

DOCTORAL DISSERTATION

**Research on Methods of Sustainable Preservation and Utilization
of Historical Assets through Regional Revitalization**

- in the case of World Heritage Site Tajima Yahei Sericulture

Farm and its buffer zone Sakai Shimamura

歴史的資産の持続可能な保存活用と地域活性化の手法の研究

—世界遺産の田島弥平旧宅とそのバッファゾーンの境島村を事例として—

Submitted to the

Graduate School of Urban Innovation, Yokohama National University

in partial fulfilment of the requirements

for the degree of Doctor of Philosophy in Engineering

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March 2023

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ABSTRACT

Japan has been actively implementing preservation and utilization activities aimed for the purpose of registration of World Heritage sites since its acceptance into the World Heritage Convention in 1992. Amongst the properties in Japan's World Heritage List, five are natural sites and twenty are cultural sites, of which three cultural sites are industrial-related World Heritage Sites. Historical heritage used to be centred around temples and castles before the modern age and it is not until late 2000s when people recognized that it is important to look back on the trajectory of Japan's industrial development. Many World Heritage Sites around the world are mostly facilities that contributed to the industrial revolution and mines that influenced the world economy.

'Industrial heritage' became the subject matter of discussion in the late 2000s and industrial cultural properties in the country started to received attention and considered for the designation into the national system. Each cultural property is nominated as a part of a group of industrial heritage and linked as series of industrial properties which had contributed to the nation in specific industries. This later resulted in a 'World Heritage boom' in the inscription of industrial heritage as World Heritage sites in recent year. Serial properties are an increasingly common form of nomination as multiple properties are inscribed as one World Heritage Site. However, the difficulties in preserving each property and its values has been challenging for those responsible for it. In one research suggesting the issues of the buffer zone in cultural heritage through the discussion and debates in the World Heritage Committee, the weight of management and regulation of the buffer zone was added to the responsibility of each respective its federal or local government after the establishment of buffer zone became mandatory after the revision of the Operational Guidelines in 2005 with no mentioning on the coordination and cooperation with interested parties and residents.

Currently in Japan, the awareness of local communities to preserve their heritage is rising as heritage buildings and sites are continuously being nominated and designated into the national system every year. The topic on participation of residents in preservation, utilization and regional revitalization of a heritage site has received much interests from researchers in recent years. One research suggested that the involvement of local communities in World Heritage guidance facilities will provide opportunities to create new activities and form new relationships between residents and organizations. As opposed to the government supporting local communities, it was suggested that the planning and implementation of measures by local communities would nurture more support from the communities themselves. Therefore, local communities whom are at the forefront of planning and implementing preservation measures should be highly aware on the importance of their role and action in the preservation and inheritance of their heritage. One research suggested the formation of a support system for residents in participating in activities and the formation of an ideal system for effective and efficient implementation of measures, and raised the example of the collaboration of residents and local universities. However, it is unclear how research institutes can support local residents in this endeavour.

The author is also involved in the preservation and regional revitalization of Tajima Yahei Sericulture Farm and its buffer zone, Sakai Shimamura during her graduate studies since her arrival in Japan in 2015. Intrigued by the idea, this paper would like to study, in the case of Tajima Yahei Sericulture Farm and its buffer zone Sakai Shimamura, the participation of local communities in the preservation of historical assets and sites, its relationship with governmental organizations and its collaboration with research institutes as a support for the main stakeholders in forming a sustainable monitoring system for the preservation and regional revitalization of historical assets and sites.

Keywords: World Heritage site, Sustainable preservation, Regional revitalization, Management, Stakeholders

ACKNOWLEDGEMENT

First and foremost, I would like to express my deepest gratitude to my advisor, Prof. Satoshi Ono for his guidance and encouragement in my PhD studies and related researches. His guidance and support helped me accomplish the present work and motivated me in every aspect of my study. I am extremely grateful for his trust and support in extracurricular activities which helped me grow intellectually and mentally. I am also deeply in debt to him for my improvement in the Japanese language, my understanding for Japanese culture and my passion in building preservation.

Besides my advisor, I would like to thank the examination committee, Prof. Kazuoki Ohara, Prof. Minoru Takamizawa, Prof. Yasuhiro Fujioka and Prof. Masashi Morita for their insightful comments and suggestions on my PhD research. I am also grateful to core members of my lab, Prof. Yuko Sugeno and Ms. Nobuyo Kaneko for their encouragement during my studies. They were very kind and welcoming during my studies as a foreign student.

I would also like to extend my sincere thanks to the very friendly and welcoming residents of Sakai Shimamura. I am deeply touched and motivated by their enthusiasm and love for their land and home. Special thanks to the government officials of Isesaki city for their trust and allowing me to participate in the research and documentation of Sakai Shimamura.

I am extremely grateful to my parents, Chee Chai and Siew Kiew, and my younger brother, Hong Nang, for their unconditional love, encouragement and support mentally and financially. I would also like to express appreciation to my husband, Yi Fei, for his unconditional love, support and patience throughout my studies. Lastly, I would like to thank my grandparents, relatives and friends for their words of encouragement. Thank you for believing in me.

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CHAPTER 1

INTRODUCTION

1.1 Research Background & Purpose

Japan has been actively implementing preservation and utilization activities aimed for the purpose of registration of World Heritage sites (Naito, 2007) since its acceptance into the World Heritage Convention in 1992. As of 2022, twenty-five properties have been inscribed on the World Heritage List and five sites are currently in the Tentative List. Amongst the properties in World Heritage List, twenty are cultural sites and five are natural sites (UNESCO World Heritage Centre, n.d.a). There are currently three industrial-related World Heritage Sites in Japan and Iwami Ginzan Silver Mine in Shimane prefecture was the first to be inscribed in 2010, followed by Tomioka Silk Mill and Related Sites in 2014 and Sites of Japan's Meiji Industrial Revolution: Iron and Steel, Shipbuilding and Coal Mining in 2015. Historical heritage used to be centred around temples and castles before the modern age and it is not until late 2000s when people recognized that it is important to look back on the trajectory of Japan's industrial development (Naito, 2007). Many World Heritage Sites around the world are mostly facilities that contributed to the industrial revolution and mines that influenced the world economy.

After the Ministry of Economy, Trade and Industry (METI) announced their proposal to put together a list of 'industrial heritage' in 2007 (METI, 2007, 2008), this keyword became the subject matter of discussion and industrial cultural properties in the country started to received attention and was considered for the designation into the national system. Each cultural property is nominated as a part of a group of industrial heritage and linked as series of industrial properties which had contributed to the nation in specific industries. This later resulted in a 'World Heritage boom' in the inscription of industrial heritage as World Heritage sites (Naito, 2007) in recent year. Serial properties are an increasingly common form of nomination (UNITAR, n.d)] as multiple properties are inscribed as one World Heritage Site. However, the difficulties in preserving each property and its values has been challenging for

those responsible for it. Paragraph 119 of the Operational Guidelines suggests that the inclusive and equitable participation of communities should be supported as necessary conditions to sustainable protection, conservation, management and presentation of World Heritage properties (World Heritage Centre, 2021). In fact, local communities are the key players in preserving local tangible and intangible cultural properties and pass them on to future generations. Currently in Japan, the awareness of local communities to preserve their heritage is rising as heritage buildings and sites are continuously being nominated and designated into the national system every year (Agency for Cultural Affairs, n.d.a). As efforts are also made for the inscription of local heritage and sites into the World Heritage list, the global recognition should be an encouragement for these sites to continue to be preserved, their values to be inherited and the buildings to be utilized for sustainable regional revitalization. Therefore, local communities whom are at the forefront of planning and implementing preservation measures should be highly aware on the importance of their role and action in the preservation and inheritance of their heritage. As the buffer zone is usually subjected to legislation from non-heritage sectors and is the responsibility of multiple public and private organizations and owners (World Heritage Centre, 2013), the inclusive participation of local communities in collaboration with various organizations may be studied as a method for sustainable preservation and inheritance of World Heritage sites.

The author's interest in heritage buildings started when she was in her Bachelor's course (2011-2014) as she had written a report on Significance of Ornamentation of Cheong Fatt Tze Mansion which lead to her decision to study abroad in Japan studying heritage buildings. Then, the author's interest in UNESCO World Heritage Sites bloomed since her involvement in the measured drawing of Kurihara Hitoshi Residence *omoya* in October 2015, three months after her arrival in Japan. The *omoya* was subjected for demolition to make way for a new factory. This serious issue caught the attention of concerned researchers that more

and more buildings with historical values in the Sakai Shimamura area, which includes the buffer zone of World Heritage site component Tajima Yahei Sericulture Farm might also be considered to demolition. On the same day, the author also visited Tajima Yahei Sericulture Farm for the first time which instilled her interests in issues related to the World Heritage Site and its buffer zone. Later in 2016, the author spent three weeks in the site of World Heritage site component Tomioka Silk Mill, participating in the preservation and maintenance of the East Cocoon Warehouse for internship. During her internship, the author learnt technical methods to preserve and physically maintain a heritage building. These experiences inspired the author to venture into the soft approaches in preservation and maintenance of World Heritage Sites. For her Master thesis, the author studied the governmental plans of World Heritage Site Tomioka Silk Mill and Related Sites and concluded the significance and differences in governmental plans of respective municipals where each component is located. In hopes to apply her knowledge to the World Heritage Site in her home country of Malaysia, the author decided to continue her research in PhD studies to study the governmental plans of World Heritage Site Melaka and George Town, Historic Cities of The Straits of Malacca. This plan was cut short as the COVID-19 pandemic occurred, resulting in the closing of nation borders. Aspired to study ways to preserve World Heritage Sites, the author continued studying methods for the preservation and implementation of regional revitalization ideas for Tomioka Silk Mill and Related Sites.

A part of Sakai Shimamura was drawn as the buffer zone for the inscription of Tajima Yahei Sericulture Farm, one of the four components of Tomioka Silk Mill and Related Sites. While most components are government-owned properties, Tajima Yahei Sericulture Farm is the only private-owned property amongst the four components of the World Heritage site. The ownership of a heritage property, especially a World Heritage property will greatly affect preservation measures proposed by governmental organizations as there are more than just

preservation of the property to be considered. In the case of the farm, the property is currently inhabited for day to day living purposes and the quality of living and usage of the property by the owner should be respected when measures are proposed. Sakai Shimamura, including areas outside the buffer zone possess numerous sericulture farmhouses built in the Meiji period still remain in the site and is inhabited for day to day living usage. This creates an interesting relationship between the local government and the residents of the area as the local government propose measures to set a general direction for the heritage site and supervise the activities of the residents, resident's participation will affect the effectiveness of government-proposed measures.

In 2018, the sericulture building of Tajima Kameo Residence in Sakai Shimamura was faced with the possibility of demolition due to the aftermath of a typhoon. A preservation request was sent out by the Architectural Institute of Japan to multiple governmental bodies and the sericulture building was protected from the fate of demolition after receiving positive feedbacks. Satoshi Ono, the head of Yokohama National University Ono Laboratory had been involved in building and site surveys of Sakai Shimamura and its surrounding areas for the inscription of Tajima Yahei Residence into the World Heritage list, including preparation of the Preservation Request letter for the sericulture building of Tajima Kameo Residence on behalf of the Architectural Institute of Japan. Concerned for the fate of other heritage buildings in the area, Professor Ono included the regional revitalization of Sakai Shimamura in the university course curriculum of Architecture Theory Studio (AT Studio). In the following years, students of Yokohama National University (YNU) were engaged in proposing creative ideas for the utilization of heritage building and regional revitalization of Sakai Shimamura and surrounding areas. Discovering the importance of collaboration between local residents and research facilities in the preservation of a heritage site, the author is aspired to study the collaboration as a method for preservation of heritage sites by showing examples of the

collaboration between residents of Sakai Shimamura and students of her university (YNU) which she was involved during her postgraduate studies between fiscal years 2015 and 2022. The author would also like to strengthen the role of research institutes as a stakeholder in the preservation of heritage sites and devise a model for a sustainable review system for the preservation and inheritance of historical assets and sites by discussing the examples and efforts executed in Isesaki city and Sakai Shimamura.

Therefore, this paper will study the participation and outcomes of the collaboration between local communities of Sakai Shimamura with governmental and research facilities as a precedent for sustainable preservation and inheritance of a heritage site by re-evaluating the historical and cultural values of the village as a whole, provide examples of collaboration between local communities and research institutes, and suggest a sustainable monitoring system for the inheritance of historical assets and sites.

1.2 Literature Review

This section will discuss the past researches on sustainable preservation and regional revitalization methods of World Heritage Sites, its buffer zones and historical sites, and past researches on the relationship of residents' activities and historical properties.

In a research paper suggesting the issues of the buffer zone in cultural heritage through the discussion and debates in the World Heritage Committee (Lee & Kuroda, 2022), the weight of management and regulation of the buffer zone was added to the responsibility of each respective its federal or local government after the establishment of buffer zone became mandatory after the revision of the Operational Guidelines in 2005 with no mentioning on the coordination and cooperation with interested parties and residents. Lee and Kuroda stressed that especially in Asia, where the rate of buffer zone establishments is the highest among other

regions, the wider area of surrounding environment that goes beyond the visual aspect should be protected. The role of buffer zones in Asia to balance the protection of the surrounding environment and integrity of heritage sites, and the buffer zone's coexistence with local communities is necessary, suggested Lee and Kuroda. In the discussion of World Heritage, Muneta (2006) suggested that the protection of cultural heritage is not only about the heritage itself but also the protection and inheritance of the state of mind of the people who recognize the value of the cultural heritage. While World Heritage Sites are born through institutional and legal systems of value recognition, Muneta stressed that affection for a region is born from the deep understanding and love of residents have for their ancestors and that the best way for the protection of cultural heritage is community development. Morishima (2014) concluded in his research which compared policies on conservation and utilization of industrial heritage, that, in addition to the federal government and local governments, the preservation and utilization of industrial heritage should also include local NPO groups. Morishima also concluded the need to consider cultural and economic of a heritage and promote policies that facilitates the cooperation among all parties.

In recent years, the topic on participation of residents in preservation, utilization and regional revitalization of a heritage site has received much interests from researchers. Asano and Okamura (2020) suggested that the involvement of local communities in World Heritage guidance facilities provide opportunities to create new activities and form new relationships between residents and organizations. Ishimoto et al. (2000) on their study of residents' activities on historical properties, also concluded that the improvement in the understanding and interest of residents is largely related to the increase of civic activities and therefore is necessary to consider the relationship of residents with organizations of other fields as one of the methods to form a spiritually supportive environment for local communities. Watanabe et al. (2015) believed that residents' awareness in activities is influenced by the purpose of the

group formed and Miura and Morinaga (2021) concluded that theme-based communities are generally more active in local activities. In a study on local organization's relationship and conservation initiatives (2009), organizations originally focused on tourism will convert into region potential exploration, environment improvement and community empowerment. Ishimoto et al. (2000) also stressed the importance of informatization of activities organized by local communities as a method for self-evaluation on recognition and awareness, and to promote the activities through networks among organizations. The formation of awareness and the promotion of activities are heavily affected by economic issues and needs to consider collaborating with organizations in various fields such as education and tourism.

As opposed to the government supporting local communities, the planning and implementation of measures by local communities would nurture more support from the communities themselves, suggests Morikawa (2002). Generally, resident participation in public works and projects is based on the idea that the government is the planning entity and implementations are done with the approval and consent of citizens. In response to this, Hasegawa (2017) added that in regional community development projects, the process of implementing projects based on the initiative of local residents is more likely to lead to more feasible and effective development contents and subsequent effective maintenance and management. In order to form a process in which projects are implemented at the initiative of local residents, it is necessary to secure a method of participation for residents with consultants as facilitators, suggests Hasegawa. Consultants are tasked to facilitate meetings and propose methods of community development as a support system for residents in participating in activities and to form an ideal system for effective and efficient implementation of measures, as proposed by Hasegawa while providing the example of the collaboration of residents and local universities.

1.3 Structure of Dissertation

This dissertation contains five chapters including an introduction chapter and a conclusion chapter. The first chapter will explain the background and purpose of this research and a literature review on previous researches.

The second chapter will provide an overview on Tomioka Silk Mill and Related Sites and its challenges after its inscription as a World Heritage site. This chapter will first introduce the industrial heritage and silk-related heritage in Japan, explain the initiative which prompted the Gunma World Heritage Project, the event timeline on nomination of local silk-related industrial properties into the World Heritage system, and efforts of the prefectural government in preserving its World Heritage Site and local cultural properties. Then, the chapter will introduce the background and relationship between the World Heritage components of Tomioka Silk Mill and Related Sites and discuss significant issues occurred and affected by the characteristics of each component and its buffer zones. The chapter will then discuss the plan devising system of local governments in preserving each World Heritage component by studying the adoption of a 'Check' phase in the PDCA cycle in local governmental plans and satisfactory survey results of comprehensive plans are analyzed to provide a basic understanding the participation of residents in the planning and revising of local plans. Next, the types and activities of local communities established relevant to the World Heritage components.

Chapter three will discuss the development and decline of modern sericulture industry affecting the formation of sericulture villages in Japan, and basic forms and characteristics of sericulture farmhouses in Gunma and other eastern regions of Japan by analysing examples of well-preserved sericulture villages for basic understanding of the historical background. Next, the unique regional landscape features of Sakai Shimamura, structural and spatial features of

sericulture farmhouses in each areas of Sakai Shimamura are discussed and analysed to re-evaluated the historical and cultural values of Sakai Shimamura and analysed the potential of the village to be inscribed as a preservation district. The current preservation conditions and local communities present in the village are also discussed.

Chapter four will discuss hard and soft approach methods by the author as a postgraduate student of Yokohama National University executed between 2015 and 2022 in Sakai Shimamura in collaboration with local communities to preserve and revitalize local historical assets and heritage sites. Outcomes of the methods are analysed by studying previous researches and feedbacks of local residents in a sharing session. In accordance to the author's involvement in the preservation, utilization and regional revitalization projects in Sakai Shimamura, the role and relationship between local communities, local government and research institutes are discussed and elements to form a sustainable monitoring system for the preservation and regional revitalization of historical assets and sites are concluded.

Chapter five will conclude all important points of each respective chapter and suggest a future prospective outlook.

CHAPTER 2

OVERVIEW OF

TOMIOKA SILK MILL AND RELATED SITES

& ITS CHALLENGES

2.1 Industrial Heritage & Silk-related Heritage

This sub-chapter will introduce the industrial heritage and silk-related heritage in Japan, explain the initiative which prompted the Gunma World Heritage Project, the event timeline on nomination of local silk-related industrial properties into the World Heritage system, and efforts of the prefectural government in preserving its World Heritage Site and local cultural properties.

2.1.1 Industrial Heritage and Silk-related Heritage in Japan

‘Industrial heritage’ or ‘modernization heritage’ refers to the remains of industrial culture such as structures and equipment which are of historical, technological, social, architectural or scientific value (TICCIH, 2003). These structures and equipment include buildings and machinery, workshops, mills and factories, mines and sites for processing and refining, warehouses and stores, power sources, transport and all its infrastructure, as well as paces used for social activities related to industry such as housing, religious worship or education. Historical heritage used to be centred around temples and castles before the modern age and it is not until late 2000s people recognized that it is important to look back on the trajectory of Japan’s industrial development (Naito, 2007). Many of the World Heritage Sites around the world include facilities that contributed to the industrial revolution and mines that influenced the world economy.

In 2007, the Ministry of Economy, Trade and Industry (METI) made a call to the public for the proposal of properties which have contributed significantly to Japan’s industrial development (METI, n.d.). As ‘industrial heritage’ became the subject matter of discussion, a total of 1,115 properties fitting into 66 themes (METI, 2007, 2008) were proposed such as Tomioka Silk Mill in Gunma prefecture, the Yokohama and Kobe ports, Hachiman Steel Mill in Kita-kyushu were the famous few. Other sites include Yubari coal mine in Hokkaido, gold

mine in Sado Island, Tokyo Station building, etc. These industrial cultural properties started to receive attention and was considered for the designation as Cultural Properties by the Agency for Cultural Affairs and later resulting in a ‘World Heritage boom’ of inscription of industrial heritage as World Heritage Sites.

Japan accepted the UNESCO World Heritage Convention on 30 June 1992. As of September 2022, twenty-five properties have been inscribed on the World Heritage List and five sites are currently in the Tentative List. Amongst the properties in World Heritage List, twenty are cultural sites and five are natural sites (UNESCO World Heritage Centre, n.d.a). There are currently three industrial-related World Heritage Sites in Japan and Iwami Ginzan Silver Mine in Shimane prefecture was the first to be inscribed in 2010, followed by Tomioka Silk Mill and Related Sites in 2014, and Sites of Japan's Meiji Industrial Revolution: Iron and Steel, Shipbuilding and Coal Mining in 2015.

Iwami Ginzan Silver Mine and Sites of Japan's Meiji Industrial Revolution are mining and shipbuilding-related industrial heritage while Tomioka Silk Mill and Related Sites is a silk and sericulture-related industrial heritage (see Table 2-1). Amongst the six silk production-related World Heritage Sites (UNESCO World Heritage Centre, n.d.b) (see Table 2-2), two sites in Japan are silk production-related. The Historic Villages of Shirakawa-go and Gokayama were involved in silkworm breeding while Tomioka Silk Mill and Related Sites is inscribed with properties involved in all stages of silk production. There are also only two sites, Tomioka Silk Mill in Japan and the Historic Centre of Sheki with the Khan’s Palace in Azerbaijan whom was inscribed with properties related to silk production (from sericulture to silk reeling).

