entrusted by the state. It was established in 1954 through the collective, on-the-spot transfer to civilian status of the bulk of the Second and Sixth Armies, the bulk of the Fifth Army, and the entire Regiment 22 stationed in Xinjiang. It is a special, separately listed, provincial-level administrative division operating under a distinctive management system that highly integrates Party, government, military, and enterprise functions. It has made indelible historical contributions to promoting reform and development, ad-

vancing social progress, enhancing ethnic unity, ensuring social stability, consolidating the northwestern frontier defense, and safeguarding national unity. In the great practice of "offering one's youth and then one's entire life, and then even one's offspring," it has crystallized the XPCC spirit whose core essence is "loving the motherland, selfless dedication, hard work and pioneering, and forging ahead with enterprise"^[14].

5 Cultural tourism resources

5.1 National graded cultural centers Xinjiang currently has 142 national graded cultural centers (including 60 under the XPCC), consisting of 28 Grade I cultural centers such as the Urumqi City Cultural Center, 26 Grade II cultural centers such as the Kuqa City Cultural Center, and 88 Grade III cultural centers such as the Pishan County Cultural Center.

5.2 Cultural market operating entities Xinjiang currently has 10 017 cultural market operating entities (including 811 under the XPCC), comprising 33 art business entities, 238 performing arts groups, 396 performance brokerage agencies, 80 performance venue operating entities, 5 508 entertainment venues, 3 649 Internet access service business venues, and 113 commercial Internet cultural entities.

5.3 Level A tourist attractions At present, Xinjiang has 776 level A tourist attractions (including 85 under the XPCC), comprising 19 level 5A scenic spots, 178 level 4A scenic spots, 476 level 3A scenic spots, 102 level 2A scenic spots, and one level A scenic spot.

5.4 Premium cultural tourism routes As the heartland of the ancient Silk Road, Xinjiang offers visitors an exceptional variety of high quality cultural tourism itineraries. The "Silk Road Treasures: Thousand-Year Qiuci Cultural Relics" themed trail, comprising urban, eastern, and western sub-routes, systematically unfolds the history of the ancient Qiuci Kingdom and the broader Silk Road culture. The "Kunlun Ancient Trail: Xinjiang Silk Road Exploration" self drive route, a national level recommendation for 2024, leads travelers along the Kunlun Mountains to discover old Silk Road pathways such as the Yinshan and Tasha routes. Ice-and-snow itineraries, including "Ethnic Charm: Northern Xinjiang Snow Capital," have been recognized as national premium products for two consecutive years, highlighting winter sports, ethnic festivals, and scenic landscapes. Rural tourism lines like the "Barkol/Bayingolin Silk Road Ancient Villages" route, endorsed by the Ministry of Culture and Tourism, combine visits to ancient villages and Buddhist temples with local cuisine and ecological scenery, delivering a deeply immersive cultural and leisure experience.

5.5 National key rural tourism villages and towns Xinjiang has 83 national key rural tourism villages and towns, comprising 73 villages and 10 towns (Table 3).

