Deeply incised valleys in the Western Pamirs and large high plateaus in the east, in combination with different climate characteristics, were responsible for the emergence of two main agricultural systems. The valleys of the Western Pamirs are dotted with villages where the population engages mainly in irrigated farming, whereas the vast high pastures of the thinly populated Eastern Pamirs are suited for livestock production.

**Characteristics of the farming system**

Virtually without exception, farming in the Western Pamirs is possible only in the proximity of the Pamiri settlements on valley bottoms along rivers and on alluvial fans. The major limiting factors for farming are the harsh climatic conditions, with long winters and minimal annual rainfall, and the sparse amount of agricultural land, owing to the wild mountain relief. Finally, and most important, is the availability of water. To optimise yields on very limited arable plots averaging 0.12 ha per person, almost all arable land that can be traditionally irrigated has been used in recent years in an effort to raise productivity.

Cereals, local varieties of wheat and barley, potatoes and pulses are grown on these small plots. Orchards with many varieties of fruit trees and vegetables, often combined with livestock grazing, complete the list of agricultural products. This form of agriculture corresponds to that practiced in neighbouring mountainous regions and is known as ‘mixed/combined mountain agriculture’ (Herbers 2001a).

**Agriculture under Soviet rule**

During the Soviet era a fragmented and sectorally specialized economic system was established. Cotton was expected to become the main agricultural product in Tajikistan. But due to its strategic location as a buffer to Afghanistan and China, no significant agricultural production or industrial output was expected from the GBAO, which was located too high in the mountains to produce cotton.

The Soviet system was characterized by the abolition of private land ownership and the introduction of *kolkhozes* and later on *sovkhozes*. The first *kolkhozes* in the GBAO were established in 1937. In these collective enterprises, capital and productive assets – apart from the land itself – belonged to the workers. Salaries were paid in farm products and were dependent on the profit earned by the enterprise. Then, in 1975, all *kolkhozes* in the GBAO were turned into *sovkhozes*. These state enterprises were created to improve production. Not only the land, but also all other property now belonged to the state, and the workers became state employees with fixed salaries regardless of the profitability of the *sovkhozes*. The introduction of *sovkhozes* also brought a change in production targets. As late as 1965, 76.3% of the arable land was still used for cultivation of food-stuff and only 23.7% for fodder. In 1987, however, 69.8% of the area under cultivation was used to produce fodder, 4.8% to...
Wheat threshing with oxen in the Ishkashim valley as a result of the demechanisation of agriculture after 1991. 
(Photo: C. Hergarten)

cultivate tobacco, and only 25.4% for production of foodstuffs (State Committee on Statistics, Tajikistan 1987). As a result, only 10–20% of the region’s requirements for foodstuffs were met locally (Herbers 2001a, p. 371), and Gorno Badakhshan became greatly dependent on external supplies. In connection with the changes mentioned above, many new jobs were created, with a majority of those employed working outside the agricultural sector. Nevertheless, there was a lack of jobs in the GBAO. Many Pamiri therefore migrated to Dushanbe or other cities in the country to improve their skills and find new jobs (Herbers 2001b).

Agrarian transformation

In 1992, following the collapse of the centrally planned Soviet economic system, serious food and energy shortages began to be felt in Gorno Badakhshan.

In late 1993, at a time when self-sufficiency in the GBAO was at a level of just 15%, the local government decided that unused or under-utilised state farmland could be distributed to villagers who wished to become private farmers. At the national level, a Land Code for the Republic of Tajikistan, paving the way for privatisation, was only passed in 1995. Village by village, the land and livestock of the former sovkhozes were distributed equally to every household in the GBAO. As a result, many very small family enterprises were created, often lacking traditional and comprehensive farming knowledge due to the division of labour in the previous agricultural system.

To counter these sub-optimal start-up conditions, private farmers were given technical assistance by the Mountain Societies Development Support Programme (MSDSP), and they received improved seeds and fertilisers on credit. A channel building programme was initiated to increase the amount of arable land available to private farmers, and suitable crop varieties were introduced. Since then, almost all state farmland has been placed under private management. The total area of land under private management is now more than 11,000 hectares. Yields of potatoes and wheat per hectare have more than doubled and today cover an average of almost 70% of staple food requirements. In 2000, however, Central Asia was severely affected by a drought, which resulted in a decline in agricultural production (see figure to the left). Despite this overall very positive development, substantial discrepancies remain between districts and villages, and particularly within local communities.

Like the land, livestock was also privatised. It was distributed equally among the population, except for yaks, which are seriously threatened by a steady loss of yak breeds. After a sharp drop in production between 1990 and 1995, milk and meat production remained at a critically low level until 1998 (see figure below). Only after 1998 did the production rate for milk and meat increase significantly, in all probability due to restructuring in the agricultural sector and the urgent need for foodstuffs.

Although the improvements made in terms of food production and yields are very positive, they were achieved partly at the expense of land quality. Several villages have recorded a serious increase in degraded land with declining yields. In most cases this is due to overuse of the land and inappropriate irrigation techniques. Against this background, it is questionable whether complete food self-sufficiency, which can probably be achieved only through demanding land reclamation, intensification and optimised cropping systems, is the only approach to improving rural livelihoods. As in other mountainous areas, the key to sustainable agriculture may be development of other economic activities based on farming.

(Source: Statistical Archives data, GBAO Agricultural Department)