Water Use and Irrigation Systems in Arid Regions of Central Asia
－A Case Study of a Village in Tashkent, Uzbekistan－

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- Research Background

In arid regions of Central Asia, most terrain is classified as steppe or desert. The climatic and environmental characteristics of these regions have led to nomadic pasturage and oasis agriculture being practiced and developing here over a long period of time. Since at least the first half of the19th century, people here have subsisted from these forms of agricultural practice.

In the latter half of the 19th century, however, the expansion and dominance of Imperial Russia had begun, and as a result, the lifestyle of the local population was radically changed. Due to the agricultural policies enforced by the Soviet Union following the Imperial Russian period, the region of modern Uzbekistan became a major cotton exporter to other republics within the Union. Since the 1950s, many new canals have been constructed for the irrigation of new fields. These canals mainly use water from the Syr Darya and the Amu Darya rivers. As a result of this new infrastructure, agriculture, especially cotton production, has become one of the main industries of Uzbekistan.

However, after independence from the Soviet Union in 1991, the government began moving to a market economy, which has resulted in the agricultural system also changing. Many farmers are still adapting to this new phase of agricultural development.

Fig.1: A canal in front of houses in a village

Fig.2: A donkey is used to pull a carriage

- Research Purpose

The main purpose of my research is to clarify the relationships between water utilization, the characteristics of agriculture, and community development in villages. To achieve this, I will focus on the irrigation system of a village located within the Syr Darya basin in Tashkent, Uzbekistan. This study takes a particular look at the Water Users Association that was established to oversee irrigation control and management in each district. The study also examines the relationship between household gardening and independent farmers (hereon called "*fermer*").

- Results and Achievements

In this region, Water Users Associations called *Suv Xo'jaligi* and *Suv Istemolchilari Uyushmasi* distribute water to *fermers*' fields. *Suv Istemolchilari Uyushmasi* is a subsidiary group under *Suv Xo'jaligi.* These departments take charge of the water distribution to *fermers* only. The general population in the village is allowed to use water for free from canals flowing in front of their houses. *Fermers* pay money for the quantity of water they use, and the money collected is used mainly for the maintenance of canals and other irrigation facilities. Another function of the Water Users Association is to collect data about the amount of water used for crops in *fermers*' fields and report the results to a higher authority.

Most *fermers'* fields in the village are managed by their owners who live in the same village. In many cases the owner's relatives and neighbors work as laborers in the field. In such cases, the owner lends the part of his own field to the laborers after harvesting of wheat in summer, and they grow vegetables for sale themselves. In many cases the income generated from these vegetables grown by the laborers amounts to the greater part of their daily cash income.

Fig.3: A cotton field of a *fermer*

- Implications and Directions for Future Research

The results of this investigation show that the maintenance and use of village irrigation systems play an important cohesive role for village communities. On the basis of these results, I plan to investigate further the links between water usage and irrigation systems in rural communities and the pattern of agricultural development associated with them.