As part of requirements of making the list of ‘Heritage Constellations of Industrial Modernization’ (METI, 2007, 2008), properties including buildings, structures, machines,

equipment and artwork that narrate the story of revolutionary industrial processes which were constructed in the end of the Tokugawa shogunate to pre-war period. ‘From Jōshū to Shinshu and all over the nation’ tells the story of modern industrial heritage sites such as Tomioka Silk Mill which developed the modern silk industry. More than fifty-nine related properties spread across fifteen municipals in six prefectures were nominated into this theme (METI, 2007, 2008).

Table 2-1: Industrial-related World Heritage Sites in Japan.

Year of Inscription	Location	Site Name	Total Area (ha)	Type of Industry
2010	Shimane	Iwami Ginzan Silver Mine and its Cultural Landscape	3,663	Silver mining
2014	Gunma	Tomioka Silk Mill and Related Sites	421	Silk, sericulture
2015	Kyushu, Yamaguchi, Shizuoka, Iwate	Sites of Japan's Meiji Industrial Revolution: Iron and Steel, Shipbuilding and Coal Mining	2,715	Iron and steel mining, Shipbuilding, Coal mining

Table 2-2: Silk production-related World Heritage Sites.

Year of Inscription	Location	Site Name	Total Area (ha)	Type of Industry
1995	Japan	Historic Villages of Shirakawa-go and Gokayama	58,941	Sericulture
1997	Italy	18th-Century Royal Palace at Caserta with the Park, the Aqueduct of Vanvitelli, and the San Leucio Complex	198	Silk reeling
2001	United Kingdom of Great Britain and Northern Ireland	Derwent Valley Mills	5,591	Silk reeling
2004	Iran	Bam and its Cultural Landscape	-	Silk reeling
2014	Japan	Tomioka Silk Mill and Related Sites	421	Silk reeling, Sericulture
2019	Azerbaijan	Historic Centre of Sheki with the Khan’s Palace	267	Silk reeling, Sericulture

As part of requirements of making the list of ‘Heritage Constellations of Industrial Modernization’ (METI, 2007, 2008), properties including buildings, structures, machines, equipment and artwork that narrate the story of revolutionary industrial processes which were constructed in the end of the Tokugawa shogunate to pre-war period. ‘From Jōshū to Shinshu and all over the nation’ tells the story of modern industrial heritage sites such as Tomioka Silk

Mill which developed the modern silk industry. More than fifty-nine related properties spread across fifteen municipals in six prefectures were nominated into this theme (METI, 2007, 2008).

Raw silk became an important export item for earning foreign currency after the opening of the nation. Silk production was originally done manually and by small-scale machines and the emergence of a new market for exports led to the overproduction of crude silk which was evaluated as significantly inferior in quality as compared to European raw silk (Yamashita, 2020). The Meiji government hired French engineer Paul Brunat¹ and built the state-run Tomioka Silk Mill in 1872 as a model factory to introduce modern silk reeling technology (Tomioka City Board of Education, 2010). Raw silk produced in the mill in Tomioka were transported to the Yokohama port² via Nippon Railway³ (Yamashita, 2020). The Shinmachi Spinning Plant was built in 1877 to spin waste treads from the mill into coarse silk cloth which was a local industry in Jōshū (Kracie Holdings, n.d.).

At the same time, sericulture technology developed in parallel to the development of silk reeling. Sericulture improvements and knowledge dissemination organizations such as Takayama-sha in Gunma prefecture and Kyōshin-sha in Saitama prefecture were established to educate and spread the methods of sericulture by controlling room temperature, train sericulturists, genetic improvement of cocoons and mulberries. These methods were popularized as they were widely adopted in sericulture farmhouses and specialized sericulture buildings in various parts of Gunma and Saitama prefectures, supporting the development of the silk reeling industry by producing quality raw materials (Honjō City, n.d.).

Influenced by Tomioka Silk Mill, small-scale mechanized silk reeling operations sprang up one after the other in Jōshū and Shinshu around 1880. Amongst, silk millers in the

¹ Born in Bourg-de-Péage, France in 1840. Died in 1908.

² Opened in 1857.

³ Opened in 1884. Currently the JR Takasaki Line.

Suwa area of Nagano prefecture expanded its facilities and production volume (Suzaka City, n.d.). The Usui Pass of Nakasendo Line⁴ opened in 1893 and Japan's first petitioned train station, Ōya Station opened in 1893 was constructed on the transportation route connecting Suwa to Yokohama to shorten the time for the transportation of materials (Gunma Prefecture, 2018; Ueda City, 2018; Shinshū Shirukurōdo, n.d.). Hence, Suwa grew to become the number one producer of raw silk in Japan in the late Meiji period and the driving force behind Japan's rise as the World's largest producer of raw silk (Yamashita, 2020).

Production increased due to technological innovation as silk mills were integrated into large companies like Katakura-gumi⁵ and Gunze-seishi⁶ after the Taishō period (Shinshū Shirukurōdo, n.d.). The Fujimura Silk was later founded in Kōchi prefecture which prospered the raw silk production in Shikoku (Fujimura Seishi, n.d.). Managers of these silk reeling companies also devoted their energies to the welfare of workers and gave attention to its coexistence with the local community to support the development of its business. The Katakurakan was built on the shores of Lake Suwa with a large hot spring bath and a space for cultural exchange and entertainment of factory workers (Katakurakan, n.d.). The Gunze Girls' School was established for the purpose of educating female workers. The development of silk production and welfare of workers also encouraged the formation of silk reeling cooperatives by sericulture farmers such as the Usui-sha in Annaka city (T&J Silk Mulberry, n.d.). These silk refining associations played an important role in the production of raw silk by managing product standards and quality and the association had more than 30,000 members at its peak (Usui seishi, 2017).

⁴ Currently the JR Shinetsu Main Line.

⁵ Later Katakura Silk Spinning Co., now Katakura Industries Co..

⁶ Now Gunze Limited.

The decline in thread prices due to the Great Depression in the early Shōwa period resulted in the advance of rayon thread as raw silk was forced to withdraw from its use in wide-width textiles (Shōwa shoki, 2018). In response, large silk reeling companies modernized their facilities and equipment by introducing the Minorikawa-style reeling machines to increase the efficiency of quality of raw silk (Okaya Silk Museum, n.d.). The recession and advent of rayon thread served as an opportunity to develop raw silk production and raw silk exports increased until the start of the Sino-Japanese War (Yamashita, 2020).

2.1.2 Gunma Silk Heritage and Gunma World Heritage Project

After Tomioka Silk Mill ceased operations in 1987, the mill remained closed to public but underwent maintenance works every year to preserve the mill at its best condition by Katakura Industries, the last private owner of the mill (Sataki, 2007; Yamazaki, 2009; Yoshida, 2010). In 2003, a project to register Tomioka Silk Mill as a World Heritage Site was first announced by the Gunma prefecture. In response, Katakura Industries reviewed existing ownership and maintenance policies and considered the designation of the mill as cultural property in an effort to preserve and revitalize the mill in the future. Tomioka Silk Mill was first designated as a National Historic Site in 2005. In the following year, six and three building structures in the site of the mill were designated as National Important Cultural Properties and National Treasures respectively (Agency for Cultural Affairs, n.d.b). The mill was donated to the city government in January 2006 (Gunma Prefectural World Heritage Centre, n.d.).

The World Heritage Registration Promotion Committee was set up in 2004 to lead the Gunma World Heritage Project. With Tomioka Silk Mill as the core property, industrial heritage in the prefecture were to be linked together in a series of systems such as sericulture, silk reeling and textiles (Arai, 2006). The project proposal titled ‘The Tomioka Silk Mill and Silk Industrial Heritage – The Starting Point of the Japanese Industrial Revolution’ was a joint

proposal by Numata city, Fujioka city, Tomioka city, Annaka city, Shimonita town, Kanra town, Nakanojō town and Kuni-mura village (Gunma Prefectural World Heritage Centre, 2006). The heritage properties originally proposed included six assets related to sericulture, two assets related to the silk reeling and two assets related to transportation (see Table 2-3). These proposed cultural properties were gradually inscribed into the national system by its respective municipal governments to fulfil the pre-requirement of proposed components to first be protected by national laws. Multiple selections were carried out and cultural properties with similar settings or are difficult to be designated as a Cultural Property were excluded in the nomination process (Agency for Cultural Affairs, 2011). As the World Heritage story was refined, Former Tajima Yahei Residence was included in the Tentative List. Inscribed into the national system in 2012, Former Tajima Yahei Residence was renamed Tajima Yahei Sericulture Farm and finalized as one of the four components of ‘Tomioka Silk Mill and Related Sites’ along with Tomioka Silk Mill, Takayama-sha Sericulture School, and Arafune Cold Storage. The four components were successfully inscribed into the World Heritage system as ‘Tomioka Silk Mill and Related Sites’ showing the process of silk production in Japan.

As popularization of industrial heritage heightens in 2007, more and more silk-related industrial properties had received attention considered for nomination into the World Heritage system. However, those which did not make the cut were included in the Gunma Silk Heritage system as a way to link with the World Heritage Sites. As of September 2022, 106 assets (Gunma Prefecture, n.d.a) remaining in Gunma related to the development of sericulture, silk reeling, silk weaving, transportation, silk folklore, etc have been listed in the Gunma Silk Heritage since 2012. Amongst the Gunma Silk Heritage is a group of thirteen silk-related cultural properties (see Figure 2-1 & Table 2-4) listed as the ‘Kakaa Tenka: Gunma’s Silk Story’

in Japan Heritage⁷ which tells the story of women engaged in the silk industry since ancient times in Jōshū (now Gunma) (Gunma Prefecture, n.d.c).

Table 2-3: Industrial heritage in Gunma prefecture proposed during the first round of nomination of World Heritage Site Tomioka Silk Mill and Related Sites.

Field	Name of Component	Location	Category of Preservation	Unit of Protection	Date of Inscription	Description
Sericulture	The Great Mulberry of Usune	Numata city	Natural Monument	National	15 May 1956	The largest wild mulberry tree in Japan presumed to be 1,500 years old. It was worshipped locally as the 'god of sericulture' because of its size and graceful figure.
	Arafune Cold Storage	Shimonita town	Historic Site	National	22 February 2010	Built in 1907, Arafune Fuketsu is a cold storage facility designed to preserve silkworm-eggs during the summer. Up to 1.1million strips of silkworm egg paper could be stored. It had the largest storage capacity in the nation. Via the Kozuke railway, silkworm eggs were carried into storage from all over Japan. The building was later removed and now only three large stone-lined holes remain.
	Tochikubo Cold Storage	Nakanojō town	Historic Site	National	22 February 2010	Similar to the Arafune Cold Storage, this cold storage facility was used from 1910 until after World War II. Tochikubo Cold Storage has the second largest storage capacity in Gunma, which is 150,000 sheets of silkworm eggs. It once stored all silkworm eggs produced from Agatsuma county. Two cellars and a stone foundation of the office building remain until this day.
	The Birthplace of Takayama-sha	Fujioka city	Historic Site	National	23 July 2009	This location is where the Takayama-sha company established the "Seion-iku," Japan's standard silkworm-raising method. The silkworm room where Chōgoro Takayama invented the method, the main house, the "Nagayamon" gate, and other facilities remain on the stone-lined terrace.
	Tomizawa Residence	Nakanojō town	Important Cultural Property	National	17 June 1970	Oldest preserved sericulture farmhouse in Gunma prefecture. The Tomizawa Residence was built during the end of the Edo period and the Tomizawa family was the village head. The farmhouse is a two-storey 23.9m by 12.9m timber house with an 'irimoya' 'kabuto-zukuri' style roof. Thatched roof on the front façade is cut off to receive light into the second floor where sericulture took place. The balcony on the second floor is built in the 'debari-zukuri' style.

⁷ Launched in 2015 by Agency of Cultural Affairs. A project listing thematic stories of local culture and history of a region which can include tangible and intangible cultural properties. Kaka Tenka: Gunma's Silk Story was listed in 2015.

Sericulture	Group of Sericulture Farmhouses in Akaiwa District	Kuni-mura village	Important Preservation District for Groups of Historic Buildings	National	5 July 2006	A group of sericulture farmhouses built mainly in mid-Meiji period. The farmhouses were built in 'debari-zukuri' and/or 'dashigeta-zukuri' style with overhanging-beams and remain in good condition. The site includes religious facilities, farmlands and mountain forest which show how sericulture was carried out there from the Edo period.
Silk Reeling	Old Kanra-sha Obata-gumi Warehouse	Kanra town	Important Cultural Property	Municipal	6 August 1986	A two-storey brick warehouse used to store raw silk built in 1926 by the Kanra-sha Obata-gumi which was formed by local sericulture farmers in Obata and Kozuke district. The Kanra-sha Obata-gumi was involved in the creation of a new silk reeling method called 'zaguri'. The building is now used as the Kanra Town Museum of Folk History.
	Tomioka Silk Mill	Tomioka city	Historic Site	Prefecture	7 October 2015	Japan's first silk reeling factory built in 1877. The factory was originally powered by hydropower and steam and later powered by engines in the Meiji period. The factory continued its silk reeling business until 1975.
			Important Cultural Property	Prefecture	8 July 2015	
Important Cultural Property	Municipal	29 September 2007				
Transportation	Old Usui Pass Railroad Infrastructure	Annaka city	Important Cultural Property	National	17 August 1993	Built in 1893, the old Usui Line which ran between Yokokawa and Karuizawa area adopted the Swiss Abt rack railway system to overcome the mountain's steep gradient of 66.7%. Almost all bridges, tunnels and facilities along the route were constructed with bricks under the instruction of British engineers. A substation and old railway tracks remain until this day as part of the infrastructure.
	Old Kozuke Railway and Facility	Shimonita town	Important Cultural Property	Municipal	29 November 2006	The Old Kozuke Railway was built in 1897 as a light rail railroad connecting Takasaki city and Shimonita town for the transportation of silkworm eggs, cocoons and raw silk. The railway was electrified and upgraded to Japan's standard truck width at the end of the Taisho period. A bridge and two old brick warehouses to store cocoons and raw silk are part of the railway facilities.

Agatsuma area

This area has the Akaiwa district of sericulture farmhouses, a mountain village with nostalgic former sericulture farmhouses, Tomizawa Residence which is the oldest and largest sericulture farmhouse in the prefecture.

Central area

This area has the grave of Funatsu Denjibei, an old farmer known for playing Jomo Karuta and the former Tajima Yahei Residence which exported silkworm eggs to Italy.

West area

This area is a treasure trove of famous modernization heritage such as Tomioka Silk Mill and Usui Pass Railway Facility, which led the modernization of Japan. There are also archaeological sites that convey great achievements of the ancestors of residents in Gunma Prefecture such as Arafune Cold Storage, Takayama-sha, and Usui-sha.

Tone-Numata area

This area has the Great Mulberry of Usune which enshrines the 'god of sericulture' and the former Suzuki Residence which showed the lifestyle of sericulture farmers in mid- Edo period.

Tobu East area

This area has vast plains with attractive towns such as the Kiryu (the historic city of weaving) and Tatebayashi (castle towns). Textile heritages such as Kiryu Textile Hall Former Building and former Jomo Moslin Building symbolizes the history of its respective towns.

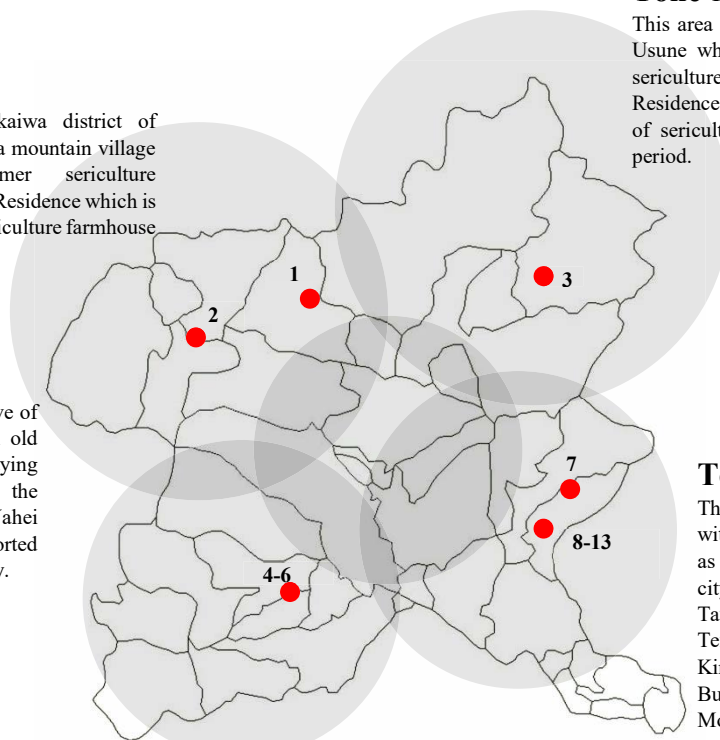


Figure 2-1: Areas in Gunma prefecture with its silk industry related characteristics and location of cultural properties of Japan Heritage ‘Kakaa Tenka: Gunma’s Silk Story’.

(Source: Gunma prefecture, edited by author)

Table 2-4: Japan Heritage ‘Kakaa Tenka: Gunma’s Silk Story’. (Source: Gunma Prefecture)

No.	Name of Component	Location	Category of Preservation	Unit of Protection	Description
1	Tomizawa Residence	Nakanojō town	Important Cultural Property	National	Farmhouses built in the Edo period where women played an active role in sericulture.
2	Group of Sericulture Farmhouses in Akaiwa District	Kuni-mura village	Important Preservation District for Groups of Historic Buildings	National	
3	Nagai Method Sericultural School Laboratory House	Katashina-mura village	Important Cultural Property	Municipal	A building built in 1888 as a training centre for Nagai-style sericulture method and a scroll painting of Konjūrō Nagai’s wife, Ito Nagai giving a lecture on sericulture.
4	The painting of Ito Nagai	Katashina-mura village	-	-	
5	Former Obata-gumi Seishi Brick Warehouse	Kanra town	Important Cultural Property	Municipal	Heritage of the silk reeling union and its exports and a stone monument commemorating women whom played an active role in sericulture.
6	Materials of Sericulture, Silk Reeling, Textiles in Kanra Town	Kanra town	-	-	
7	Stone Monument of Kanra-sha Obata-gumi	Kanra town	-	-	
8	Shiratakijinja Shrine	Kiryu city	-	-	Sites in Kiryu, the city of textiles where women have worked and are still working in and a shrine which tells the legend of textile weaving.
9	Former Kiryu Nenshi Limited Partnership Company Office Building	Kiryu city	Important Cultural Property	Municipal	
10	Important Preservation Districts for Groups of Historic Buildings in Kiryu Shinmachi District	Kiryu city	Important Preservation District for Groups of Historic Buildings	National	
11	Goto Textile Company	Kiryu city	Registered Tangible Cultural Property	National	
12	Textile Museum ‘Yukari’	Kiryu city	Registered Tangible Cultural Property	National	
13	Kiryu Textile Hall Former Building	Kiryu city	Registered Tangible Cultural Property	National	

Generally, cultural properties are under the governance and administration of respective municipal governments while the role of the Gunma prefectural government is to connect all cultural properties in the prefecture, promote research, networking and utilization of industrial heritage. The World Heritage Gunma Silk Heritage Succession Fund⁸ was established in 2014 to fund businesses and projects related to the preservation and utilization of Gunma Silk Heritage (Gunma Prefecture Planning Department, 2014; Gunma Prefecture, n.d.b]. The yearly committee meetings, silk expos and summits are organized by the prefecture government in

⁸ 「ぐんま絹遺産保存活用等推進事業補助金」 in Japanese.

collaboration with other municipal governments and non-governmental organizations to promote and celebrate silk-related cultural properties in the prefecture including the Gunma Silk Heritage and World Heritage components. As efforts to create a network of Gunma prefecture silk-related cultural properties, the ‘Kinumeguri’ app was released in 2017 as an all-inclusive sight-seeing spot navigation to help visitors plan wide-area tours and staycations in the prefecture. In Japanese and English, the app allows local and foreign travellers to navigate through all silk-related properties of the World Heritage Site, Gunma Silk Heritage and Japan Heritage (Gunma Prefecture, n.d.d; Gunma Prefecture Planning Department, 2017). The ‘Silk Journey’ webpage was created in 2020 as a blog publishing celebrities and social media influencers in their ‘silk journey’ and travelling recommendations for families, couples and others (Gunma Prefecture, n.d.e). An Instagram account (@gunma_kinutabi) and the #Gunmakinutabi (translates to Gunma Silk Tour) hashtag was a way to encourage younger generations to partake in the promotion of the Gunma Silk Heritage by sharing their ‘silk journey’ (World Heritage Centre SEKAITO, n.d.).

2.2 Tomioka Silk Mill and Related Sites & its Buffer Zones

This sub-chapter will introduce the background and relationship between the World Heritage components of Tomioka Silk Mill and Related Sites and discuss significant issues occurred and affected by the characteristics of each component and its buffer zones.