Table 3 National key rural tourism villages and towns in Xinjiang

Region	Number of villages and towns	Key rural tourism villages and towns
Urumqi City	2	Pingxiliang Village; Shuixigou Town
Karamay City	3	Hake Village, Chagancao Village; Wu'erhe Town
Hami City	1	Shirezi Village
Turpan City	3	Shanghu Village, Bageri Community, Nanhu Village
Aksu region	4	Qiaqi Village, Jiayi Village, Tagelake Village, Arele Village
Kashgar region	5	Changshou Village, Kalayujimai Village, Xiamalebage Village, Youka'er Kekula Village, Ayagemangan Village
Hotan region	3	Kuogai'airike Village, Daliyabuyi Village, Kuogai Village
Changji Prefecture	7	Yueliangdi Village, Shanpo Zhongxin Village, Gucheng Village, Shisanhu Village, Yaozhanzi Village; Yinggebao Township, Chengguan Town
Bortala Prefecture	1	Bogeda'er Village
Bayingolin Prefecture	6	Awat Farm, Baxilige Village, Daxi Village, Wutu'arele Village, Lahannuoer Village, Wuxiaketiroke Village
Kizilsu Prefecture	3	Oytak Village, Bageaigezi Village; Tar Tajik Ethnic Township
Tacheng region	1	Jiuhua Village
Altay region	6	Hemu Village, Kanas Village, Talate Village, Baihaba Village, Tasite Village; Hemu Kanas Mongolian Ethnic Township
Ili Prefecture (directly affiliated counties and cities)	7	Qiongkushitai Village, A'ershan Village, Sigong Village, Tugeleqinbulake Village, Baiyigetuoobie Village, Sule'alemata Village; Nalati Town
XPCC	31	Company 5 of Regiment 10, Company 13 of Regiment 11, Company 1 of Regiment 16, Company 8 of Regiment 27, Company 2 of Regiment 31, Jinbian Town of Regiment 62, Company 3 of Regiment 62, Company 7 of Regiment 71, Company 1 of Regiment 76, Company 5 of Regiment 78, Company 1 of Regiment 83, Company 22 of Regiment 86, Livestock Company of Regiment 104, Company 7 of Regiment 121, Company 10 of Regiment 152, Company 6 of Regiment 161, Company 8 of Regiment 161, Company 4 of Regiment 165, Company 1 of Regiment 185, Company 2 of Regiment 185, Company 3 of Regiment 185, Company 4 of Regiment 188, Company 2 of Xishan Farm, Company 3 of Toutunhe Farm, Company 3 of Hongxing No. 1 Farm, Company 3 of Hongxing No. 2 Farm, Company 11 of Hongqi Farm, Company 1 of Pishan Farm; Regiment 71, Regiment 185, Toutunhe Farm

5.6 National grade A and grade B tourist homestays Xinjiang has 8 Grade A tourist homestays: Bu Guri BGULI Design Holiday Home (Ertix River Branch), Keketuohai's Dream · Intangible Cultural Heritage Resort, Yunyi Inn, Selis Homestay, Gucheng Renjia Homestay, Meeting Flowers Homestay, Sansheng Baijianli B&B Homestay, and Tekes County Mengli Change Homestay.

There are 20 National Grade B tourist homestays: Xinsu Homestay, Yixu Youran Homestay, Shuimu Tianyuan Homestay, Samuersen Homestay, Yishu Homestay, Koktoghay Jinshan Culture Club, Mingyang Shanzhuang Tourist Homestay, Dushi Tourism Yangsheng Xiaoyuan, Magelite Homestay, Yining Fanjing Boutique Homestay, Shaoxiang Muju, Qiyue Xiaoshe, Houyuan Catering Homestay, Qixi Homestay, Baipu Homestay, Xiaoshe Nongjia Xiaodian, Zhuolaoshe Nongjiayuan, Taohuadu Tourism Resort Nongjiayuan, Silk Road Muge Homestay, and Xu Wenhe Ecological Family Farm.

5.7 National tourist resorts Xinjiang has two national tourist resorts: Xinjiang Nalati Tourist Resort and Wujiaqu Qinggeda Lake Tourist Resort.

5.8 National traditional Chinese medicine health tourism demonstration bases Xinjiang does not have any National Traditional Chinese Medicine Health Tourism Demonstration Zone, but it has two National Traditional Chinese Medicine Health Tourism Demonstration Bases: Zhaosu County Hospital of Tradi-

tional Chinese Medicine in Xinjiang and Yumin Hongzhan Safflower Planting Base in Xinjiang.

5.9 China well-known trademarks Xinjiang has 49 China Well-known Trademarks, among which only KANAS (Registration No. : 1967709, registered by Xinjiang Kanas Tourism Development Co., Ltd.) involves cultural industry or tourism services.

5.10 National cultural parks The National Cultural Park is a key focus of cultural development in Xinjiang, among which the construction of the Great Wall National Cultural Park is particularly prominent. By protecting, displaying, and revitalizing historical relics, it has become a link for telling China's stories and promoting ethnic integration.

