
Chapter 3

The Role of Ethnic Diversity in the Evolution of Highland Agricultural Systems in Xinjiang, China

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Introduction

Xinjiang is the largest of the 27 provinces in China with an area of 1.6 million square kilometres. Xinjiang, known in ancient times as the Western Region, was the communication hub of the ancient Silk Road, facilitating the flow of culture between Asia and Europe. Xinjiang is surrounded by three mountain ranges: the Himalayas, the Altay, and the Karakoram. The climate of Xinjiang is characterised by changing continental weather with limited rain, low humidity, long winters, short springs and autumns, plenty of sunshine, and a wide range of temperate regimes. Mean annual rainfall ranges from 50 to 200 mm.

Xinjiang is a multicultural region, home to 47 Chinese nationalities. People of thirteen nationalities, the *Uyghur*, *Han*, *Kazak*, *Hui*, *Mongol*, *Kirgiz*, *Tajik*, *Xibe*, *Uzbek*, *Manchu*, *Daur*, *Tatar* and *Russian*, have lived here for many generations. Members of a few nationalities, such as the *Dongxiang*, *Zhuang*, *Salar*, *Tibetans*, *Miao*, *Yi*, *Bouyei*, and Koreans have migrated to the region since liberation. Agriculture in Xinjiang is basically an irrigated agro-ecosystem known in China as Oasis Agriculture. Although the land area under oases is small, it supports about 90 per cent of the population of Xinjiang.

In the arid regions, climatic conditions, such as temperature, hours of sunshine, and relative humidity, are ideal for crop production. Water is the only scarce resource in the system, but farmers have developed methods to harness the available water for irrigation. Farmers in this region use water efficiently to produce a range of cereals, cotton, oilseed crops, sugar beet, melons, fruit, and hops.

Table 3.1: Diversity of Nationalities in Ethnic Farming Communities in Xinjiang, China

Nationality	% of population	Language	Religion	Economic activity
<i>Uygur</i>	47.47	Uygur	Islam	Farming, livestock
<i>Han</i>	37.58	Chinese		Various
<i>Kazak</i>	7.30	Kazak	Islam	Animal husbandry
<i>Hui</i>	4.49	Chinese	Islam	Farming, livestock
<i>Kirgiz</i>	0.92	Kirgiz	Islam	Animal husbandry
<i>Mongol</i>	0.90	Tuoqin, Mongol	Lamaism	Livestock, farming
<i>Xibe</i>	0.21	Xibe, Chinese	Lamaism	Livestock, farming
<i>Russian</i>	0.05	Russian	Orthodox	Various
<i>Tajik</i>	0.22	Tajik	Islam	Animal husbandry
<i>Uzbek</i>	0.09	Uzbek	Islam	Commerce, farming
<i>Tatar</i>	0.03	Tatar	Islam	Various
<i>Manchu</i>	0.12	Chinese		Various
<i>Daur</i>	0.03	Chinese	Lamaism	Farming, livestock
<i>Others</i>	0.53	Various		Various

Different ethnic cultures have brought with them from their native places local knowledge and skills for growing and using various crops and have retained them after migration.

The impact of human intervention in arid agriculture has been significant. In the past, violent sandstorms not only ruined large areas of farmland but made numerous farmers homeless and penniless. Today, green belts protect arable fields from sandstorms. There are still 10 million hectares of waste land which could be cultivated with afforestation and efficient use of water resources. In arid zones, saline-alkaline soil is another limiting factor for crop production. About one million hectares, or one third of the available arable land in the region, suffer under such stress. Thirty years ago the farmers in Xinjiang developed ways and means to ameliorate the situation and benefitted through increased production of cotton, grain, and oilseed crops.

Xinjiang has abundant natural grassland and pastoral areas with rich animal genetic resources. About 48 per cent of the total area in Xinjiang is grassland. Grasslands are found in three geographic regions: the Altay, Tianshan and Kunlun mountains and Pamir Plateau; the oasis of the Tarim and Juggar basins; and the deserts of the Junggar and Tarim basin. The quality of grass is excellent. Studies have shown that beef cattle reared under natural pasture gain body weight at the rate of one gram per kg per day without supplementary feed or fodder. This kind of body weight gain is seldom reported from natural pasture. Livestock and animal breeds in this region are famous for their productivity and quality. The sheep breed in this region is known for the outstanding quality of its fine wool and quick growth of fleece. Xinjiang has been known for breeding horses and donkeys since

ancient times. Donkeys are a major means of transportation amongst the Uygur, whereas camels are considered as the boats of cold deserts and contribute to both economic and cultural exchange. Besides horses, donkeys, and sheep, Xinjiang is known for cattle and domestic flying geese.

The Management of Agrobiodiversity in Xinjiang

The prevailing opinion at national level is that conservation has no meaning to people if it does not provide food and economic benefits to the farming community.

At least 3,500 species of plants and 608 species of fauna have been recorded in Xinjiang. Among them are 59 species of plants and 63 species of animals listed in the National Key Protected Plants' list. Xinjiang provincial government has established 20 Natural Protected Areas with a total area of about 102,522 square kilometres (Table 3.2) to protect agrobiodiversity. Although one of the objectives of these reserves is to conserve *in situ* the wild relatives of crops and potential new crops (gene storage in natural habitats), it is questionable whether this objective can ever be fulfilled by these means.

Table 3.2: Number and Magnitude of Natural Protected Areas (*in situ* conservation) in Xinjiang

Year	No of reserves established	Area (km ²)	Type of conservation
1980	7	5,605	Forest & animals
1982	1	17,000	Animals
1983	6	49,526	Animals & forest
1984	1	15,000	Animals
1986	4	15,508	Animals & grassland
1990	1	380	Forest

Some of the issues related to agrobiodiversity which arise from the agricultural and ethnic diversity in Xinjiang are:

- ethnic diversity maintains a diversity of agricultural systems even in the same area/environment,
- conservation of agrobiodiversity should address the development needs of the people,
- the evolution of agro-ecosystems in cold and dry areas mainly results from the diversity of ethnic cultures inhabiting these areas and this diversity should be maintained, and

- conservation is most effective when linked to the livelihood and food security of the local people.