2.2.1 Relationship Between Components

Tomioka Silk Mill and Related Sites is composed of four technological industrial properties portraying significant innovations through international exchange which contributed to the development of the nation and world’s sericulture and silk reeling industry. The silk industry in Japan prospered from 18th century leading up to the opening of the ports in the mid-

19th century where raw silk became a major export product. At the same time, silk production-related technological innovations were nurtured in Gunma prefecture and rose to become the backbone of silk production in Japan. The process of silk production in the nation is exhibited through the relationship of Tomioka Silk Mill and the other three components which are Tajima Yahei Sericulture Farm, Takayama-sha Sericulture School, and Arafune Cold Storage.

Tajima Yahei Sericulture Farm, also known as Former Tajima Yahei Residence, was the residence of Yahei Tajima⁹ and the prototype of *seiryō-iku* sericulture farmhouse architecture. Tajima perfected the *seiryō-iku*¹⁰ sericulture technique which emphasises the importance of circulating cooled natural air to mimic the natural environment and releasing hot air through windows on the roof. He constructed an experimental sericulture building with a tiled roof for fire protection and a roof monitor to disperse accumulated heat. The second-floor sericulture space was unpartitioned and windows were installed on all façades to regulate indoor temperatures. This successful experiment led to the renovation of the *omoya* (main building) into a sericulture farmhouse in 1863. The two-storey *omoya* is 25.4 metres by 9.4 metres and has a monitor roof of 25.4 metres by 1.9 metres with openable windows known as *sō-yagura* (Waku et.al, 2012). In addition, the *shin-sanshitsu* (new sericulture building) was constructed in 1873 specifically for sericulture activities with an enclosed hallway connecting the two buildings on the second floor (Agency for Cultural Affairs, 2013). Later, Tajima documented his experiences in two books: *The New Theory of Sericulture* (1872) which includes hand-drawn illustrations of silkworm breeding and egg production, and a follow-up book published in 1879 which describes his experimental building constructions.

⁹ Born in 1822. Died in 1898.

¹⁰ *seiryō-iku* sericulture technique (清涼育) is a sericulture technique which emphasises on maintaining indoor temperatures of sericulture rooms between 15°C to 21°C by controlling openings of the room and the monitor roof.

Takayama-sha Sericulture School, also known as The Birthplace of Takayama-sha was the residence of Chōgoro Takayama, the prototype of *seion-iku* sericulture farmhouse architecture and most importantly, the start of a specialized school for sericulture which spread modern sericulture technology throughout Japan and overseas. After his visit to Shimamura and learning the *seiryō-iku* technique from Tajima (Fujioka City Board of Education, 2009), Takayama experimented with multiple sericulture methods and refined the *seion-iku* sericulture technique which also involved careful control of ventilation and indoor temperature¹¹. The *omoya* of the school was later renovated in 1884 into a sericulture farmhouse suitable to carry out the *seion-iku* technique. Takayama established the Yōsan Kairyō Takayama-gumi organization and the site was turned into a practical school which taught the *seion-iku* technique from 1887 to 1927. The Kōshu Takayama-sha Sericulture Private School was established in 1901 to provide formal and sericulture education to students nationwide and overseas (Fujioka City Board of Education, 2009).

Arafune Cold Storage was the largest silkworm egg storage facility in Japan capable of storing up to 1.1 million sheets of silkworm eggs. Lower half of the foundation walls are built along the mountain slope using local deposited stones to form three cellars with timber-framed structures built on top. Mimicking the winter season, natural cold air flowing through gaps between plutonic rocks keep the cellars in a constant low temperature even in the summer. This resulted in a favourable hatching rate of silkworm eggs and allowed sericulture to be carried out all year round and increased the production of silk (Agency for Cultural Affairs, 2013) as sericulture was previously only carried out once a year during spring. The first storage cellar began operations in 1905 and declined after the Great Kanto Earthquake in 1923 which

¹¹ *seion-iku* (清温育), also known as *secchū-iku* (折衷育) is a sericulture technique which emphasises on maintaining indoor temperatures of sericulture rooms between 21°C to 24°C by controlling openings of the room and the three monitor roofs and heating of the rooms using a *hibachi* or brazier on the ground floor.

disrupted railway shipping. The cold storage was closed down around 1935 after electricity-powered refrigeration became widely available.

With a stable supply chain, cocoons were collectively transferred to Tomioka Silk Mill for harvesting. Tomioka Silk Mill is the first large-scale mill built in 1872 with Western steam-powered mechanical silk reeling technology and system which predominantly employed female workers. The mill has two cocoon warehouses to store collected cocoons which are then transferred to the silk reeling plant to be harvested using automatic silk reeling machines. To ensure the quality of cocoons, a laboratory was built in 1908 to experiment ways to cultivate excellent breeds of silkworm by cooperating with sericulture farmers. The mill was an epoch-making representation which encouraged sericulture-related industrial players nationwide to visit, learn and construct similar silk mills and technology to develop the sericulture industry in other areas of the nation. Designed by French engineer Auguste Bastian and constructed by local Japanese craftsmen, Tomioka Silk Mill is also an early example of factory architecture merging Western style timber frame and brick wall architecture and locally made roof tiles using traditional Japanese technology (Agency for Cultural Affairs, 2013). With a full-fledged silk production system, Tomioka Silk Mill and Related Sites in Gunma prefecture shows the cycle of silk production from sericulture to silk reeling with cooperation from industrial players in all stages.

2.2.2 Characteristics of Components and its Buffer Zones

Located in different locations with various topographies, all components of Tomioka Silk Mill and Related Sites had drawn an area surrounding the component as the buffer zone with the inscription of each respective property (see Table 2-5) in response to paragraph 103 and 104 of the Operational Guidelines which states that ‘an adequate buffer zone should be provided wherever necessary for the proper protection of a property and for the purpose of

effective protection of the nominated property, a buffer zone is an area surrounding the nominated property which has complementary legal and/or customary restrictions placed on its use and development in order to give an added layer of protection to the property' (World Heritage Centre, 2021).

In the case of the farm, the buffer zone covers only the southern bank of the Tone-gawa river and a small part of Honjō city (see Figure 2-2). Amongst the seventy-two former sericulture farmhouses located near the southern and northern banks of the Tone-gawa river, only thirty-eight of them located near the southern bank was drawn into the buffer zone, leaving out the others. This was most probably resulted by the time constraints imposed on the city during the World Heritage component selection period. Originally anticipated to establish the village as a Preservation District for Groups of Traditional Buildings ('Jūdenken' mezashi, 2007), the city government conducted surveys on sericulture-related buildings in Sakai Shimamura between 2007 and 2011 (Kikuchi et al., 2011). Designation into the national system will allow the village to remain its image of a modern sericulture village as a whole (Denkenkyō, n.d.). Former sericulture farmhouses in Sakai Shimamura portraying sericulture architecture of the mid-Meiji period displays the image of a modern sericulture village in its golden years. Like Yahei Tajima, local sericulture farmers had also contributed to the sericulture industry. The Kurihara family was one of the oldest families whom first brought in sericulture from advanced sericulture area of Fukushima prefecture, Tajima Tatsuyuki Residence *omoya* was one of the few farmhouses renovated with a microscope laboratory to perform examinations on silkworms, and the establishment of the Shimamura Kangyō Kaisha as a cooperative Shimamura sericulture brand to ensure the quality of locally bred silkworm and eggs. However, nomination of the farm into the World Heritage system only occurred in the latter half of the selection period (see Table 2-6) as there were concerns from residents that this might 'steal the limelight' of other sericulture-related buildings that remained in the area. This resulted in the

halting of previous plans and allowed only a limited timeframe for the Isesaki city government to focus only on the designation of the farm into the national system as a pre-requirement for ‘World Heritage Sites by the World Heritage Convention and drawing a small buffer zone for the nomination of the farm into the global system. Achieving only a bare minimum for the nomination of the farm into the World Heritage List, the farm itself and other former sericulture farmhouses still lack research in terms of the history of the buildings and its owner.

Table 2-5: Components of Tomioka Silk Mill and Related Sites and its buffer zones.

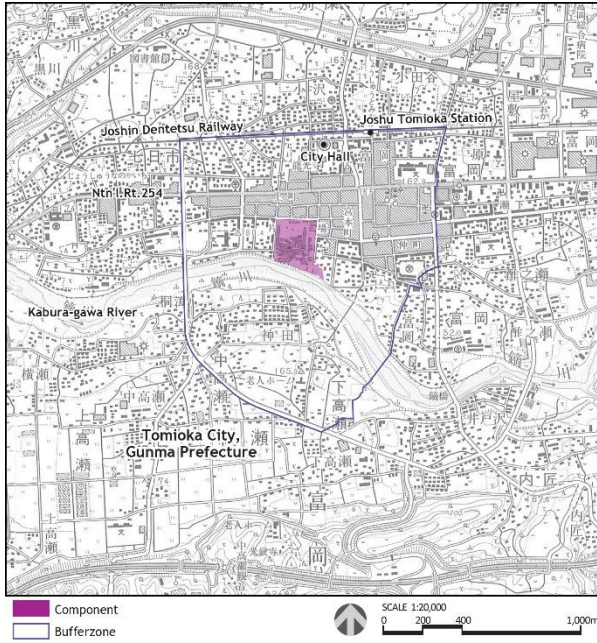
Name of Component	Location	Component Area (ha) (Buffer zone Area (ha))	Type of Buffer Zone	Population within component (Population within buffer zone) *	Ownership
Tomioka Silk Mill	Tomioka City	5.5 (151.1)	Urban city centre	2 (4,453)	Local government
Tajima Yahei Sericulture Farm	Isesaki City	0.4 (60.8)	Peri-urban countryside	3 (616)	Individual
Takayama-sha Sericulture School	Fujioka City	0.8 (54.1)	Rural countryside	0 (53)	Local government
Arafune Cold Storage	Shimonita Town	0.5 (148.6)	Mountainous forest	0 (11)	Local government

* Numbers are from Spring 2012 during the nomination of the components.

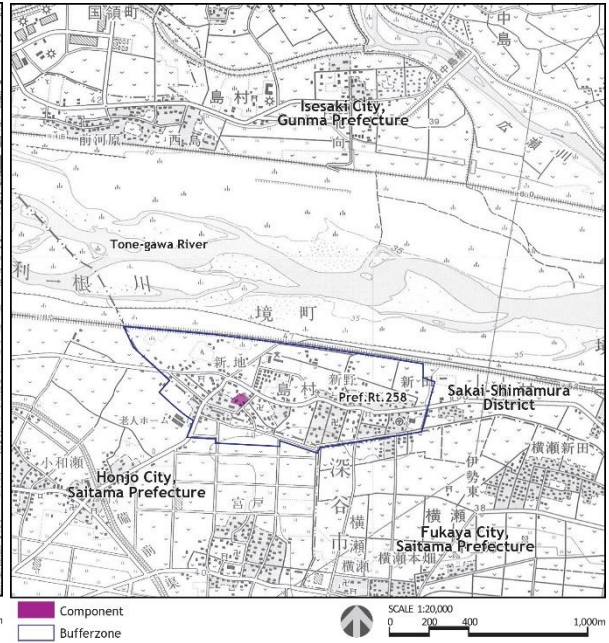
Table 2-6: Components of Tomioka Silk Mill and Related Sites nominated into the national system.

Field	Name of Component	Location	Category of Preservation	Unit of Protection	Date of Inscription
Silk Reeling	Tomioka Silk Mill	Tomioka city	Historic Site	National	14 July 2005
			Important Cultural Property		5 July 2006
			National Treasure		10 December 2014
Sericulture	Tajima Yahei Sericulture Farm	Isesaki city	Historic Site	National	19 September 2012
	Takayama-sha Sericulture School	Fujioka city	Historic Site	National	23 July 2009
	Arafune Cold Storage	Shimonita town	Historic Site	National	22 February 2010

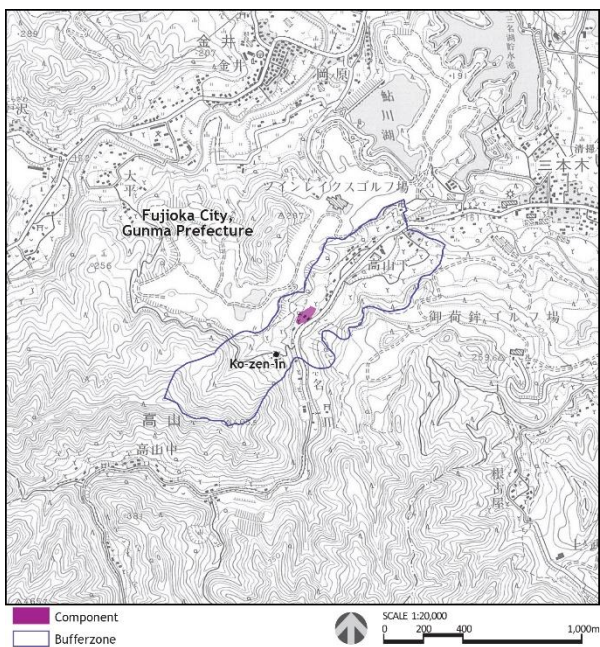
Tomioka Silk Mill



Tajima Yahei Sericulture Farm



Takayama-sha Sericulture School



Arafune Cold Storage

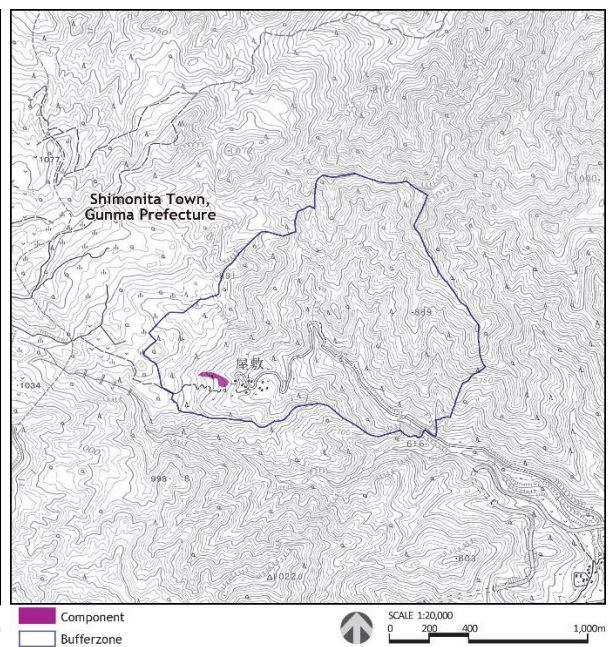


Figure 2-2: Map of Tomioka Silk Mill and Related Sites and its buffer zone.

(Source: Agency for Cultural Affairs, 2013)

While ruralisation is not obvious in the buffer zones of Fujioka city and Shimonita town due to the already scarce population in a rural and mountainous forest areas, Tomioka city central is located in the hearth of the city which is an administrative and business district while Isesaki city is a peri-urban countryside with detached residential houses and farmhouses scattered between agricultural lands. Residential buildings remaining in the village is more likely to face abandonment as a result of the advancement of aging and outward movement of population. Traditional buildings such as sericulture farmhouses and sericulture-related structures in the buffer zone of the farm are prone to the effects of natural hazards such as natural deterioration, flood from violent storms, typhoon and earthquakes. These building structures possess significant cultural and historical values in relation to the farm and should be given utmost attention and protection. However, residents whom are mostly middle-class agriculture farmers lack funds to preserve these heritage buildings. Approximately 1,200 residents live in Sakai Shimamura and about half of them resides in the buffer zone of the farm. Due to the location of the area, Sakai Shimamura is lacking in convenience in many areas. The lack of public transport, medical facilities and road maintenance are causing inconvenience in the daily living of residents. On the other hand, the lack of accommodation, restaurants and stores are causing inconvenience for visitors. As the closing of the nation's borders due to the COVID-19 pandemic have also halted all tourism activities for a while, the convenience of the village should be properly considered to ease the current lifestyles of residents and to accommodate the large number of local and foreign visitors in the near future.

All World Heritage components are currently owned by its respective municipal governments except for the farm as it is a private home still inhabited by the predecessors of Yahei Tajima. With full ownership, local municipal governments can easily and directly implement measures to the components whereas measures to be implemented to the buffer zones will require cooperation from inhabitants of the buffer zones. In the case of the privately-

owned component, measures proposed by the local government will require discussions and cooperation of the property owner before measures can be implemented. Similar to the farm, sericulture farmhouses in Sakai Shimamura are inherited from ancestor sericulturists whom equally contributed to the advancement of sericulture back in the days. These farmhouses are all privately-owned by the descendants of powerful sericulturists such as the Tajima families, Kurihara families and Kanai families. In consideration of the close-knit relationship between former sericulturist families in the village, this complicates the devise and implementation of plans by the government due to the status of the farm as a World Heritage component and a Cultural Property while other sericulture farmhouses are not protected by any preservation system globally or locally. The inclusion of a small part of Honjō city and Fukaya city in the buffer zone of the farm had also complicated the preservation of the site as both cities are under the administration of Saitama prefecture. Due to administration issues, it is difficult for preservation plans of the World Heritage component to be carried out by both cities.

From the above discussion, it is clear that Isesaki city government and Sakai Shimamura are facing three main challenges from the inscription of the farm into the global system. Firstly, halting of original plans to inscribe the village as a Preservation District and shift focus onto the farm to inscribed only the farm into the national system for the global system. Secondly, the peri-urban countryside topography of Sakai Shimamura is affecting the habitation and physical preservation of buildings. Thirdly, the ownership of cultural properties, mainly sericulture farmhouses under various governing bodies affecting the ease of implementation of preservation measures.

2.3 Governmental Organizations & Local Communities

This sub-chapter will discuss the plan devising system of local governments in preserving each World Heritage component, and the types and activities of local communities established relevant to the World Heritage components.

2.3.1 Local Plans by Governmental Organizations

After the announcement of the Gunma World Heritage Project in 2003, local municipal plans were redevise and cultural properties are reconsidered in multiple sectors for the city's development. As an extension of research (Cheng, 2018) where the analysis of local government plans effective between 2014 and 2018 relating to the World Heritage components discussed the significance and differences in measures, this section will look into the inclusiveness of local government plans effective 2014 to 2022 by distinguishing measures relating to the World Heritage Site and its buffer zones, and identify the presence of the P-D-C-A (Plan-Do-Check-Action) process adopted in the managing of the plans.

Twenty-one local plans by Tomioka city (see Table 2-7) with measures relating to Tomioka Silk Mill and its buffer zone are currently active. These plans are categorized into nine sectors including Comprehensive Plan and Strategy, Town Development and City Planning, Landscape and Environment, Public Facility, Disaster Prevention, Welfare, Housing, Education, World Heritage. After the formation of the new Tomioka city in 2002 and the announcement of the Gunma World Heritage Project in 2003, the buffer zone of the mill was first included in the Community Development Plan and Landscape Plan in 2005 along with its designation as a Historic Site (see Figure 2-3). With only three plans revised to include the mill for preservation and utilization purposes, other seventeen plans are devised only considering the buffer zone of the mill in the city's development. This was highly resulted by the topography and ownership of the component. The government-owned mill is only adhering to

the Improvement and Utilization plan devised specifically for the maintenance and future development of the buildings in the grounds of the mill. As the most significant cultural property of the city, the mill is included in the city’s most significant plan, Comprehensive Plan and Strategy to position the mill in future city development. On the other hand, the buffer zone is widely considered in multiple categories of local plans including seven town development and city planning plans and three public facility management plans effective in 2022. Town development and city planning plans aim to create a comfortable tourism-related business environment to promote inward migration as a way to combat the outward migration and aging population.

Table 2-7: Tomioka City government plans related to Tomioka Silk Mill and its buffer zone effective between 2014 and 2022.