Xinjiang has five Great Wall National Cultural Parks. The Hami City Great Wall National Cultural Park implements integrated planning and protection for beacon tower groups dating from the Han, Tang, and Qing dynasties, represented by the Balikon Dahe Tang City, among others. The Ruoqiang Milan Great Wall National Cultural Park showcases the charm of the Xinjiang Great Wall, represented by beacon towers. The Yuli County Peacock River Beacon Tower Group Great Wall National Cultural Park is built around 11 beacon tower ruins along the Peacock River. The Luntai County Laysu Great Wall National Cultural Park is constructed around the Laysu Beacon Tower ruins. The Wushi County Biedielu Beacon Tower Great Wall National Cultural Park covers both the site area and the county cultural center, allowing visitors to im-

merge themselves in history through digital technologies such as VR.

In addition, the Beiting Ancient City Site, the Subashi Buddhist Temple Site, the Qigexing Buddhist Temple Site, and the Wulabo Ancient City have been successively approved for inclusion in the project list for National Archaeological Site Parks.

6 Main problems concerning traditional knowledge and cultural heritage

6.1 Serious loss of agricultural traditional knowledge With urbanization and the excessive depopulation of traditional rural areas, traditional planting and breeding techniques continue to be lost, traditional manual processing techniques for agricultural products have largely been replaced by machinery, there is a shortage of successors for the processing techniques of authentic medicinal herbs, inheritors of agriculture-related intangible cultural heritage are tending toward advanced age, and the loss of agricultural traditional knowledge is severe in traditional villages, ethnic minority characteristic villages, and historic and cultural villages, towns, and cities.

6.2 Inadequate protection of biological genetic resources Xinjiang does not have any globally important agricultural heritage systems, only eight China important agricultural heritage systems, among which only the Zhaosu Grassland Horse Husbandry System involves traditional nomadic culture. The construction of germplasm resource repositories (nurseries) for grain and oil crops, cotton and hemp, vegetables, edible fungi, medicinal herbs, *etc.*, has lagged behind. The protection of genetic resources such as Xinjiang black pigs, yellow cattle, silkworms, and endemic fish has not yet received adequate attention, and the germplasm resource conservation function of various nature reserves and parks has not been fully realized.

6.3 Lack of national cultural ecology protection (experimental) areas A National Cultural Ecology Protection (Experimental) Area is a designated region whose core mission is the safeguarding of intangible cultural heritage. At present, China has established 21 National Cultural Ecology Protection Areas and 2 National Cultural Ecology Protection Experimental Areas. Despite its remarkable cultural diversity, including 13 long-established ethnic groups, the Great Wall culture, and the Silk Road culture, Xinjiang remains without any such nationally designated cultural ecology protection or experimental area.

6.4 Insufficient attention to agricultural exchanges along the Silk Road The Silk Road was an ancient trade and cultural route connecting China with regions across Asia, Europe, and Africa. It is generally held that, in terms of goods, China exported silk, porcelain, and tea, while importing spices, jewels, fine horses, and the like; in terms of cultural diffusion, religions such as Buddhism, Islam, and Nestorianism (the Nestorian school of Christianity) were introduced to China, while technologies such as papermaking and printing spread westward, promoting mutual learning in art, music and dance, and medicine. However, research on

agricultural scientific, technological, and cultural exchanges has not yet received the attention it deserves, even though the agricultural plant and animal species introduced via the Silk Road have not only enriched the diversity of China's agricultural biological genetic resources, but have also profoundly influenced contemporary daily life, culture and art, as well as historical warhorses and military supplies.

6.5 The cultural heritage of the Great Wall in Xinjiang deserves greater prominence Unlike the Great Wall in China's interior, its Xinjiang counterpart consists of a distinctive multi-element defense network comprising beacon towers, garrison forts, post stations, and karun outposts, which also served to safeguard the smooth operation of the Silk Road. These garrison forts are embedded with a wealth of historical significance, encompassing the practices of frontier development and defense, traditional agriculture, the flow of agricultural knowledge between Xinjiang and inner China, and the interaction and integration of diverse ethnic groups.

