Utilization of Irrigation Canals for potentials to the town development in Kiryu
Research on the Renewal of the Town of Kiryu

Hirokazu YAMAMOTO1) Naoto SUZUKI2) Akira UEDA3)
1) Kiryu University, Chiba University 2) Chiba University 3) Chiba University

1. Introduction
1.1. Purpose of the research

The silk textile industry used to be a main industry in Kiryu. In the Edo period (1603-1868), both the silk textile industry and the resident’s culture remarkably grew in Kiryu. It is assumed that the one of principal factors for such growth was the utilization of the irrigation canals in the industry. For example, the technical innovation in 1783 of the Haccho-Nenshiki which was a mechanical tool using water mill’s power for twisting threads had a great contribution to the industry and created unique sceneries in the town. Also, this technology gave the residents cultural benefits [1]. However, these canals have disappeared from the town with the changes in both manufacturing methods and the residents’ lives.

The purpose of this research is to find out how the canals affect both the silk textile industry and the residents’ lives when the canals were utilized for the industry in Kiryu. This will show the significant factors that shaped the town’s growth at that time. These factors will give valuable insights that will be useful for Kiryu town’s development in the future.

2. Methodology of Analysis

1) Reviewing old documents and literatures for finding relevant information regarding the canals.
2) Interviewing the residents
3) Getting suggestions for Kiryu town’s development.

3. Results
3.1. Location of the canals

In 1604, the town of Kiryu was planned to be located on an alluvial plain. Almost all the canals in Kiryu were built for irrigation use. Then, they were utilized for the silk textile industry. There used to be 3 main canals around the town’s central area. They were the Ozeki-yousui, the Tobori-yousui and the Akaizwazeki-yousui.

According to the map drawn in 1780, the Ozeki-yousui used to pass through the area of the Tenmangu-shrine and run through along the west side of the Honcho-dori which was the town’s main street (Figure 1). Presently, remains of the canal at the Tenmangu-shrine are still obvious. However those at Honcho-dori are non-existent. The Akaizwazeki-yousui was built in around 1708. Although its purpose was not clear, it was suggested to be for both irrigation and industrial use, according to Takahiro Noguchi (The Senior managing director of NOGUCHI SENSHOKU Co., Ltd.). Almost all of the Akaizeki-yousui has been underdrained, however some parts with water are still visible. On the other hand, Tobori-yousui has completely disappeared.

3.2. Industrial use of the canals
3.2.1. Water mills

Since the innovation of the Haccho-Nenshiki, the water mills were getting actively utilized for the silk textile industry. There were 222 manufacturers of twisting thread in Kiryu in 1856. They probably utilized water mills.

According to the research in 1919, there were a total of 403 water mills on the 3 main canals in Kiryu. Three hundred fifty eight of those water mills were used for the silk textile industry such as mainly twisting thread, spinning thread etc. Thirty seven water mills were used for polishing grain [2]. Most of the water mills existed outside the central area of the town which was mainly at the Shinsyuku area (Figure 2).

Kazan Watanabe who was a literary man and Rohan Koda who was a novelist described the sceneries of Kiryu’s water mills. The water mills in the canals in Kiryu created unique sceneries which impressed travelers coming from such places as the central area in Japan.

3.2.2. Dyeing and rinsing

The water in the canals was also vital for dyeing and rinsing in processes of the silk textile industry. Usually, the manufacturers built branches from the canals to their own area. However, the main streams of the canals were also used which became a part of the town scenery. Dyed or rinsed materials such as threads and clothes were hung out which contributed to the unique scenery of the town (Figure 3).
3.3. The use of the canals in residents’ daily lives

3.3.1. Maintenance of the canals

Associations were assigned to each canal or branch. These associations were in charge of each canal’s or branch’s maintenance such as maintaining the hardware, controlling the water gates and so on. In the case of the Akihazekyo-ou-sui at Sakaino area, the water gate was closed once a year for 3 days in summer [3]. In the case of Ozeki-ou-sui at Tenjinho area, the farmers maintain it in spring and the manufacturers maintain it in autumn [4]. When the canals were in maintenance, it had served as a playing area for the children. These created greater communication and enhanced cooperation among the residents.

3.3.2. Mechanical puppet show

A mechanical puppet show controlled by the water mill’s power was held during the festival for the Tenmangu-shrine in 1894 until 1916 [5] (Figure 4). The water mill’s control system was undoubtedly from the expertise of the Haccho-nenshiki. However, the show was held as a road-show at the Honcho 4 chome area probably after the festival of 1916 [6]. In books edited by the Kiryu’s elderly club, there were some descriptions regarding the residents’ enjoyment and excitement for these shows which were held during the festival for 15 days [7].

3.3.3. Impact for residents’ lives

Before the well was in common use in Kiryu, these canals were also utilized for the daily lives of the residents, i.e. washing vegetables, rice, and dishes, as well as clothes. The residents fish in the summer at these canals. The children were also interested in cormorant fishing [8]. Before the introduction of asphalt in Kiryu’s roads, residents splashed water from the canals onto the road using a dipper. Workmen, who were in charge of the dyeing process, often gathered by the canal near the Tenmangu-shrine to wash or rinse the textiles [9]. Some children and other residents may have gathered here as well.

The residents built a Shijinga-shrine in the Shinshoku area in 1872 to pray for the canals’ safety and offer thanks [10] (Figure 5). According to Takao Nichisato (landowner where the shrine is located), it was dedicated for boats crossing the Watarase River before the Kinou Bridge was built. No other information regarding this is available. However, a spiritual belief associated with the streams’ water was said to exist.

4. Conclusion

The canals in Kiryu were of valuable importance to the town at that time. Presently, they have a huge potential to have an impact on the residents’ culture in terms of the town’s future development.

This research suggests that the Tenmangu-shrine including the Honcho-dori and Shinshuku areas are valuable points with respect to these canals.

The water mills in Kiryu provided power not only for the industry but also for the enhancement of the cooperative spirit of the residents. These also contributed to the creation of the town’s unique sceneries, and provided a place for entertainment and fun for the residents and their children.

The restoration of these canals and their practical re-utilization presents an archeological, educational, environmental, and economical significance for the town and its residents in terms of sustainable development. The reconsideration of silk textile manufacture as Kiryu’s traditional craft and the cultural use of these canals should be considered as one of the priorities for Kiryu’s future.

References
4. Hattori, O.: Machiya(2), My favorite Hometown Kiryu 100, 197-200, 1977