Type of Plan	No.	Name of Plan	Duration		Measures		PDCA Cycle
			Fiscal Year	Years	World Heritage Property	Buffer Zone	
Comprehensive Plan and Strategy	1	First Tomioka City Comprehensive Plan 第1次富岡市総合計画	2004-2015	12	?	?	?
		Second Tomioka City Comprehensive Plan 第2次富岡市総合計画	2016-2026	11	O	O	O
	2	First Tomioka City Comprehensive Strategy 第1期富岡市総合戦略	2015-2019	5	O	O	O
		Second Tomioka City Comprehensive Strategy 第2期富岡市総合戦略	2020-2024	5	O	O	O
Town Development, City Planning	3	Tomioka City Community Development Plan 富岡市まちづくり計画	2005-	-	-	O	△
	4	Tomioka City Urban Planning Master Plan 富岡市都市計画マスタープラン	2006-2015	8	-	O	△
		(Second) Tomioka City Urban Planning Master Plan 富岡市都市計画マスタープラン	2020-2040	20	-	O	O
	5	Tomioka City Planning Area Master Plan 富岡市都市計画区域マスタープラン	2009-2015	6	-	O	-
	6	Tomioka City District Regional Development Plan 富岡地区地域づくり計画	2014-2026	13	-	O	O
	7	Tomioka City Land Optimization Plan 富岡市立地適正化計画	2020-2040	20	-	O	-
	8	Tomioka City Regional Public Transportation Network Formation Plan 富岡市地域公共交通網形成計画	2020-2024	5	-	O	-
	9	City Revitalization Plan 都市再生整備計画	2022-2026	5	-	O	-
	10	Tomioka City Action Program 富岡市アクションプログラム	2022-2026	5	-	O	-

Landscape, Environment	11	Tomioka City Landscape Plan 富岡市景観計画	2005-	-	-	O	-
	12	Tomioka City Environmental Basic Plan 富岡市環境基本計画	2012-2021	10	-	O	O
	13	Third Tomioka City Environmental Basic Plan 第3次富岡市環境基本計画	2022-2031	10	-	O	O
Public Facility	14	Comprehensive Management Plan for Tomioka City Public Facilities 富岡市公共施設等総合管理計画	2016-2045	30	-	O	△
	15	Tomioka City School Facility Individual Facility Plan 富岡市学校施設個別施設計画書	2017-2046	30	-	O	△
Disaster Prevention	16	Tomioka City Civil Protection Plan 富岡市国民保護計画	2007-	-	-	O	△
	17	Tomioka City Regional Disaster Prevention Plan 富岡市地域防災計画	2018-	-	-	O	-
Welfare	18	Third Tomioka City Community Welfare Plan/Community Welfare Activity Plan 第3次富岡市地域福祉計画・地域福祉活動計画	2021-2025	5	-	O	O
Housing	19	Tomioka City Vacant House Countermeasure Plan 富岡市空家等対策計画	2017-2022	6	-	O	△
Education	20	First Tomioka City Basic Plan for Human Rights Education and Inspiration 第1次富岡市人権教育・啓発に関する基本計画	2008-2015	8	-	O	-
		Second Tomioka City Basic Plan for Human Rights Education and Inspiration 第2次富岡市人権教育・啓発に関する基本計画	2016-2025	10	-	O	△
World Heritage	21	Former Tomioka Silk Mill Improvement and Utilization Plan 史跡・重要文化財（建造物）旧富岡製糸場整備活用計画	2012-	-	O	-	-

Eighteen local plans by Isesaki city (see Table 2-8) with measures relating to Tajima Yahei Sericulture Farm and its buffer zone are currently active. These plans are categorized into seven sectors including Comprehensive Plan and Strategy, Town Development and City Planning, Landscape and Environment, Public Facility, Disaster Prevention, Education, and World Heritage. As early as 2005, Sakai Shimamura was included in the New City Construction Plan in response to the commencement of the Gunma World Heritage Project. Later in 2009, the Rural Environment Improvement Master Plan, Green Basic Plan and Landscape Plan was devised to preserve Sakai Shimamura as a significant landscape of the city. The area of Sakai Shimamura was considered as a whole in governmental plans. After the designation of the farm as a Historic Site in 2012, its preservation management plan was devised in 2013 (see Figure 2-4). After the successful inscription into the World Heritage

system in 2014, the farm and its buffer zone were first considered in the revision of the Landscape Plan in 2014 in response to the formation of the new Isesaki city, merging the old Isesaki city, Akabori-machi, Azuma-mura and Sakai-machi in 2005.

Thirteen local plans by Fujioka city (see Table 2-9) with measures relating to Takayama-sha Sericulture School and its buffer zone are active and categorized into seven sectors. After formation of the new Fujioka city in 2006, the school was first considered in the New City Construction Plan devised in 2007 to be utilized for the city's development (see Figure 2-5). In 2008, the Fourth Comprehensive Plan aimed to prepare the school for its inscription into the World Heritage system and utilize the building as a community space. Green areas in Takayama was aimed to be protected as a natural landscape in the Comprehensive Plan and Urban Planning Master Plan devised in 2007. While the vast forest land in Mikuri area surrounding the school is protected by the Environmental Basic Plan, the school is considered in most plans to be maintained as a tourism spot and utilized as a community space for residents.

Nine local plans by Shimonita town (see Table 2-10) with measures relating to Arafune Cold Storage and its buffer zone are active and categorized into five sectors. After the commencement of the Gunma World Heritage Project in 2003, Arafune Cold Storage and Tochikubo Cold Storage was designated together as a National Cultural Property in 2010 and later certified as a Shimonita Geopark in 2011 (see Figure 2-6). Similar to Takayama-sha Sericulture School, Arafune Cold Storage is surrounded by vast land of mountains and is protected by the Landscape Plan devised in 2011 for all unique flora and fauna to be preserved as it is and to prevent hazards such as landslides.

Table 2-8: Iseaki City government plans related to Tajima Yahei Sericulture Farm and its buffer zone effective between 2014 and 2022.

Type of Plan	No.	Name of Plan	Duration		Measures		PDCA Cycle
			Fiscal Year	Years	World Heritage Property	Buffer Zone	
Comprehensive Plan and Strategy	1	First Iseaki City Comprehensive Plan 第1次伊勢崎市総合計画	2007-2014	8	?	?	?
		Second Iseaki City Comprehensive Plan 第2次伊勢崎市総合計画	2015-2024	11	O	O	O
	2	First Iseaki City Comprehensive Strategy for Town, People, and Work Revitalization 伊勢崎市まち・ひと・しごと創生総合戦略	2015-2019	5	O	O	O
		Second Iseaki City Comprehensive Strategy for Town, People, and Work Revitalization 第2次伊勢崎市まち・ひと・しごと創生総合戦略	2021-2024	4	O	O	O
Town Development, City Planning	3	New City Construction Plan 新市建設計画	2005-2026 (Revised in 2014, 2015, 2017, 2019, 2021, 2022)	20	-	O	△
	4	Iseaki City Rural Environment Improvement Master Plan 伊勢崎市田園環境整備マスタープラン	2009-	-	-	O	△
	5	Iseaki City Urban Planning Master Plan 伊勢崎市都市計画マスタープラン	2010-2027 (2nd Edition 2020-2030)	20	-	O	O
	6	Regional Revitalization Plan: Utilizing Historical Resources - World Heritage Sites 世界遺産等歴史的資源の活用による地域再生計画	2015-2018	4	-	O	-
Landscape, Environment	7	Iseaki City Green Basic Plan 伊勢崎市みどりの基本計画	2009-2027	19	-	O	O
	8	Iseaki City Landscape Plan 伊勢崎市景観計画	2012-	-	-	O	-
	9	First Iseaki City Environmental Basic Plan 第1次伊勢崎市環境基本計画	2006-2014	9	?	?	?
Second Iseaki City Environmental Basic Plan 第2次伊勢崎市環境基本計画		2015-2024	10	-	O	O	
Public Facility	10	Comprehensive Management Plan for Iseaki City Public Facilities 伊勢崎市公共施設等総合管理計画	2016-2045 (Revised in 2022)	30	-	O	O
	11	Iseaki City Cultural Property Protection Division Jurisdiction Facility Longevity Plan (Individual Facility Plan) 伊勢崎市文化財保護課所管施設長寿命化計画(個別施設計画)	2020-2045	26	-	O	O
	12	Iseaki City Elderly Welfare Facility Individual Facility Plan 伊勢崎市高齢福祉施設個別施設計画	2020-2045	26	-	O	-
Disaster Prevention	13	Iseaki City Regional Disaster Prevention Plan 伊勢崎市地域防災計画	2021-	-	-	O	-
Education	14	First Iseaki City Education Promotion Basic Plan 第1期伊勢崎市教育振興基本計画	2015-2019	5	O	O	-
		Second Iseaki City Education Promotion Basic Plan 第2期伊勢崎市教育振興基本計画	2020-2026	5	O	O	-
World Heritage	15	Historic Site Tajima Yahei Sericulture Farm Preservation Management Plan 史跡田島弥平旧宅保存管理計画	2012-	-	O	-	-
	16	Historic Site Tajima Yahei Sericulture Farm Maintenance Basic Plan 史跡田島弥平旧宅整備基本計画	2016-	-	O	-	-
	17	Sakai Shimamura Community Development Vision 境島村まちづくりビジョン	2016-2026	10	O	O	△
	18	Plan for the Effective Use of the Former Sakaishima Elementary School Building 旧境島小学校校舎の有効活用に関する計画書	2016	-	-	O	-

Table 2-9: Fujioka City governmental plans related to Takayama-sha Sericulture School and its buffer zone effective between 2014 and 2022.

Type of Plan	No.	Name of Plan	Duration		Measures		PDCA Cycle
			Fiscal Year	Years	World Heritage Property	Buffer Zone	
Comprehensive Plan and Strategy	1	Fourth Fujioka City Comprehensive Plan 第4次藤岡市総合計画	2008-2017	10	O	O	△
		Fifth Fujioka City Comprehensive Plan 第5次藤岡市総合計画	2018-2027	10	O	O	O
	2	First Fujioka City Comprehensive Strategy for Town, People, and Work Revitalization 藤岡市まち・ひと・しごと創生総合戦略	2015-2019	5	O	O	O
		Second Fujioka City Comprehensive Strategy for Town, People, and Work Revitalization 第2期藤岡市まち・ひと・しごと創生総合戦略	2020-2024	5	O	O	O
Town Development, City Planning	3	New City Construction Plan 新市建設計画	2006-2025 (Revised in 2021)	20	O	-	-
	4	Fujioka City Community Development Vision 藤岡市まちづくりビジョン	2022-	-	O	O	-
	5	Fujioka City Urban Planning Master Plan 藤岡市都市計画マスタープラン	2008-2027 (Revised in 2019)	20	-	O	△
	6	Fujioka City Action Program 藤岡市アクションプログラム	2018-	-	O	O	△
	7	Fujioka City Depopulated Area Sustainable Development Plan 藤岡市過疎地域持続的発展計画	2021-2026 (Revised in 2022)	6	O	-	△
Landscape, Environment	8	Second Fujioka City Environmental Basic Plan 第2次藤岡市環境基本計画	2009-2018	10	?	?	-
		Third Fujioka City Environmental Basic Plan 第3次藤岡市環境基本計画	2019-2028	10	O	O	O
Public Facility	9	Comprehensive Management Plan for Fujioka City Public Facilities 藤岡市公共施設等総合管理計画	2015-2044	30	O	O	△
Welfare	10	Second Fujioka City Community Welfare and Activity Plan 第2次藤岡市地域福祉計画・地域福祉活動計画	2014-2018	5	?	?	-
		Third Fujioka City Community Welfare and Activity Plan 第3次藤岡市地域福祉計画・地域福祉活動計画	2019-2023	5	-	O	△
	11	Fujioka City Elderly Welfare Plan 藤岡市高齢者福祉計画	2021-2023	3	O	O	O
ICT	12	Fujioka City Second Informatization Promotion Plan 藤岡市第2次情報化推進計画	2014-2018	5	O	-	-
		Fujioka City Third Informatization Promotion Plan 藤岡市第3次情報化推進計画	2019-2023	5	O	O	△
World Heritage	13	Preservation and Management Plan for Historic Site Takayama-sha 史跡高山社跡保存管理計画	2012-	-	O	O	-

Table 2-10: Shimonita Town governmental plans related to Arafune Cold Storage and its buffer zone effective between 2014 and 2022.

Type of Plan	No.	Name of Plan	Duration		Measures		PDCA Cycle
			Fiscal Year	Years	World Heritage Property	Buffer Zone	
Comprehensive Plan and Strategy	1	Shimonita Town Fifth Comprehensive Plan 下仁田町第5次総合計画	2017-2026	10	O	O	△
	2	First Shimonita Town Comprehensive Strategy for Town, People, and Work Revitalization 下仁田町 まち・ひと・しごと創生総合戦略	2015-2019	5	O	O	O
		Second Shimonita Town Comprehensive Strategy for Town, People, and Work Revitalization 第2期下仁田町 まち・ひと・しごと創生総合戦略	2020-2024	5	O	O	O
Town Development, City Planning	3	Shimonita Town Depopulated Area Independence Promotion Plan 下仁田町過疎地域自立促進計画	2016-2020	5	O	O	-
	4	Shimonita Town National Resilience Regional Plan 下仁田町国土強靱化地域計画	2021-2025	5	-	O	O
	5	Shimonita Town Sustainable Development Plan 下仁田町持続的発展計画	2021-2025	5	O	O	△
Landscape, Environment	6	Shimonita Town Landscape Plan 下仁田町景観計画	2011-	-	O	O	△
Public Facility	7	Comprehensive Management Plan for Shimonita Town Public Facilities 下仁田町公共施設等総合管理計画	2017 -2056 (Revised in 2022)	40	-	O	O
	8	Individual Facility Plan for Shimonita Town Public Facilities 下仁田町公共施設等個別施設計画	2022-2026	6	-	O	-
World Heritage	9	Arafune Cold Storage Maintenance Basic Plan 荒船風穴整備基本計画	2016-2036	20	O	O	-

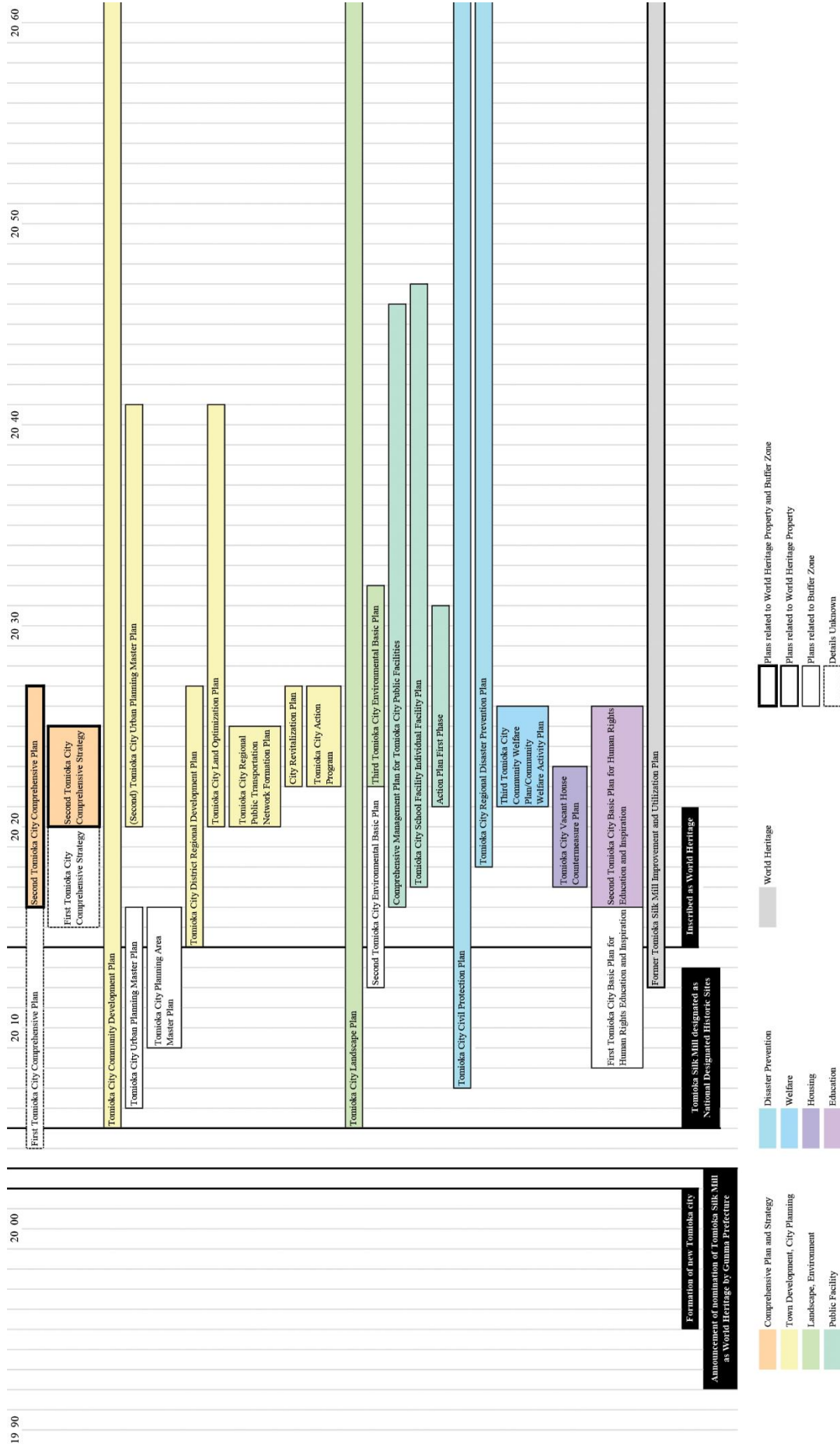


Figure 2-3: Timeline of events and government plans for Tomioka city.

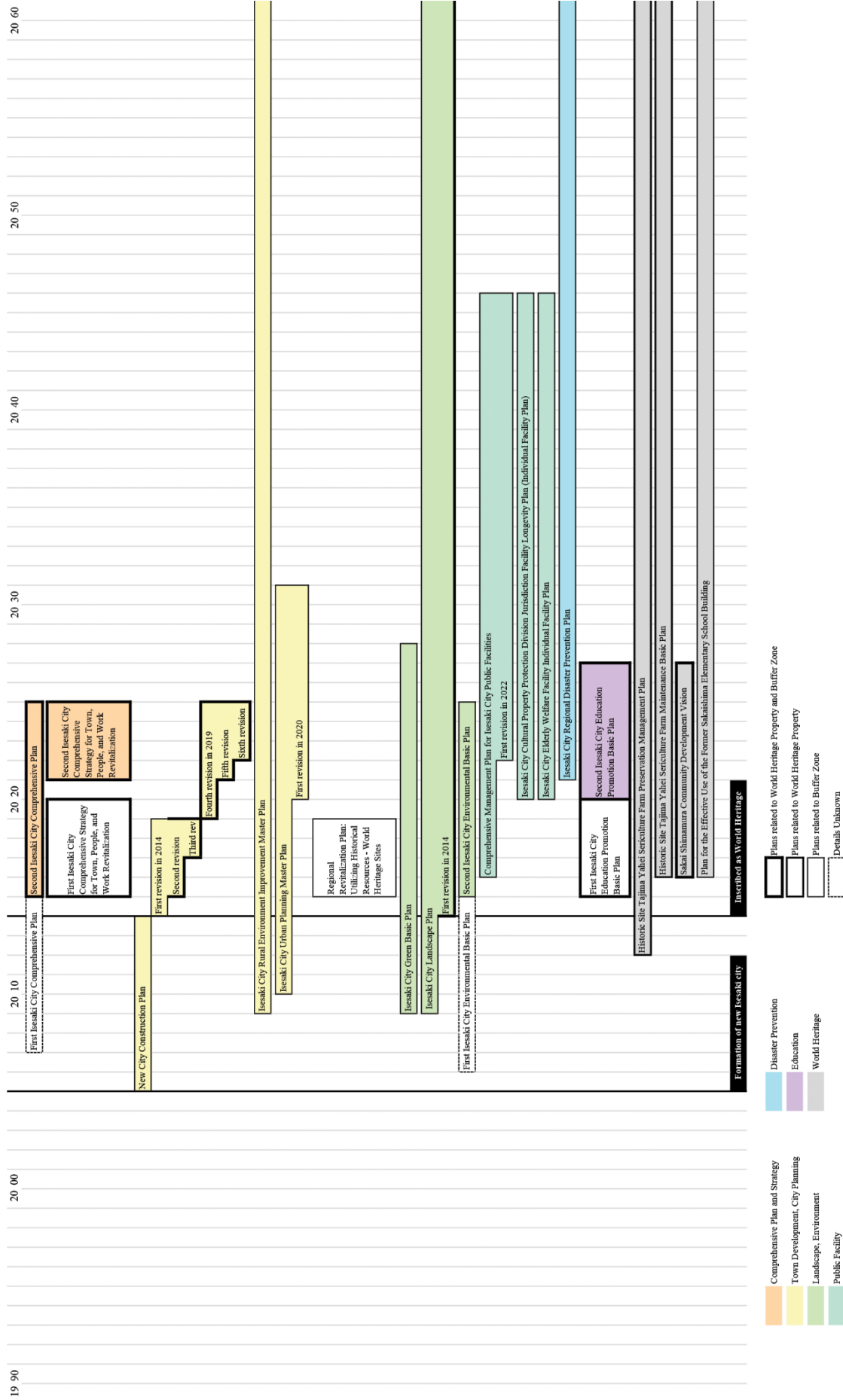


Figure 2-4: Timeline of events and government plans for Iseesaki city.