6.6 The role of tourism in promoting ethnic unity needs to be enhanced The numbers of 5A-level scenic spots, National Key Rural Tourism Villages and Towns, and National Grade A and Grade B tourist homestays are not large; TCM health tourism awaits further development; tourism brand development is lagging behind; and there is only one China Well-known Trademark in tourism services, held by Xinjiang Kanas Tourism Development Co., Ltd. The information on exchanges, interactions, and integration among different ethnic groups within tourism products needs to be explored and organized, and the role of tourism in promoting ethnic unity needs to be enhanced.

6.7 The Silk Road national cultural park remains underdeveloped While Xinjiang hosts five Great Wall National Cultural Parks and has four sites on the approved project list for National Archaeological Site Parks, the development of a Silk Road National Cultural Park has fallen behind and remains unrealized.

6.8 Cultural enrichment of Xinjiang needs to be strengthened within the pairing assistance strategy The pairing assistance to Xinjiang is a national strategy formulated by the CPC Central Committee and the State Council to promote Xinjiang's development, enhance ethnic unity, and maintain stability in Xinjiang. Nineteen provinces and cities in eastern and central China, as well as central government units, have selected and dispatched cadres and technical talents in fields such as science and technology, education, medical care, and culture, forming a multi-dimensional assistance system encompassing economy, science and technology, and human resources. It emphasizes combining "blood transfusion" with "blood production," establishes long-term support mechanisms for talent, technology, and funding, prioritizes improving people's livelihoods, addresses issues such as employment, education, and housing, and supports the cultivation of characteristic industries. However, within the pairing assistance strategy, the efforts in cultural enrichment of Xinjiang still need to be intensified.

7 Strategies for the living inheritance of agricultural cultural heritage and cultural enrichment of Xinjiang

7.1 Promoting agricultural traditional knowledge, inheriting and sharing cultural heritage related intellectual property

We should collect and organize agricultural traditional knowledge and cultural heritage from such aspects as the human factors of geographical indications for traditional specialties, hometowns of specialty products, time honored brands, important agricultural heritage systems, intangible cultural heritage, biological genetic resources, World Cultural Heritage, and key protected cultural heritage sites, so as to enhance the cultural connotations of traditional specialties. Using museums, cultural centers, libraries, and other venues as carriers, we should promote agricultural traditional knowledge, biological genetic resources, and folk literature and art, thereby helping to build regional brands for characteristic agriculture. We should also promote the introduction of agricultural traditional knowledge into traditional villages, ethnic minority characteristic villages, and historic and cultural villages, towns, and cities, so as to revitalize rural culture and inherit and share cultural heritage related intellectual property.

7.2 Enhancing the protection of important agricultural heritage systems and improving the germplasm conservation framework

A systematic effort should be made to inventory and document unique land-use systems and agricultural landscapes, and to pursue designation as China Important Agricultural Heritage Systems (China-NIAHS) with particular emphasis on traditional oasis farming and pastoral systems, while also working toward nomination as Globally Important Agricultural Heritage Systems (GIAHS). Based on the characteristics of Xinjiang's distinctive industries and agro-genetic resources, the conservation framework at both the national and autonomous region levels should be strengthened by improving crop germplasm banks (and nurseries), agricultural microbial germplasm repositories, forest germplasm banks, forage germplasm nurseries, regional livestock and poultry gene banks (along with conservation areas and farms), and aquatic germplasm reserves. Furthermore, the germplasm conservation functions of China-NIAHS sites, national nature reserves, national forest parks, national wetland parks, nationally important terrestrial wildlife habitats, and national parks should be fully leveraged to safeguard the diversity of genetic resources.

7.3 Creating national cultural ecology protection (experimental) zones to revitalize agricultural heritage

Two national-level cultural ecology protection (experimental) zones are proposed. The first, focused on the counties and cities directly under the administration of Ili Kazakh Autonomous Prefecture in coordination with the Fourth Division of the XPCC, would be designated as the Frontier Development and Defense Culture (Ili) National Cultural Ecology Protection (Experimental) Zone, dedicated to safeguarding and transmitting the legacy of frontier cultivation and defense, the rich tapestry of local ethnic cultures, and the distinctive XPCC spirit. The second, spanning the three southern prefectures of Aksu, Kashgar, and Hotan, would form the Southern Xin-

jiang Silk Road Culture National Cultural Ecology Protection (Experimental) Zone, aimed at preserving and promoting the multifaceted Silk Road heritage and the cultures of the region's ethnic groups. These zones would strengthen the protection of the cultural ecology and foster the integrated, dynamic inheritance of both the tangible and intangible dimensions of agricultural heritage.