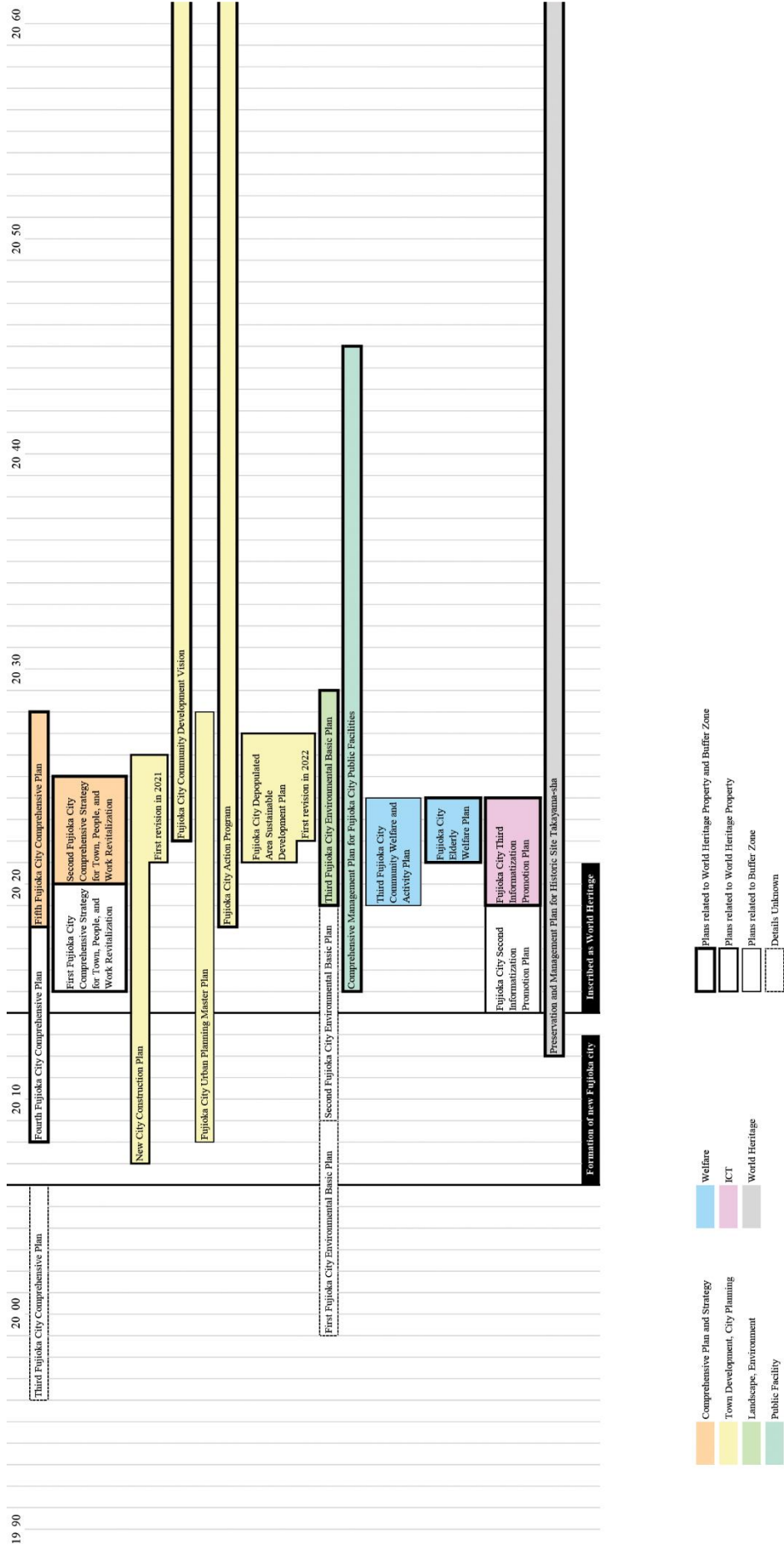


Figure 2-5: Timeline of events and government plans for Fujioka city.

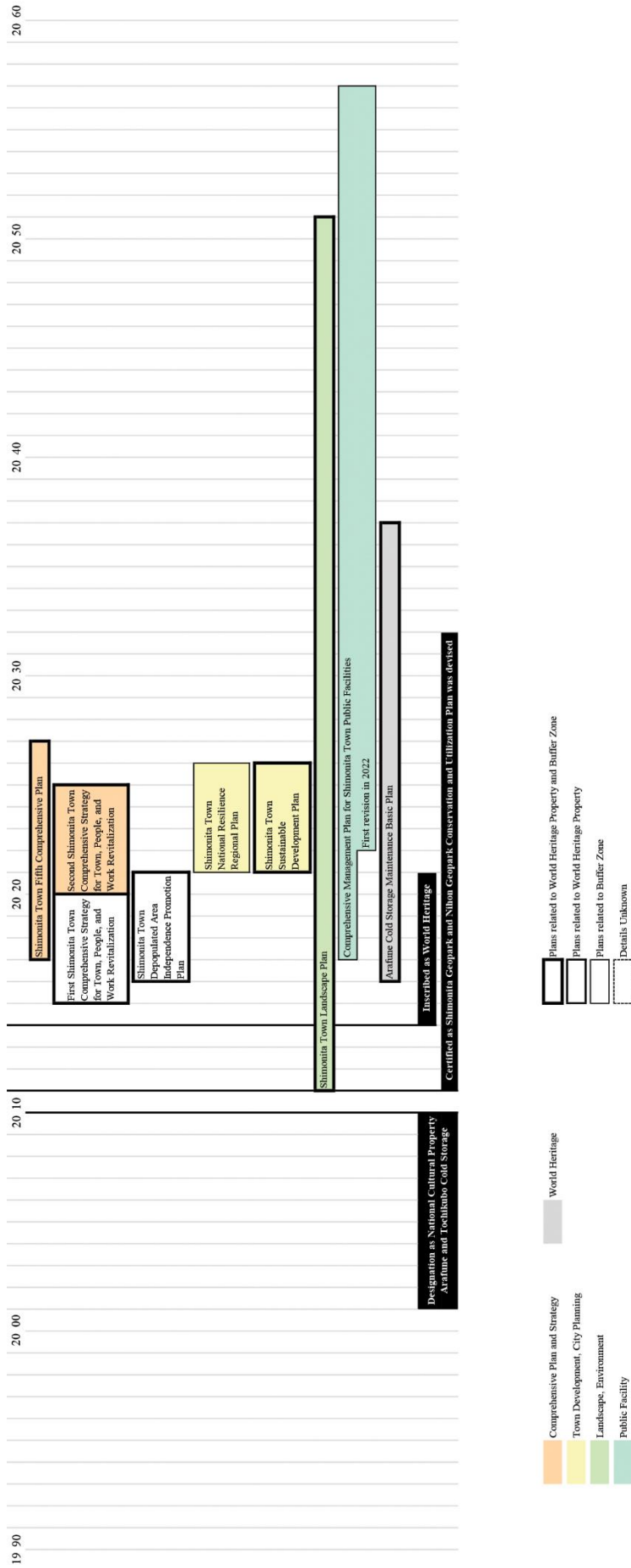


Figure 2-6: Timeline of events and government plans for Shimoniwa town.

From the above, it is understood that the devising of plans of each municipal government also reflected the issues occurred from the characteristics and ownership of the World Heritage components. Tomioka Silk Mill is a historical and tourism spot in the hearth of the city centre and the city places much emphasis on maintaining and improving the mill's buffer zone to create a comfortable tourism-related business area. Takayama-sha Sericulture School and Arafune Cold Storage are also a historical and tourism spots in the vast mountainous area where both municipal placed emphasis on the component to promote tourism and culture, its buffer zone is sufficiently protected under the Landscape Plan. However, Sakai Shimamura was originally considered in city plans as a landscape area and Tajima Yahei Sericulture Farm was only highlighted in plans after its inscription.

The Landscape Plan devised in 2009 acknowledged Sakai Shimamura's 200-year-old river crossing event as a green area for historical inheritance and as part of the 'Isesaki's scenery', sericulture farmhouses in Sakai Shimamura along with other heritage sites are positioned as a landscape for history and culture. In response to the World Heritage inscription of the farm, the Landscape Plan was revised in 2014 to draw Shinchu and Shinno area of Sakai Shimamura as a landscape priority area, mapping out sericulture farmhouses remaining in the area, acknowledging local geographical features of the site and other historical and cultural resources in the site. As an initial comprehensive plan specifically for the inclusion of all cultural properties in the area, Sakai Shimamura Community Development Vision was devised in 2016 to map out the strengths, weaknesses, opportunities and threats of the area to be solved and achieved by 2026.

Amongst plans effective in 2022, seven plans have clearly stated the adoption of the PDCA cycle while three plans have shown evidence of a 'Check' procedure. This is reflected in satisfactory surveys which are implemented periodically by each municipal government to review the effectiveness of previous plans and monitor changes in each sector.

Satisfactory survey

Resident satisfaction surveys are usually carried out periodically by city governments to gather residents' 'satisfaction' and 'importance' level on policies proposed and measures implemented as a reference for devising town development plans. Satisfaction surveys of all four municipals are carried out on residents aged 18 and above, collecting results on attributes of respondents, current living conditions in the municipal and efforts in town development. Policies and measures rated by residents were extracted from the latest Comprehensive Plans and tabulated in multiple scales as shown in table 2-11.

In order to understand the latest needs of residents, latest survey results of each municipal are tabulated in tables 2-12 to 2-15. In this case, results for the year 2020 for Tomioka city, the year 2021 for Isesaki city, the year 2018 for Fujioka city and the year 2019 for Shimonita town are tabulated. Results for Tomioka city and Isesaki city were tabulated similarly in scale from 0 to 5 and provide a clear tabulation of overall results in comparison to area results, results for Fujioka city only shows satisfaction level tabulated in scale from -10 to 10 and results for Shimonita town was tabulated in percentage of 0% to 100%.

Table 2-11: Tabulation method of resident satisfaction survey results.

Location	Name of Resident Satisfaction Survey (in Japanese)	Name of Plan in respondent (in Japanese)	Tabulation Method of Results
Tomioka city	Resident Satisfaction Survey Result Report 2020 令和 2 年度市民満足度調査結果報告書	Second Tomioka City Comprehensive Plan 第 2 次富岡市総合計画	Scale 0 to 5
Isesaki city	Resident Satisfaction Survey Result Report 2021 令和 3 年度市民意識満足度調査結果報告書	Second Isesaki City Comprehensive Plan 第 2 次伊勢崎市総合計画	Scale 0 to 5
Fujioka city	Resident Questionnaire Survey Result Report 2018 平成 31 市民アンケート調査結果報告書	Fifth Fujioka City Comprehensive Plan 第 5 次藤岡市総合計画	Scale -10 to 10
Shimonita town	Shimonita Town Town, People and Work Revitalization Questionnaire Results 下仁田町まち・ひと・しごと創生アンケート 集計結果	First Shimonita Town Comprehensive Strategy for Town, People, and Work Revitalization 第 1 期下仁田町まち・ひと・しごと 創生生総合戦	Percentage 0 to 100

Table 2-12: Satisfactory survey results 2020 (in Japanese, see Appendix A) for Tomioka city.

Policies in bold are related to Tomioka Silk Mill. (Extracted from Tomioka City Resident Satisfaction Survey Result Report 2020. Data rearranged by author.)

基本目標	施策	全体		富岡地区	
		満足度 (点数)	重要度 (点数)	満足度 (点数)	重要度 (点数)
環境・安全	1 低炭素・循環型社会の構築	3.30	4.21	3.28	4.20
	2 安心して暮らせる環境の整備	3.50	4.42	3.54	4.34
	3 防災・防犯・安全確保体制の充実	3.44	4.58	3.42	4.54
	4 消防体制の充実	3.80	4.56	3.70	4.56
都市基盤	5 水道事業の充実	3.86	4.52	3.87	4.52
	6 下水道・浄化槽の整備推進	3.42	4.41	3.61	4.41
	7 安全で利便性の高い都市基盤の整備	3.02	4.05	2.96	4.04
	8 快適で美しい都市環境の整備	3.13	3.94	3.04	3.81
	9 豊かな住環境の形成	3.11	4.01	3.11	4.01
	10 公共交通の確保と利便性の向上	2.64	4.24	2.56	4.28
	11 商工業の振興と雇用対策の推進	2.87	4.16	2.76	4.12
	12 農林業振興の推進	2.92	3.95	2.95	3.84
産業・経済	13 観光振興の推進	2.98	3.88	2.92	3.78
	14 学校教育の充実	3.25	4.42	3.19	4.35
	15 学校教育施設の充実	3.21	4.28	3.22	4.22
教育・文化	16 青少年の健全育成	3.25	4.16	3.22	4.15
	17 生涯学習活動の充実	3.30	3.82	3.20	3.76
	18 スポーツ・レクリエーションの充実	3.24	3.61	3.12	3.56
	19 富岡製糸場の保存と活用	3.28	3.79	3.30	3.80
	20 歴史・伝統・文化資源の保存と活用	3.33	3.80	3.28	3.79
	21 文化活動の充実	3.23	3.59	3.16	3.54
	22 高齢者支援の充実	3.17	4.34	3.07	4.28
	23 地域福祉の充実	3.18	4.18	3.10	4.17
健康・福祉	24 子育て支援の充実	3.21	4.40	3.22	4.31
	25 保健・医療・救急体制の充実	3.30	4.60	3.19	4.56
	26 持続可能な医療保険制度の構築	3.26	4.48	3.16	4.43
	27 市民協働の推進	3.10	3.66	3.14	3.64
	28 人権尊重社会の実現	3.17	3.85	3.10	3.77
	29 移住定住対策の推進	2.96	3.76	2.98	3.71
市民協働 ・ 行政運営	30 富岡ブランドの推進 (シティプロモーション)	2.97	3.64	2.93	3.52
	31 質の高い市民サービスの提供	2.98	4.02	2.87	3.92
	32 持続可能な行政経営	3.03	4.15	2.90	4.12
平均値		3.20	4.11	3.16	4.06

In the case of satisfaction survey results of Tomioka city, policies and measures were extracted from the Second Tomioka City Comprehensive Plan. Policies include six categories such as environment and safety, urban infrastructure, industry and economy, education and culture, health and welfare, resident cooperation and administration operation. Amongst the thirty-two policies, specific policies related to the World Heritage component and cultural properties are the Preservation and Utilization of Tomioka Silk Mill (No.19) and Preservation and Utilization of Historical, Traditional and Cultural Resources (No.20). Secondary-level related policies include Promotion of Tourism (No.13) and Promotion of the Tomioka Brand (City Promotion) (No.30). Tertiary-level related policies include Enrichment of Cultural Activities (No.21), Enhancement of Lifelong Learning Activities (No.17), Securing Public Transportation and Improving Convenience (No.10), Development of a Comfortable and Beautiful Urban Environment (No.8), Development of Safe and Convenient Urban Infrastructure (No.7), Promotion of Resident Collaboration (No.27).

In specific policies, overall results for No.19 Preservation and Utilization of Tomioka Silk Mill were rated above average for satisfaction and below average for importance value and was ranked 10 out of 32 in satisfaction and 27 out of 32 in importance. Looking at the results for Tomioka area where the buffer zone of Tomioka Silk Mill is located, this policy was also rated above average for satisfaction and below average for importance. This is also the case for No.20 Preservation and Utilization of Historical, Traditional and Cultural Resources, where overall results and results for Tomioka area were rated above average for satisfaction and below average for importance value. In secondary-level related policies of No.13 and No.30 were rated below average for satisfaction and importance in overall and in Tomioka area.

In the case of satisfaction survey results of Isesaki city, policies and measures were extracted from the Second Isesaki City Comprehensive Plan. Policies include ten categories from health and medical, welfare, urban infrastructure, industry and tourism, security,

environment, education, lifelong learning, sports and culture, cooperation and co-living. Amongst the forty-one policies, specific policies related to the World Heritage component and cultural properties are the Promotion of Attractive Tourism (No.2-2-4), Conservation and Utilization of Cultural Properties and Succession of Traditional Culture (No.4-2-3), Development of Attractive Urban Areas (No.2-1-2), Promotion of International and Domestic Exchange (No.5-1-4). However, although not stated as related policies to the World Heritage component in the governmental plans, there are multiple other policies which should be related such as Building Community Welfare Society (No.1-2-2), Enhancing Welfare for Elderly (No.1-2-3), Appropriate Land Use and Good Landscape Formation (No.2-1-1), Establishment of Public Transportation Network (No.2-1-3), Promotion of Sustainable Agriculture (No.2-2-1), Promotion of Vibrant Commerce and Industry (No.2-2-2), Formation of Water and Green Space (No.3-2-3), Community Development through Collaboration with Residents (No.5-1-1).

In specific policies, overall results for No.4-2-3 Conservation and Utilization of Cultural Properties and Succession of Traditional Culture was the only policy rated above the average satisfaction value but below average on importance value while other policies for No.2-2-4 and No.5-1-4 were rated below average for both satisfaction and importance. However, in comparison to residents of Sakai area where the buffer zone of Tajima Yahei Sericulture Farm is located, No.4-2-3 and No.5-1-4 were rated above the average satisfaction value while the other two policies are rated below average for satisfaction and importance.

Table 2-13: Satisfactory survey results 2021 (in Japanese, see Appendix B) for Isesaki city.

Policies in bold are related to Tajima Yahei Sericulture Farm. (Extracted from Isesaki City

Resident Satisfaction Survey Result Report 2021. Data rearranged by author.)

分野	施策体系	施策名	全体		境地区	
			満足度 (点数)	重要度 (点数)	満足度 (点数)	重要度 (点数)
健康・医療	1-1-1	健康づくりと疾病予防の推進	2.81	3.42	2.72	3.49
	1-1-2	地域医療体制の充実	2.71	3.64	2.63	3.63
	1-1-3	医療・年金制度の円滑な運営	2.66	3.60	2.60	3.60
福祉	1-2-1	子ども・子育て支援の充実	2.66	3.49	2.55	3.43
	1-2-2	地域福祉社会の構築	2.58	3.25	2.55	3.25
	1-2-3	高齢者福祉の充実	2.56	3.44	2.55	3.49
	1-2-4	障害者福祉の充実	2.46	3.42	2.44	3.47
都市基盤	2-1-1	適正な土地利用と良好な景観形成	2.35	3.10	2.21	3.12
	2-1-2	魅力ある市街地の整備	2.30	3.24	2.16	3.11
	2-1-3	公共交通ネットワークの確立	2.09	3.28	1.86	3.27
	2-1-4	道路の整備と管理	2.51	3.46	2.47	3.36
	2-1-5	適切な生活排水処理の推進	2.60	3.44	2.56	3.34
	2-1-6	安定した水道水の供給	3.16	3.63	3.09	3.55
	2-1-7	良好な居住環境の形成	2.79	3.34	2.78	3.34
産業・観光	2-2-1	持続可能な農業の振興	2.60	3.24	2.55	3.26
	2-2-2	活力ある商工業の振興	2.51	3.23	2.35	3.13
	2-2-3	企業誘致の推進と雇用の促進	2.60	3.23	2.44	3.14
	2-2-4	魅力ある観光の振興	2.53	3.02	2.43	2.92
安心安全	3-1-1	危機管理体制の充実	2.62	3.56	2.52	3.55
	3-1-2	災害に強いまちづくり	2.53	3.64	2.41	3.58
	3-1-3	防犯対策の強化	2.47	3.62	2.47	3.59
	3-1-4	消防・救急体制の充実	2.83	3.57	2.76	3.45
	3-1-5	交通安全対策の推進	2.55	3.54	2.48	3.51
	3-1-6	消費者保護対策の充実	2.56	3.37	2.53	3.33
環境	3-2-1	良好な地域環境の保全	2.76	3.29	2.75	3.27
	3-2-2	ごみの減量と再資源化の推進	2.80	3.46	2.85	3.39
	3-2-3	水と緑の空間の形成	2.83	3.25	2.81	3.15
教育	4-1-1	幼児・学校教育の充実	2.75	3.51	2.63	3.53
	4-1-2	児童・生徒の健全な心身の育成	2.73	3.59	2.67	3.58
	4-1-3	中等教育学校教育の充実	2.75	3.20	2.66	3.18
生涯学習 ・ スポーツ ・ 文化	4-2-1	生涯学習の振興	2.83	3.03	2.81	3.00
	4-2-2	青少年の健全育成	2.68	3.23	2.69	3.25
	4-2-3	文化財の保存活用と伝統文化の継承	2.79	2.93	2.73	3.01
	4-2-4	教育施設の充実	2.69	3.37	2.61	3.35
	4-2-5	スポーツの推進	2.76	3.07	2.68	3.05
協働 ・ 共生	5-1-1	市民との協働によるまちづくり	2.69	3.10	2.65	3.00
	5-1-2	人権の尊重	2.70	3.15	2.67	3.20
	5-1-3	男女共同参画社会の確立	2.68	3.16	2.69	3.03
	5-1-4	国際交流・国内交流の推進	2.62	2.98	2.64	2.81

行財政	5-2-1	効率的で効果的な行政運営の推進	2.59	3.47	2.45	3.44
	5-2-2	安定的な財政運営の推進	2.45	3.60	2.43	3.55
平均値			2.64	3.34	3.34	3.31

In the case of satisfaction survey results of Fujioka city, policies and measures were extracted from the Fifth Fujioka City Comprehensive Plan and only satisfaction value was collected and tabulated. Amongst the twenty-five policies, policies related to the World Heritage component and cultural properties includes Status of Lifelong Learning Activities, Arts and Cultural Activities and Facility Development (No.13), Children’s Education Environment (No.14) and Development status of Tourism and Leisure (No.21). With 0 as the average level, policies No.13 and No.14 were rated above the average level while policy No.21 was rated below the average level of satisfaction level for overall results and results for Fujioka area where the Takayama-sha Sericulture School is located. Additional policies were suggested in the questionnaire and ranked by residents on its importance (see Figure 2-7). Amongst, is one specific policy, namely Preservation and Utilization of World Heritage component Takayama-sha Sericulture School (2.7%) of which its importance had decreased since the last questionnaire carried out in 2016.

Table 2-14: Satisfactory survey results 2018 (in Japanese, see Appendix C) for Fujioka city. Policies in bold are related to Takayama-sha Sericulture School. (Extracted from Fujioka City

Resident Questionnaire Survey Result Report 2018. Data rearranged by author.)