7.4 Promoting agricultural sci-tech and cultural exchange and strengthening the Silk Road cultural development of Xinjiang

From such aspects as traditional specialties, hometowns of specialty products, time-honored brands, important agricultural heritage systems, intangible cultural heritage, biological genetic resources, key protected cultural heritage sites, movable cultural relics, traditional villages, ethnic minority characteristic villages, historic and cultural villages, towns, and cities, and cultural tourism, it is recommended to collect and organize the cultural heritage resources of the Xinjiang section of the Silk Roads; the Routes Network of Chang'an - Tianshan Corridor; promote agricultural scientific, technological, and cultural exchanges, emphasize the introduction of animal and plant species, production techniques, and agricultural product processing technologies, and advance the cultural development of the Silk Road in Xinjiang.

7.5 Promoting the culture of frontier development and defense and shaping a distinctive Xinjiang Great Wall culture

It is necessary to collect and organize the relics of beacon towers (watchtowers), garrison forts, post stations, karun, and other components of the Xinjiang section of the Great Wall; systematically study China's history of frontier development and defense, especially the exchange of agricultural science, technology, and culture and the migration of species between Xinjiang and the interior, the exchanges, interactions, and integration among different ethnic groups, the XPCC, and the XPCC spirit; highlight the frontier development and defense culture embedded in Great Wall cultural heritage, and build Great Wall culture with Xinjiang characteristics.

7.6 Deeply integrating "agriculture + culture + tourism" and promoting exchanges, interactions, and integration among all ethnic groups

In line with the *Opinions on Implementing the Plan to Promote Exchanges, Interactions, and Integration among All Ethnic Groups through Tourism* (jointly issued by the Ministry of Culture and Tourism and two other departments in 2022), efforts should be made to advance the in depth convergence of agriculture, culture, and tourism by adding new cultural significance, developing new travel routes, cultivating new business models, and fostering new market players. High quality development of agricultural cultural tourism will serve to embed all ethnic groups more fully across spatial, cultural, economic, social, and psychological dimensions, thereby strengthening inter ethnic contact, exchange, and integration, and ultimately consolidating a strong sense of community for the Chinese nation.

7.7 Developing national and autonomous-region cultural parks to build a shared spiritual home for the Chinese nation

Taking the forging of a strong sense of community for the Chinese

nation as the main line, utilizing the pairing assistance strategy for Xinjiang, we should construct autonomous region cultural parks with themes such as agricultural culture, frontier development and defense culture, and the cultures of native ethnic minorities, and build national cultural parks of Great Wall culture and Silk Road culture, so as to construct a shared spiritual home for the Chinese nation.

7.8 Living transmission of agricultural cultural heritage in support of the cultural enrichment of Xinjiang The living transmission of agricultural traditional knowledge and cultural heritage (spanning traditional knowledge, Important Agricultural Heritage Systems, intangible cultural heritage, biological genetic resources, tangible cultural heritage, frontier development and defense culture, and cultural tourism) should be advanced as a means of bolstering the cultural enrichment of Xinjiang. With the consolidation of a strong sense of community for the Chinese nation as the central thread, this transmission should, like a gentle spring breeze that nurtures and nourishes without a sound, strengthen the identification of Xinjiang's cadres and people of all ethnic groups with the great motherland, the Chinese nation, Chinese culture, the Communist Party of China, and socialism with Chinese characteristics. Paired cultural assistance should be reinforced, so that the cultural enrichment of Xinjiang furnishes moral underpinning for law based governance, solidifies the ideological foundation for unity and stability, generates momentum for enriching the people and revitalizing the region, and exerts a heart-centering, spirit forging function for the long-term development of Xinjiang, thereby ensuring the full, faithful, and comprehensive implementation of the Party's Xinjiang governance strategy in the new era.

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