施策	全体	美久里地区
	満足度 (点数)	満足度 (点数)
(1) 自然環境の豊かさ	4.71	5.72
(2) 火災や災害からの安全性	3.24	4.75
(3) 交通事故や犯罪からの安全性	1.59	1.79

(4) 道路の整備状況	-0.82	-0.19
(5) 鉄道の便利さ	-4.99	-4.81
(6) バスの便利さ	-4.36	-3.23
(7) 騒音・振動・悪臭等の環境	1.72	2.22
(8) ごみの収集・処理の状況	4.30	5.31
(9) 下水・排水の処理状況	1.09	1.69
(10) 水道の整備状況	3.40	4.05
(11) 公園・緑地・広場の整備状況	0.99	2.50
(12) スポーツ活動や施設整備の状況	1.16	2.56
(13) 生涯学習活動、芸術・文化活動や施設整備の状況	0.95	1.63
(14) 子どもの教育環境	1.12	1.17
(15) 国内外との交流活動の状況	-0.09	-0.37
(16) 男女平等意識や女性の社会参画の状況	0.14	0.50
(17) 保健・医療サービスや施設整備の状況	1.18	1.44
(18) 福祉サービスや施設整備の状況	0.69	1.31
(19) 働きがいのある職場の充実度	-0.80	-0.88
(20) 日常の買物の便利さ	0.79	0.56
(21) 観光・レジャーの整備状況	-1.50	-1.05
(22) 人情味や地域の連帯感	1.16	1.54
(23) 住民参加のまちづくりの状況	-0.09	-0.56
(24) 催事や行政情報の発信状況	0.78	1.36
(25) 全体的にみた藤岡市の暮らしやすさ	1.88	2.68
平均値	1.52	1.27

In the case of satisfaction survey results of Shimonita town, policies and measures were extracted from the First Shimonita Town Comprehensive Strategy for Town, People, and Work Revitalization. Policies include eight categories from life and childcare, settlement and migration, employment and exchange, industry and economic promotion, life and disaster preparedness, health and welfare enhancement, education and culture uplift, resident cooperation and administrative efficiency. Amongst the forty-eight policies, specific policies related to the World Heritage component are Preservation and Utilization of World Heritage Site (No.42) and Research and Utilization of Geopark (No.43). Other specific policies include Creating a System for Sightseeing (No.14), Promotion of Tourism (No.18), and Promotion of Local Culture (No.40). Secondary-level related policies are Conservation of Natural Environment (No.27), Promotion of Lifelong Learning (No.39), Promotion of Community

Development through Collaboration with Residents (No.44) and Village Reconstruction and Community Maintenance (No.48). However, it is difficult to explain the satisfaction and importance of policies from table 2-15.

Table 2-15: Satisfactory survey results 2019 (in Japanese, see Appendix D) for Shimonita town. Policies in bold are related to Arafune Cold Storage. (Extracted from Shimonita Town Town, People and Work Revitalization Questionnaire Results 2019. Data rearranged by author.)

基本的な方向性	施策	満足度 (%)				重要度 (%)			
		満足・やや満足	どちらともいえない	やや不満・不満	無回答	重要・やや重要	どちらともいえない	あまり重要ではない・重要ではない	無回答
生活・育児	(1) 妊婦や乳幼児への支援	13	38	9	41	42	14	2	41
	(2) 教育環境の充実	14	35	11	40	42	15	1	41
	(3) 子どもが安心して遊べる場の整備	5	30	26	39	42	15	3	41
	(4) 結婚につなげる出会いの場の創出	3	37	23	38	35	22	3	40
	(5) 健康長寿の延伸	17	42	9	31	38	25	3	35
定住・移住	(6) 町内居住者への住宅購入支援	7	41	14	38	33	24	3	39
	(7) 空き家対策	5	31	32	32	48	16	3	34
	(8) 移住者への住宅購入支援	6	44	13	36	36	24	3	37
	(9) 移住に向けた機会の創出	5	42	15	39	35	24	3	38
雇用・交流	(10) 6次産業化の推進	6	40	18	36	37	24	2	38
	(11) 林業の活性化	5	38	21	34	37	25	3	35
	(12) 就業支援・担い手の確保	5	32	28	36	46	15	2	37
	(13) 山間部を活用した集客	6	37	22	35	39	22	3	36
	(14) 観光周遊に向けた仕組みづくり	8	34	24	34	43	19	3	35
	(15) 分かりやすい情報発信	9	37	21	33	44	19	2	35
産業・経済の振興	(16) 農林業の振興	5	42	19	33	37	25	3	36
	(17) 商工業の振興	5	42	17	36	37	24	2	37
	(18) 観光の振興	9	36	20	35	42	18	3	37
	(19) しごとの創造	3	36	25	36	43	17	2	38
生活・防災の向上	(20) 道路網の整備	16	30	21	33	40	20	3	37
	(21) 公共交通の確保	12	31	24	33	44	18	2	36
	(22) 水道及びガスの供給	28	31	8	32	37	24	1	36
	(23) 循環型社会の形成	7	48	9	36	26	34	2	39
	(24) 住環境の整備	10	42	14	35	34	26	2	38
	(25) 消防・防災体制の強化	21	35	10	34	42	20	2	36
	(26) 交通安全・防犯対策の推進	18	38	10	34	42	21	2	36
	(27) 自然環境の保全	13	41	12	34	37	24	2	37

	(28) 生活環境の維持・保全	11	43	11	35	39	23	1	37
	(29) 消費生活の安定	9	41	16	34	41	22	2	36
健康 ・ 福祉の充実	(30) 子育て環境の充実	10	39	13	38	41	19	1	39
	(31) 健康づくりの推進	18	39	8	35	40	22	1	37
	(32) 高齢者福祉の充実	16	37	14	33	46	17	2	36
	(33) ひとり親家庭の福祉の充実	8	44	12	36	38	23	1	38
	(34) 障がい者福祉の充実	10	43	11	35	40	22	2	38
	(35) 医療・救急体制の充実	15	33	20	33	51	12	1	35
	(36) 社会保障制度の充実	11	42	14	33	42	21	1	36
	(37) 地域福祉の推進	11	45	11	34	38	23	2	37
教育 ・ 文化の高揚	(38) 学校教育の充実	13	42	7	37	37	23	1	39
	(39) 生涯学習の推進	10	46	7	37	30	29	2	38
	(40) 地域文化の振興	10	47	7	36	27	32	3	38
	(41) スポーツの振興	9	47	8	37	24	35	3	38
	(42) 世界遺産の保存と活用	16	40	9	35	30	27	6	37
	(43) ジオパークの研究と活用	15	42	8	35	27	29	8	37
町民協働 ・ 行政運営 効率化	(44) 町民協働のまちづくりの推進	8	46	11	35	31	30	2	37
	(45) 効率的行政運営	6	44	14	36	33	27	2	38
	(46) 広域連携の強化	6	46	11	36	21	29	2	38
	(47) 開かれた行政の運営	7	42	15	36	35	26	2	37
	(48) 集落再編とコミュニティの維持	6	46	13	36	31	30	2	37

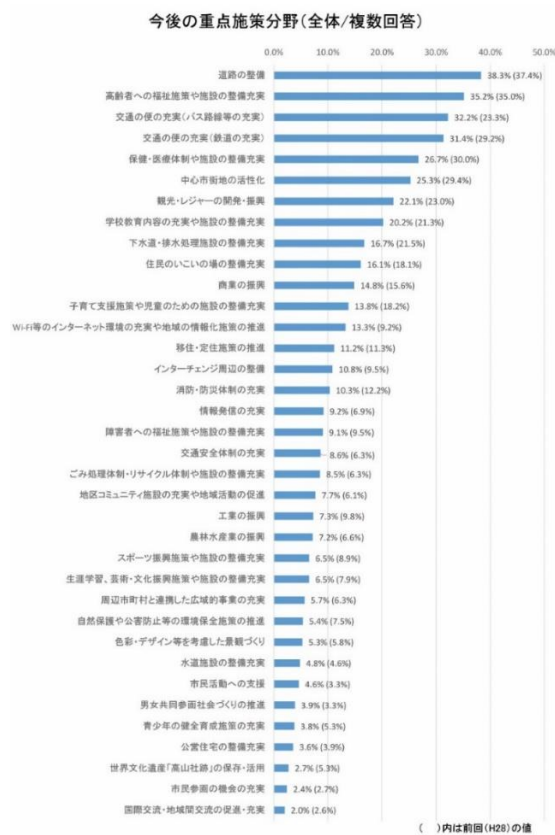


Figure 2-7: Priority areas to take note in the future.

(Extracted from Resident Questionnaire Survey Result Report 2018, Fujioka City)

To understand the relationship between the satisfaction and importance of each policy, the data above are then tabulated in a Satisfactory-Importance graph by Tomioka city and Iseaki city as seen in figure 2-8 and 2-9.

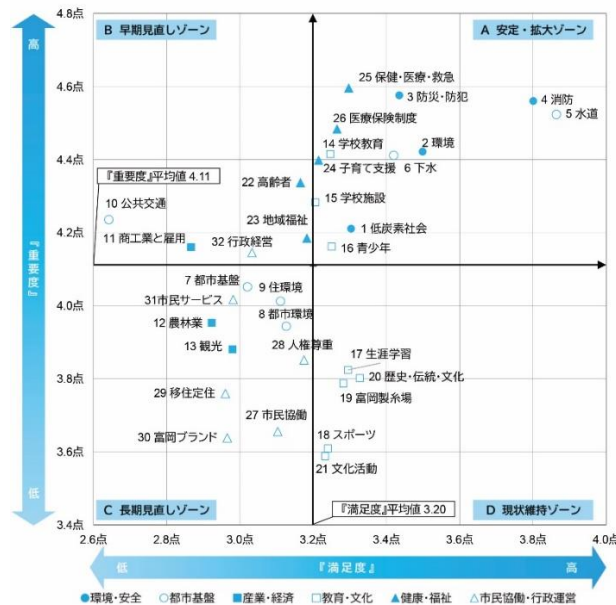


Figure 2-8: Satisfactory-Importance graph for Tomioka city.

(Extracted from Resident Satisfaction Survey Result Report 2020, Tomioka city)

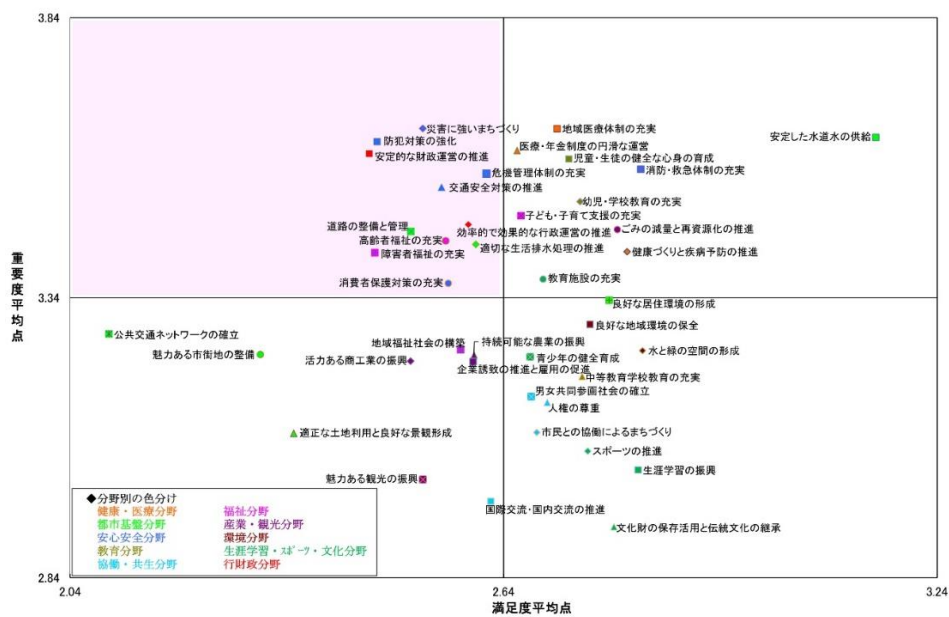


Figure 2-9: Satisfactory-Importance graph for Iseaki city.

(Extracted from Resident Satisfaction Survey Result Report 2021, Iseaki city)

In order to compare the satisfaction survey results for all municipals, it is necessary for results of all survey to be tabulated in a Satisfactory-Importance graph in the same value. To plot the Satisfactory-Importance graph, specific policies related to World Heritage mentioned in the Comprehensive Plans are extracted and labelled (see Table 2-16).

Table 2-16: Policies in Comprehensive Plan relating to World Heritage extracted from satisfactory survey of each city.

Location	Year of Survey	No.	Measures	Label
Tomioka city	2020	No.13	Promotion of Tourism	T1
		No.19	Preservation and Utilization of Tomioka Silk Mill	T2
		No.20	Preservation and Utilization of Historical, Traditional and Cultural Resources	T3
		No.30	Promotion of the Tomioka brand (City Promotion)	T4
Isesaki city	2021	2-2-4	Promotion of Attractive Tourism	I1
		4-2-3	Conservation and Utilization of Cultural Properties and Succession of Traditional Culture	I2
		5-1-4	Promotion of International and Domestic Exchange	I3
Fujioka city	2019	No.13	Status of Lifelong Learning Activities, Arts and Cultural Activities and Facility Development	F1
		No.14	Children's Education Environment	F2
		No.21	Development status of Tourism and Leisure	F3
Shimonita town	2019	No.14	Creating a System for Sightseeing	S1
		No.18	Promotion of Tourism	S2
		No.40	Promotion of Local Culture	S3
		No.42	Preservation and Utilization of World Heritage Site	S4
		No.43	Research and Utilization of Geopark	S5

Values for Tomioka city and Isesaki city are similar and therefore retained while values for Fujioka city and Shimonita town are adjusted to follow the 0-5 scale using the equations below.

In the case of Fujioka city,

$$\frac{x \text{ value} + 10}{4} = X \text{ value}$$

where *x value* = original x value (Satisfaction value), *X value* = new satisfaction value.

In the case of Shimonita town, the original values are converted to exclude the percentage of unanswered using the equation below.

$$\frac{\text{満足}\%}{100\% - \text{無回答}\%} \times 100\% = A\%$$

$$\frac{\text{重要}\%}{100\% - \text{無回答}\%} \times 100\% = V\%$$

where A = 満足, B = やや満足, C = どちらともいえない, D = やや不満, E = 不満 for satisfaction and V = 重要, W = やや重要, X = どちらともいえない, Y = あまり重要ではない, Z = 重要ではない for importance.

Then, each importance ratio is multiplied with respective scale of 1 to 5, with 1 being the lowest and 5 being the highest score as seen in the equation below.

$$\frac{(A\% \times 5) + (B\% \times 4) + (C\% \times 3) + (D\% \times 2) + (E\% \times 1)}{100\%} = \text{満足度}\%$$

$$\frac{(V\% \times 5) + (W\% \times 4) + (X\% \times 3) + (Y\% \times 2) + (Z\% \times 1)}{100\%} = \text{重要度}\%$$

For average value, each satisfaction value (満足度%) and importance value (重要度%) is added and divided by 48 as shown below.

$$\frac{\left(\text{満足度}_{(1)}\right) + \left(\text{満足度}_{(2)}\right) + \dots + \left(\text{満足度}_{(48)}\right)}{48} = \text{満足度の平均値}$$

Average Value for Satisfaction

$$\frac{\left(\text{重要度}_{(1)}\right) + \left(\text{重要度}_{(2)}\right) + \dots + \left(\text{重要度}_{(48)}\right)}{48} = \text{重要度の平均値}$$

Average Value for Importance

Data converted above are plotted in each separate Satisfactory-Importance graph as seen in figure 2-10. As the average value of each municipal differs, the average value of each municipal is aligned and the relationship between each policy can be easily observed from a combined Satisfactory-Importance graph as shown in figure 2-11.

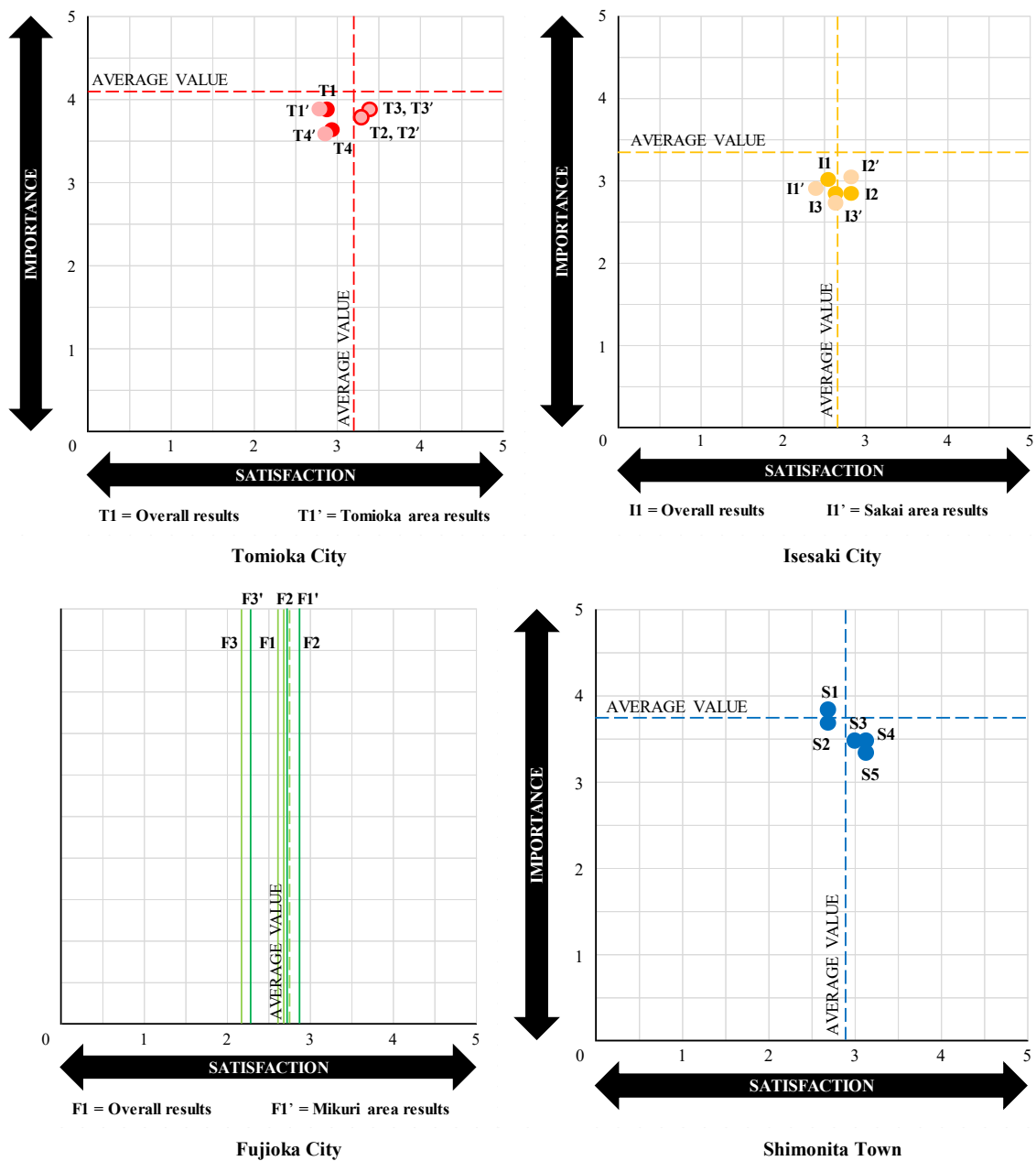


Figure 2-10: Satisfactory-Importance Graph for all municipals with World Heritage related policies. (Plotted to scale 0-5 by author.)

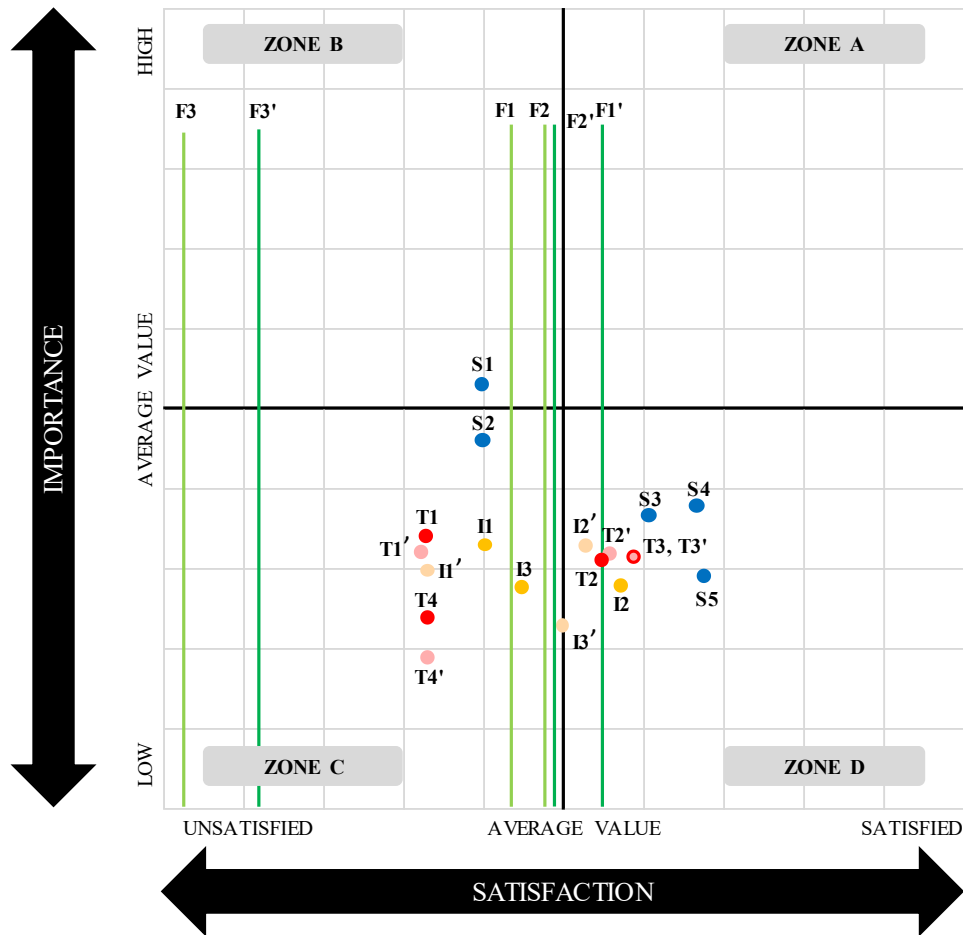


Figure 2-11: Satisfactory-Importance graph for all municipals with World Heritage related policies adjusted to average value. (Plotted to scale by author. Policies with ' are results for areas where the buffer zones are located. E.g. T1' is results for residents residing in Tomioka area, I1' is results for residents residing in Sakai area, F1' is results for residents residing in Mikuri area.)

The Satisfactory-Importance graph (see Figure 2-11) is separated by the average value line into four zones A, B, C and D each representing a category. Policies in Zone A are rated with high satisfaction and high importance. In other words, residents are aware on the importance of these policies and current efforts are sufficient and should be maintained. No policies were rated into this zone. Policies in Zone B are rated with low satisfaction but high

importance. Only one policy from Shimonita town (S1) was rated into this zone. Stated in the First Shimonita Town Comprehensive Strategy for Town, People, and Work Revitalization, policy (S1) Creating a Sightseeing System was devised to strengthen the functions of Michino-eki to serve as a base to connect tourism spots such as Arafune Cold Storage and geoparks in town and to increase the non-resident population exchange through cooperation with local universities, companies and organizations by utilizing local resources.

The remaining World Heritage related policies fall under the average importance value in Zone C and D. Six policies fall into Zone D where policies were rated with high satisfaction but low importance. The six policies which fall into Zone D are specific policies related to World Heritage and cultural properties, namely Preservation and Utilization of Tomioka Silk Mill (T2), Preservation and Utilization of Historical, Traditional and Cultural Resources (T3), Conservation and Utilization of Cultural Properties and Succession of Traditional Culture (I3), Promotion of Tourism (S3), Preservation and Utilization of World Heritage Site (S4), and Research and Utilization of Geopark (S5). It is possible that the awareness of locals towards efforts in preserving and utilizing World Heritage components and local cultural properties are very low.

The remaining eight policies fall into Zone C where policies were rated with low satisfaction and low importance and will require immediate attention by the government to put effort in what is lacking. Policies falling into this zone are largely tourism related such as T1, I1, F3 and S2. Policies in economy (T4), cultural exchange (I2 and F1) and education (F2) are categories where each respective municipal is still lacking. In the case of Tomioka city, Isesaki city and Fujioka city where there is a comparison of results of all residents of the city and the area where the buffer zone of the World Heritage components is located, results are similar and do not show a large disparity among both results other than F1 and F1'. Policy F1 Status of Lifelong Learning Activities, Arts and Cultural Activities and Facility Development was rated

below average for overall importance but was rated above average (F1') by residents residing in Mikuri area where the buffer zone of Takayama-sha Sericulture School is located. This rating might reflect the efforts on Takayama-sha Sericulture School because the importance for Preservation and Utilization of Takayama-sha Sericulture School is comparatively low and had even decreased from its previous survey results from 5.3% to 2.7% as shown in figure 2-7. It is important to note that only for Isesaki city, there is no measure proposed specifically on the preservation and utilization of Tajima Yahei Sericulture Farm but the preservation and utilization of the farm is included in I2 - Conservation and Utilization of Cultural Properties and Succession of Traditional Culture to be preserved altogether with other cultural properties.

Generally, Tomioka city, Fujioka city and Shimonita town has policies specifically on its World Heritage components and/or another policy on local cultural properties, namely Preservation and Utilization of Tomioka Silk Mill (T2) and Preservation and Utilization of Historical, Traditional and Cultural Resources (T3), Preservation and Utilization of Takayama-sha Sericulture School, Preservation and Utilization of World Heritage Site (S4), Research and Utilization of Geopark (S5). On the other hand, Isesaki city has included its World Heritage component with local cultural properties under one policy, namely Conservation and Utilization of Cultural Properties and Succession of Traditional Culture (I2). This reflects the direction of each municipal in preserving their World Heritage component as Isesaki city is leaning towards the preservation of the World Heritage component along with other local cultural properties all together instead of separating the preservation of World Heritage components and local cultural properties like the other three municipals.

Results of latest satisfaction surveys show that residents of all municipals still have low awareness on the importance of preserving and utilizing the World Heritage components and local cultural properties. This is reflected in the ratings of World Heritage component, cultural property and tourism related policies rated with low importance but above average for

satisfaction. However, although related to the World Heritage components, policies on economy, cultural exchange and education will require more attention from the government. This might be due to the fact that these policies affect a wider range of people in terms of promoting the economy and educating the young and old.

2.3.2 Establishment of Local Organizations

After the commencement of the Gunma World Heritage Project, the Tomioka Silk Mill World Heritage Evangelists Association¹² was established in 2004 as the main and largest private voluntary group to promote the nomination of Tomioka Silk Mill and other silk-related cultural properties into the World Heritage system. To kick start the World Heritage Project, the organization toured the prefecture educating locals on the World Heritage system, the concept of modern industrial heritage, and the values and achievements of Tomioka Silk Mill. With about 250 members known as ‘evangelists’, new volunteers are trained every year with knowledge to promote Tomioka Silk Mill and Related Sites. Even after the successful inscription of Tomioka Silk Mill and Related Sites, the organization is still actively speaking in educational facilities and organizing events such as providing cocoon craft and *zakuri* silk reeling hands-on experiences all across the prefecture to promote the World Heritage Sites (Tomioka Silk Mill, n.d.).

On the other hand, each municipal has one main local organization (see Table 2-17) active in the promotion of respective World Heritage component and its buffer zone. Tomioka Seishijō O Aisuru Kai was established as early as 1988, a year after the mill ceased operations by a few volunteers to hold study sessions and to learn about the values of the mill (Tomioka Seishijō, n.d.a). The organization expanded after the prefectural government announced the commencement of the Gunma World Heritage Project as residents were inspired to join the

¹² 「富岡製糸場世界遺産伝道師協会」 in Japanese.

movement and help push forward the project. As the main voluntary group, the organization coordinate local events such as sakura hanami in the site of the mill and intra-city events such as the Silk Country Gunma World Heritage Campaign held every year (Tomioka Seishijō, n.d.b; Gunma Prefecture Planning Department, 2017, 2018, 2019, 2020). Five to twenty volunteers would gather eight times a year to clean facilities in the mill. Since 2006, a charity golf competition was organized every year to collect funds for cleaning appliances and furniture to be donated to the mill.

Table 2-17: Local communities in each respective municipal established to promote the World Heritage components.

Location	Name of Organization	Date of Establishment	Aim of Establishment
Tomioka City	Tomioka Seishijō O Aisuru Kai 富岡製糸場を愛する会	1988	To hold study sessions to learn about the value of the Tomioka Silk Mill.
Isesaki City	Shimamura Kaiko No Furusato Kai 島村蚕のふるさと会	24 August 2014	To welcome visitors to the Tajima Yahei Old Residence and the surrounding sericulture farms, and to promote the revitalization and development of the region in cooperation with the government.
Fujioka City	Takayama-sha O Kangaeru Kai 高山社を考える会	2008 (Disbanded on 13 February 2015)	To promote the achievements of Chōgoro Takayama and promote activities to preserve the building for World Heritage registration.
	Takayama Kenshō Kai 高山社顕彰会	18 April 2015	To promote history and culture of Takayama-sha Sericulture School, to foster local love and develop the region.
Shimonita Town	Arafune Fūketsu Tomo No Kai 荒船風穴友の会	26 May 2014	To protect, utilize and promote Arafune Cold Storage to be inherited to future generations.

In Isesaki city, the Shimamura Kaiko No Furusato Kai was formed in 2014 by residents of the village as a group of volunteers to provide hospitality to visitors in promoting regional revitalization and development. Guided tours around sericulture farmhouses in the village (see Figure 2-12), coordination of events such as exhibitions and workshops (see Figure 2-13), setting up an information centre and rest stops in the village are accommodated by the Shimamura Kaiko No Furusato Kai. The volunteers are trained and equipped with knowledge to guide visitors while navigating through the village. The Tajima Yahei Sericulture Farm

Information Centre and Sakai Shimamura Hospitality Plaza (see Figure 2-14) are staffed by volunteers of the Shimamura Kaiko No Furusato Kai interactively providing information related to the farm and its buffer zone, selling local agricultural products, providing mulberry tea tasting sessions (Gunma Prefecture Planning Department, 2014, 2015, 2016, 2017, 2018, 2019).

In Fujioka city, the Takayama-sha O Kangaeru Kai was established in 2008 specifically for the preparation of registering Takayama-sha Sericulture School into the World Heritage list. The organization planned for preservation and promotion activities to preserve the building and its site and compiled the achievements of Chōgorō Takayama (Okaikonogakko Takayamasya, 2016). The organization was disbanded in 2015 after the successful inscription of the school into the World Heritage list. With about 250 individual members and 50 corporate members (Chōgorō ō-ra, 2015), the Takayama Kenshō Kai was formed the same year to continue the purpose of the previous organization and to promote the history and culture of the school and to foster love for the school. The organization is the main and only voluntary group to provide guided tours on site and disseminate information regarding the school.

The Arafune Fūketsu Tomo No Kai was founded in May 2014 right before the inscription of the cold storage in the World Heritage list (Shimonita Town, 2015). Aimed to protect, utilize and promote the cold storage for its inheritance to future generations, the organization is the main and only group to manage the site by providing guided tours and ensuring the safety of visitors on site. A Fūketsu Ichiba selling local produce and organizing weeding activities to protect local flora and fauna are part of the organization's activities (Arafune Fūketsu, 2018).



Figure 2-12: Volunteers in Sakai Shimamura.

(Left) Mr. Kurihara (in yellow), a sericulture farmhouse owner, volunteering member of Shimamura Kaiko No Furusato Kai and Gunma Shimamura Sanshu No Kai, introducing a sericulture farmhouse to a visitor. (Right) Isesaki city staff providing explanation on the special exhibition of Tajima Yahei Sericulture Farm *omoya*.

(Taken by author on May 19, 2019)



Figure 2-13: Activities in Sakai Shimamura.

(Left) Special exhibition of Tajima Yahei Sericulture Farm *omoya*. (Right) The author experiencing mud-wall painting. (Taken by author on May 19, 2019)



Figure 2-14: Scenes at Sakai Shimamura Hospitality Plaza in its previous location.

(Upper left) Plaza’s opening signage. (Upper right) The plaza staffed with volunteering members of Shimamura Kaiko No Furusato Kai. (Lower left) Local agricultural products on sale at the plaza. (Lower right) Complimentary mulberry tea tasting and information leaflet.

(Taken by author on May 19, 2019)

2.4 Chapter Conclusion

This chapter concludes the background of the four components of Tomioka Silk Mill and Related Sites, the event timeline from the announcement of the Gunma World Heritage Project until the successful inscription as a World Heritage Site, discussed the challenges façade by Isesaki city government and Sakai Shimamura as affected by the site's characteristics and current conditions after the nomination of the farm into the World Heritage system.

Cultural properties located in various municipals in the prefecture began receiving attention after the announcement of the Gunma World Heritage Project in 2003. Giving recognition to its historical and cultural values, municipal governments put effort in designating their cultural properties into the national system, allowing them a chance to be considered for nomination into the World Heritage Project. The original World Heritage story to link sericulture, silk and textiles-related cultural properties in the prefecture was revised during the selection period and the inclusion of the Former Tajima Yahei Residence in the Tentative List finalized the World Heritage story on the process of silk production in Japan. The inscription of the Gunma World Heritage Project was successful in 2014 as a group of four components under the title 'Tomioka Silk Mill and Related Sites'. Cultural properties unnominated from the Tentative List undeniably possess high historical and cultural values, thus the establishment of the Gunma Silk Heritage system to connect the group of silk-related cultural properties in the prefecture. Post inscription, the prefecture placed much emphasis on the networking of Gunma Silk Heritage in addition to the promotion of the four components of Tomioka Silk Mill and Related Sites.

The inclusion of Tajima Yahei Sericulture Farm into the Tentative List had resulted in three main challenges faced by Isesaki city government and Sakai Shimamura. Firstly, halting of original plans to inscribe the village as a Preservation District and shift focus onto the farm

to inscribed only the farm into the national system for the global system. Due to Sakai Shimamura's original plans to designated the group of sericulture farmhouses as a Preservation District for Groups of Traditional Buildings, the farm was not nominated into the Tentative List until the latter half of the selection period. Conceding to the prefecture government's plan to include the farm into the Tentative List, the sudden change of plans halted the on-going building survey of sericulture farmhouses and sericulture-related structure in the village as the city government prepared a basic preservation plan for the farm to be inscribed into the national system as a Historic Site in 2012 to fulfil the pre-requirements of World Heritage components to be protected by national laws. Secondly, the peri-urban countryside topography of Sakai Shimamura affecting the habitation and physical preservation of buildings as the village is facing aging and outward movement of population. Buildings in the village are left abandoned and are prone to the effects of natural hazards. However, inscription of the village as a buffer zone does not secure financial assistance from the global nor national system and senior residents and agriculture farmers lack funds to maintain these heritage buildings. Thirdly, the private ownership of cultural properties under various governing bodies affecting the ease of implementation of preservation measures. It is difficult for government-proposed measures to be directly implemented on privately-owned sericulture farmhouses in Isesaki city. Likewise, it is even more difficult for privately-owned sericulture farmhouses located in neighbouring cities in Saitama prefecture to propose and implement measures for the Gunma World Heritage component and its buffer zone due to the difference in awareness level. It is also believed that inscription of only the farm as a World Heritage component had also discouraged other sericulture farmhouse owners on the importance of preserving their heritage buildings and its cultural values.

From the analysis of local plans, it is understood that Sakai Shimamura was originally considered in local plans as a landscape area and Tajima Yahei Sericulture Farm was only

highlighted in plans after its inscription into the World Heritage system. While there is a specific measure on the preservation and utilization of World Heritage component proposed in the comprehensive plan and strategy for Tomioka city, Fujioka city and Shimonita town, the preservation and utilization of the farm was not proposed in the Second Isesaki City Comprehensive Plan but was included in another measure to be conserved and utilized for future succession with all other cultural properties in the city. In latest satisfaction surveys, results show that residents of all municipalities still have low awareness on the importance of preserving and utilizing the World Heritage components and local cultural properties as ratings of World Heritage component, cultural property and tourism related policies were below the average importance level but slightly above the average satisfaction level.

Today, almost a decade after the inscription of the farm as a World Heritage component, the buffer zone and the rest of the village is not legally protected by national laws as it has not been designated in the national system and cultural properties in the buffer zone does not receive active financial and maintenance support from governmental bodies. At the same time, building research is slow and residents' awareness is low. Especially for privately-owned cultural properties, it is even more important for residents to have equal understanding on the importance of preserving the shared heritage and inheriting it to future generations. In order to resolve the aforementioned issues, it is important to first re-evaluate the values of the village as a whole which will be done in Chapter 3 and suggest ways to resolve the issues in Chapter 4.

CHAPTER 3

VALUE OF CULTURAL SIGNIFICANCE OF SAKAI SHIMAMURA AS A WORLD HERITAGE SITE BUFFER ZONE

3.1 The Modern Sericulture Industry & Sericulture Villages in Japan

This sub-chapter will describe the development and decline of modern sericulture industry (1880-1980) in Japan to understand the backdrop of modern sericulture industry affecting the formation of sericulture villages in Japan. The description on basic forms and characteristics of sericulture farmhouses in Gunma and other eastern regions of Japan, and examples of sericulture villages which are preserved today will provide a basic understanding on the regional architecture styles of sericulture farmhouses in Japan.

3.1.1 Modern Sericulture in Japan

Modern sericulture in Japan had been blooming since the late 19th century and peaked in 1930. In the Meiji era, the nation worked to develop and modernize various industries under the slogans of promoting new industries, developing the country and strengthening the military force. Due to the improvement on the quality of mulberry leaves and orchards, silkworm eggs and sericulture techniques, the sericulture industry continued to undergo rapid growth even after World War II, as sericulture production was increased to maintain business. During this period, small and middle-scale sericulture villages expanded as mulberry farms were broaden and silkworm breeding scale was increased. In 1890, Nagano, Gunma, Fukushima, Saitama and Kanagawa (in order) were the top five prefectures which accounted for almost half of the nation's total production volume (Osako, 1994). Even during the peak of sericulture in 1930, Nagano and Gunma remained as the top two prefectures in production volume, including Aichi, Saitama and Gifu, these top five prefectures had accounted for 34% of the total production volume. While the distribution of sericulture villages was mostly concentrated in eastern regions in Japan, sericulture villages began spurring in western regions as sericulture was spread across the nation, dispersing the distribution of sericulture villages. By the time the

nation entered the Showa period, the sericulture industry had spread all over the nation and was even actively practiced in prefectures west of the Kinki region and Tohoku region.

However, in 1930, the Showa Depression was triggered by the effects of the Great Depression in the prices of cocoons in Japan, causing a 53% plummet in spring cocoon prices. The country's economic crisis heavily affected the sericulture and silk industry and the industry began to decline ever since. During that period, the Sino-Japanese War which escalated into the Pacific War had even more decline the sericulture and silk industry, heavily yielding the production of cocoons as a result of labour shortage during wartime and inadequate management of the local sericulture system. While anti-crisis laws such as the Silk Manufacturing Law (1932), Laws for Stabilizing Silk Prices (1932), Export Raw Silk Trading Law, and Cocoon Production Control Law (1936) was enforced one after the other, the export value of cotton products had already surpassed that of raw silk in 1933. Albeit the quagmire of the war and depression, Gunma and Nagano had remained as top prefectures in cocoon production. In 1945, the year World War II ended, Gunma, Nagano, Saitama and Gifu had remained on top of the list in the nation's cocoon production. As sericulture began to decline, sericulture villages in western regions began diminishing, concentrating the distribution of sericulture villages back to eastern regions.

As the nation converted from primary and secondary industries to the development of tertiary industries such as heavy chemical industry, electrical and electronics, high tech industry, the sericulture industry was even more receded due to the outward migration of population from rural areas, causing a shortage of labour force in the sericulture industry, forcing Japan into becoming an importer of raw silk and raw materials. While some modernization project aimed at the promotion of sericulture were proposed, along with the enforcement of the Agricultural Basic Law (1961) and rice cultivation conversion projects, mulberry farms were converted into other croplands. As sericulture continued to decline,

sericulture villages receded and became even more concentrated in eastern regions, such as Gunma, Fukushima, Saitama, Ibaraki and Nagano, reverting sericulture into a regional industry. An obvious rise was observed in the conversion of sericulture farmers into other businesses after 1964, almost driving into extinction of sericulture carried out by local sericulture farmers nearing the end of the 20th century.

3.1.2 Sericulture Farmhouses and Villages in Japan

Modern farmhouses in Japan are built in various forms throughout the country according to local climate, culture and industry. These farmhouses, especially sericulture farmhouses can be widely seen across areas in Chūbu, Kantō and parts of Tōhoku. The most notable factor of a sericulture farmhouse would be its roof. Farmers originally engaged in agriculture or forestry started to engage in sericulture in the 1600s and this side-line activity took place in the attic or mezzanine floor of their thatch roof farmhouses above the ground floor living space (Ono, 2010). As men of the household worked outdoors planting and harvesting crops while women of the household stayed indoors; sericulture was easily picked up by both men and women of the household as the activity was able to be carried out indoors. When the sericulture industry started to prosper, farmers needed a larger space for breeding and rearing silkworms and resulted to make use of the attic space under the roof. Through experimentation, roofs were specially renovated to the local climate and owner's preference with the purpose of ventilating and bringing daylight into the attic space where silkworms were bred. Therefore, roofs of sericulture farmhouses differ from one area to another. Distinguished sericulture farmhouse roof styles include the multi-storey farmhouses in Yamagata prefecture; *tsumakabuto-zukuri* thatch roof farmhouses spread across the outskirts of Tokyo city, Kanagawa prefecture and Yamanashi prefecture; *gasshō-zukuri* farmhouses in Gifu prefecture; and pushed-up elevated thatch roof farmhouses in Gunma prefecture.

Common characteristics of a modern sericulture farmhouse includes timber structure with *kiri-zuma* roof, tiled with metal sheet roofing which was believed to be originally plank roofing (Matsuura, 2006). These farmhouses usually sit with its ridge facing east-west. Structures are of two storeys with multi storey attics, the roof has short eaves with symmetrical front and back façades. In east Joshū and Azuma area, an approximately 0.91 metres veranda is extended out from the second storey. The most distinguished feature is the monitor roof for ventilation purposes. A row of sliding screen doors is equipped on south façade. Plan of the first floor is generally divided into four rooms or six rooms for larger farmhouses, second floor is left un-partitioned to be used for silkworm rearing.

The sericulture industry in Gunma prefecture developed around the end of 17th century and the innovation of silkworm breeding was considered to peak around mid-18th century with the introduction of new hybrids of Mulberry leaves. Generally known as *kaiko-ya*, these sericulture farmhouses in Gunma are commonly of two storey, tile-roofed with short eaves, equipped with veranda and *yagura* on the centre of the roof for ventilation purposes. The *akagi-gata-minka* is a typical sericulture farmhouse in Joshū which is of one storey thatch roof, a small part of the roof is cut off to allow daylight into the attic where silkworm rearing activity had taken place. *Akagi-gata-minka* are found to be built between mid Edo period (18th century) to late Meiji period (early 20th century) while *kaiko-ya* are from late Edo period (19th century) to 1965. Widely seen across Gunma prefecture, these farmhouses are also commonly seen in northern Saitama prefecture, western Tochigi prefecture and eastern Nagano prefecture. The *kabuto-zukuri* is a large-scale farmhouse with a “samurai helmet style” roof. Front or side façade of the roof is shorter to allow daylight into second and third floor of the farmhouse. There are also cases where sericulture activity had taken place in *ishi-oki-yane-minka*, a type of farmhouse where stones are placed on plank roofs to prevent it from blown off by strong winds (Nippon Silk Center, n.d.).

Single storey thatch roof farmhouses are widely seen in areas such as Yamada-gun county and Sawa-gun county. In Yamada-gun county, farmers practiced *ondan-iku* technique in their private residence instead of a silkworm rearing space by installing long rows of ventilators. Two storey plank roof farmhouses can be largely found across Kita-kanra-gun county, Agatsuma-gun county, Ōra-gun county and Nishi-gunma-gun county. Occasionally, two storey thatch roof farmhouses can be seen in Kita-kanra-gun county and Agatsuma-gun county, while two storey tile roof farmhouses can be seen across Ōra-gun county and Nishi-gunma-gun county. Some farmhouses are equipped with silkworm rearing spaces while others had spaces used as both a dwelling and a silkworm rearing space. Especially in Kita-kanra-gun county, ventilators and sliding screen doors were installed due to the trending *ondan-secchu-iku* technique in 1884 (Isesaki City Board of Education, 2012a). Two storey thatch roof farmhouses can be found in Minami-seta-gun county.

In Sakai Shimamura area, it is a common sight of two storey *kiri-zuma* style tile roof farmhouses with ventilation systems known as *yagura*. The Tajima Yahei Sericulture Farm is assumed to be the influence of this architecture style in the area. Many sericulture farmhouses were originally built with thatch roof then renovated into timber, tile and metal while the farm was originally built with a tile roof. Due to the often flooding of Tone-gawa River, gravel land around the area is unsuitable for cultivating crops but great for planting mulberry leaves as it helped sped up the growth of plants and silkworms, making it one of the best areas for sericulture. Built in 1862, the two-storey main residence of the farm was built with a full *yagura* and a tile roof, walls of front and back façade are equipped with sliding screen doors for proper ventilation of the upper floor which is used as a silkworm rearing space. A *dashi-geta-zukuri* style overhang with straw curtains was usually designed on the south façade to shade the upper floor from direct sunlight. With the *seiryō-iku* sericulture technique became widely accepted

by sericulture farmers, farmhouses that adopted the technique were renovated into two storeys with tile roof and *yagura*, popularizing two storey peasant houses (Ishii, 2010).

As new silkworm rearing techniques develop over time, silkworm rearing spaces were modified to accommodate the rearing technique practiced during that era. Influenced by the farm, Takayama-sha Sericulture School in Fujioka city was built with three individual *yagura* and is a model farmhouse for the *seion-iku* sericulture technique invented by Takayama Chōgoro. The technique was widely spread across the nation and farmhouses evolved. Depending on the scale of the farmhouses, three or four *yagura* was installed on farmhouses which adopted the *seion-iku* technique. Takayama-sha's *seion-iku* technique and Tajima's sericulture farmhouse design both share a common emphasis on the importance of ventilation, which both became the standard sericulture farmhouse design and sericulture technique widely practiced across the nation.

Today, the sight of a sericulture village is not rare but uncommon in Japan. Although sericulture farmhouses can still be often seen in rural areas of Japan, these sericulture farmhouses are usually stand-alone buildings in a group of modern residential buildings. In some cases, these sericulture villages still have their farmhouses and landscape perfectly preserved to exhibit the scenery of the golden years of sericulture back in the days. Currently there are five well-preserved sericulture villages designated in the national preservation system as Important Preservation District for Group of Traditional Buildings (see Table 3-1), mostly located in Chūbu or central region of Japan.

'Preservation Districts for Groups of Traditional Buildings' is a system introduced to protect historic cities, towns and villages in the country which includes castle towns, post towns, and towns built around shrines and temples after the amendment to the Law for the Protection of Cultural Properties in 1975 (Agency of Cultural Affairs, 2015). This allows municipalities

to designate districts or areas which fulfilled one of the criteria as Preservation Districts for Groups of Traditional Buildings and municipalities are required to develop an extensive preservation plan for the designation of the districts. In accordance to the Ministry of Education Notification No.157, the classification standard for important preservation districts are (1) Preservation districts for groups of historic buildings whose designs are of especially high value, (2) Preservation districts for groups of historic buildings and subdivision, whose original state is well preserved, and (3) Preservation districts for groups of historic buildings and the environs which noticeably show local characteristics. Outstanding and significant districts are classified as ‘Important Preservation Districts for Groups of Traditional Buildings’ by the national government. As of August 2021, 126 important districts (total area of approximately 4,023,9 hectares) located in 104 municipalities are classified.

Amongst the five Important Preservation Districts for Groups of Traditional Buildings, four districts are inscribed under the third criteria of possessing noticeable local characteristics. These five villages and its characteristics are analysed as case studies to understand the criteria of the system and potential of Sakai Shimamura to be inscribed into the system.

Table 3-1: Sericulture-related Important Preservation Districts for Groups of Traditional Buildings. (Extracted from Agency for Cultural Affairs website)

Prefecture	District Name	Type	Date of Selection	Selection Criteria	Area (ha)
Nagano	Unnojuku, Tomi City	Post town & sericulture community	28 April 1987	(1)	13.2
Gunma	Rokugo Akaiwa, Nakanojo Town	Mountain village & sericulture community	7 May 2006	(3)	63.0
Yamanashi	Enzan-Shimoodawara-Kamijo, Koshu City	Mountain village & sericulture community	7 Aug 2015	(3)	15.1
Hyogo	Osugi Oyamachi, Yabu City	Mountain village & sericulture community	31 July 2017	(3)	5.8
Ishikawa	Shiramine, Hakusan City	Mountain village & sericulture community	7 Sept 2012	(3)	10.7

Tōmi city Unno-juku in Nagano prefecture

Unno-juku in Nagano prefecture was a post town-turned-sericulture town established in 1625 as a post station on the Hokkoku Kaido Highway. The Hokkoku Kaido was an important highway that connected the Nakasendo and the Hokuriku Expressway where minerals from gold mines on Sado Island were transported and Hokuriku feudal lords had visited while commuting to Edo. Fifty-nine Tenma Yashiki and twenty-three inns were relocated from the nearby post town of Tanaka-juku as it was damaged the 1742 flood, increasing the livelihood of Unno-juku. In the Meiji period, Unno-juku lost its function as a post town and was transformed into a sericulture village where larger rooms of the inns were reused as sericulture rooms for silkworm breeding and roof of the inns reconstructed with monitor roofs to enhance sericulture and silkworm breeding performances. Traditional houses in the Unno-juku have been preserved to this day and the village was selected as one of Japan's 100 Best Roads¹³ in 1986 and as an Important Preservation District for Groups of Traditional Buildings in 1987.

The townscape of Unno-juku is a row of inns built in the Edo period, traditional houses with thatched roofs and robust sericulture architecture buildings built in the Meiji period. Consisting of buildings built from Edo to Showa periods, each building maintains the traditional forms and characteristics of each period. The town is now a quiet historic town with rows of buildings with lattice doors and water irrigation flowing through the center of the road. *Hon udatsu*¹⁴ from the Edo period and *sode udatsu*¹⁵ from the Meiji period were building

¹³ 「日本の道百選」 in Japanese. 100 roads selected by the Ministry of Construction in 1986 and 1987. National roads with good views, mountain roads with steep slopes, roads lines with trees were part of the selection which are great for sightseeing. Criteria of selection are historicity and affinity, aesthetics and mobility.

¹⁴ 「本うだつ」 in Japanese. Small pillar or firewalls attached to the roof of a Japanese house.

¹⁵ 「袖うだつ」 in Japanese. Small pillar or firewalls attached on the sides of the second floor of a Japanese house.

features of the wealthy. *Unno gōshi*¹⁶ lattice from the Edo period were arranged with a unique pattern on buildings. Significant features of inns built in the Edo period were in *dashigeta* style and sericulture architecture buildings built in the Meiji period were with *kinuki*¹⁷ roof monitors. The water irrigation system is known as *omote no gawa*¹⁸ or ‘front river’ was used as a washing area remained unchanged since the Edo period. The river is also believed to have been used by travellers to wash their feet and water given to horses. The 13.2-hectare Important Preservation District for Groups of Traditional Buildings is designated with 110 traditional buildings made up of inns, sericulture architecture buildings, earthen storehouses and a 700-year-old zelkova tree sitting in the centre of the Shiratori Shrine which houses the birth god of Unno-juku.

Preservation measures were first planned out in 1978 and the review of the measures were conducted in 2009 (Tōmi City, 2022). Building repairs and landscaping projects such as setting up information centres, accommodations and cafés are progressing and townscapes are maintained to accommodate the increasing number of visitors. As of May 2022, 231 buildings in the area were repaired and maintained as part of preservation and revitalization measures. As part of efforts by residents, the previous non-governmental preservation society which conducted preservation projects was reformed and the Unno-juku Trust was established in 2018. Moving towards the 400th anniversary of the establishment of the Unno-juku in 2025, the preservation society and local residents’ association are celebrating the anniversary in advance during the Doll Festival in March and Summer Festival in July and August.

Nakanojō-machi Kuni Akaiwa in Gunma prefecture

Akaiwa is a traditional country town sericulture village located in the southern end of Kuni area in Nakanojō town of Gunma prefecture. The village is built on a gentle slope land

¹⁶ 「海野格子」 in Japanese. A type of lattice timber fence significant to the Unno-juku.

¹⁷ 「気抜き」 in Japanese. Ventilation system in the shape of a roof monitor.

¹⁸ 「表の川」 in Japanese.

and building premises are built flat on top of stone walls equipped with an *omoya* and other buildings such as a *kura* and a *koya*. Most buildings in the village are two-storey gabled-roof sericulture farmhouses with the characteristic *debari* (projecting beams) on the front façade (Nakanojō-machi, 2022). The village has farmlands built on stone walls spread out on hills, small barns and religious facilities built along a dense mountainous forest (see Figure 3-1). Akaiwa preservation area is part of the Kakaa Tenka silk heritage and was certified as a Japan Heritage site as a part of the Kakaa Tenka – The Silk Story of Gunma in 2015. The 63-hectare preservation area was designated as an Important Preservation District for Groups of Traditional Buildings in 2005 and the networking of Gunma prefecture’s silk industry through Kakaa is one of the main strategies to revitalize the area.

Multiple landscaping projects were planned and implemented since 2007 which includes maintenance of buildings such as former sericulture farmhouses and religious facilities and installing guidance signboard to revitalize the townscape and show the radiant past of the village. The town subsidies for proper maintenance of buildings, improve historical scenes of the village and remove utility poles to revert (see Figure 3-2) and preserve the village in its best state. Another strategy to revitalize the area is encouraging a strong bond between residents for community development. To combat weakening bonds between residents due to the diversification of lifestyles and the aging of the population, workshops and subcommittees related to food, silkworms, festivals, and guides were formed by residents to strengthen relations while providing hospitality to visitors. In particular, the Fureai Thanksgiving Festival held in September every year attracts many visitors and is enjoyed by many residents with cooperation of people from all walks of life.



Figure 3-1: Important Preservation District for Groups of Traditional Buildings in Akaiwa.

(Left) Townscape from opposite the river. (Right) Central street of the village.

(Source: Gunma prefecture)



Figure 3-2: Buildings in the area preserved and maintained in the landscape project.

(Left) A two-storey former sericulture farmhouses. (Right) Three-storey former sericulture farmhouse, Old Yumoto Residence. (Taken by author on 19 September 2020)

Koshū city Shioyama Shimo-odawara Kamijō in Yamanashi prefecture

The Important Preservation District for Groups of Traditional Buildings of Kamijō is a 15.1 hectares sericulture village located in the mountainous area in eastern Kofu basin of Yamanashi prefecture (Koshū City, 2020). Built between mid-Edo period and Show period, sericulture farmhouses in Kamijō sit on a gentle plateau that protrudes like a tongue and harmoniously fit into its unique landscape surrounded by nature. The village, originally called

Shimo-odawara village was an independent area as a territory under the shogunate for most of the Edo period until early Meiji period. Most farmhouses were built with thatched gable roofs which are currently covered with tin sheets. A part of the roof was raised, giving out an impression of a rich merchant's house as mezzanine floors were used as sericulture spaces. Separate sericulture buildings were also built to increase production.

Designated in 2015, proper signages such as information boards and tour route guides were set up as one of the measures of preservation. Foundation of buildings in the area were strengthened for disaster prevention against landslides and earthquakes in addition to fire prevention measures in 2016. In accordance to the Historical Town Development Act, a maintenance and improvement plan to improve convenience of visitors and preserve townscapes and landscapes was planned out to be conducted throughout 2017 to 2026. The area received much attention from mass media and an increase in visitors after its designation and the city's Board of Education holds guided tours every other month and events in collaboration with local organizations. Events, trainings, lectures and progress of conservation of the area are documented monthly in the Kamijo Report newsletter since June 2009. Based on the Historical Scenic Maintenance and Improvement Plan, a landscape formation collaborative project was conducted in 2017 between the city and volunteering locals to repaint white guardrails to Koshu Brown, a landscape-friendly colour. Students of the local Kamikin Primary School are given the 'Kamijō Area Historical Exploration' summer vacation exercise every year to encourage students to research into local history and culture to deepen their understanding of the area.

As part of the efforts conducted by residents, the Yamanashi Ienami Hozon Kai was established in June 2006 to implement preservation and landscape protection projects. Repairment works on the Kannon-dō Shrine and Koshu Folk House Information Centre were conducted in 2009. The information centre also known as 'Moshimoshi House' is operating as

a village experience interactive facility and plan events to contribute to regional development. The Kamijō O Kassei-ka Suru Kai was established in March 2017 to gather local volunteers to revitalize Kamijō area in the midst of population decline, declining birth rate and aging population. Activities of the non-governmental organization include volunteering in the repainting of guardrails, relocating the garbage station in front of the Kannon-dō Shrine, beautifying landscapes by maintaining flowerbeds and sunflower fields and organizing a harvest festival opened to the general public.

Yabu City Ōya-machi Ōsugi in Hyogo prefecture

Ōsugi, located in the mountainous area of Ōya river basin was one of the best sericulture areas in the Tajima area, north of Hyogo prefecture. Sericulture peaked from late Meiji period to early Showa period and the village housed many three-storey sericulture farmhouses rarely seen across the nation. Large-scale two-storey and three-storey sericulture farmhouses and earthen storehouses in Ōsugi built between 1850s to 1950s can be seen scattered around the village, forming a scenic village landscape. Located in the northern part of the prefecture, Ōsugi is surrounded by mountains of Mt. Hyōno¹⁹ and sericulture farmhouses were built with mostly thick earthen walls on the second and third floor to withstand the cold winter seasons. Sericulture farmhouses in Ōsugi are constructed with gable roofs, a roof ventilation system, thick earthen walls and long vertical sweeping windows (Yabu City, 2022). The 5.8-hectare preservation area has twenty-seven sericulture farmhouses of which twelve are three-storey farmhouses. The area was first designated in 2001 as a Hyogo Prefectural Landscape Formation Area which covers 11.1 hectares including the Satoyama area and 5.8 hectares of main

¹⁹ 「氷ノ山」 in Japanese. Highest peak in Hyōgo prefecture located on the border of Hyōgo prefecture and Tottori prefecture.

preservation area in the centre. Outside the inscribed district, 495 three-storey sericulture farmhouses were found remaining in Yabu city.

Five sericulture farmhouses in the preservation area are currently used as lodging facilities, galleries and exhibition facilities. Refurbished from an old three-storey sericulture farmhouse, the Furusato Kōryū No Ie Irori was opened in 1992 as a simple lodging facility and is the first three-storey sericulture farmhouse planned for utilization in the Ōsugi area. In 2004, an old Japanese-style house was refurbished and currently used as a tourism and cultural exchange facility which also houses excellent works of wood sculptures from the Wood Sculpture Folk Art Ōya exhibition. The Bunsan Galleria Yōsan Nōka is another three-storey sericulture farmhouse was refurbished as a gallery (see Figure 3-3) to display art works such as paintings, sculptures and ceramics in 2008. Nipponia Ōya Ōsugi is the second lodging facility (see Figure 3-4) opened in 2015 by refurbishing a three-storey sericulture farmhouse built more than 100 years ago and is currently managed by Nipponia Hotels. Efforts to preserve traditional activities were also implemented by local preservation organizations. Designated as a Prefectural Important Intangible Folk Cultural Asset, the Ōsugi Zanzago is a ritualistic dance dedicated yearly to the Ninomiya Shrine on August 16th. The ‘demon dance’ is performed by locals young and old and spectated by an overwhelming party of visitors.



Figure 3-3: Scenes of Bunsan Galleria Yōsan Nōka.

(Left) Interior. Display under glass flooring.

(Right) Interior. Connecting *kura* utilized as item display.

(Taken by author on 30 July 2022)



Figure 3-4: Scenes of Nipponia Ōya Ōsugi.

(Upper left) Exterior. (Upper right) Interior. Patio.

(Lower left) Interior. Japanese style tatami room. (Lower right) Interior. Dining area.

(Taken by author on 30 July 2022)

Shirayama city Shiramine in Ishikawa prefecture

Shiramine sericulture village is located in the south-eastern part of Ishikawa prefecture, one of Japan's heaviest snowfall areas and receiving water from Mt. Hakusan through the Tadori River. Temperature difference is extreme in Shiramine and snowfall in winter would exceed 2 metres. Originally called Ushikubi in the 16th century, the village was involved in charcoal-making, slash-and-burn farming and sericulture, where sericulture is thought to go back at least to mid-16th century. The 10.7-hectare preservation area has a distinctive streetscape of sericulture farmhouses lining up facing the street with temples and shrines

located in the centre of the area (Shirayama City, 2022). Two-storey and three-storey sericulture farmhouses were built with gable roofs, columns erected with a spacing of 0.5 ken forming long vertical windows, and *sed* openings used as loading part for firewood. Farmhouses were permanently installed with a large ladder extending up to the roof for snow removal during winter. Walls of buildings in the underground floor uses timber branches 2 to 3 centimetres in diameter known as *naru* to thicken the walls. Architectural features of sericulture farmhouses were built to correspond to the local climate.

Building surveys were conducted between 2007 and 2009 and the area was marked as a key townscape area in accordance to the City Landscape Ordinance in 2010. After the designation as an Important Preservation District for Groups of Traditional Buildings in 2012, landscaping projects were commenced. As part of the 2020 Urban Renewal Development Plan, parking lots and convenience facilities were built and utility poles were removed. As one of the areas with the heaviest snowfall in the prefecture, the area developed unique dialects, customs, food culture, folk performing arts, famous hot springs and abundance of nature which attracted an increasing of visitors from other prefectures. The Shiramine University is a community college set up by young locals for young locals in 2015 to learn about the region and develop a community to conduct revitalization activities under the Shiramine Traditional Buildings Preservation Society. Multiple traditional buildings scheduled for demolition were refurbished and utilized as cafes, restaurants and residences as a measure to revitalize the region.

Collaboration between local organizations and local universities to promote eco-tourism is also one of the measures for community development and regional revitalization. Utilizing traditional buildings in the area, the Geoparks Research Centre was established by the Kanazawa University Organization for Global Affairs SDGs Biosphere Reserves and the Hokuriku Satellite Base established by the University of Tokyo Collaborative Research Organization for Future Regional Society in 2019. The local Sumo event was designated as the

city's Intangible Folk Cultural Property the same year. Traditional buildings were also refurbished and utilized as a residence and a restaurant. The Former Yamagishi Residence was first designated as the city's Tangible Folk Cultural Property in 2019 and later designated as a National Important Cultural Property in 2020.

From the above, it is evident that the architecture style of sericulture farmhouses is highly affected by its regional characteristics such as local climate, culture and industry. Each sericulture village designated as Important Preservation District for Groups of Traditional Buildings discussed above has significant regional architecture and landscape features with high historical and cultural values. Local communities with considerable awareness had worked together with its local government to put in efforts to preserve the respective history and culture, and to promote the site in hopes of passing down this heritage to future generations.

3.2 Sakai Shimamura as a Sericulture Village

To understand the background of Sakai Shimamura and its cultural value as a sericulture village, this sub-chapter will discuss the regional landscape features of Sakai Shimamura, its significance as a sericulture village, building features of sericulture farmhouses in each areas of Sakai Shimamura in terms of spatial and structural innovations, and the relationship between Former Tajima Yahei Residence and surrounding sericulture farmhouses. The current preservation condition of the farm and its buffer zone will also be discussed.

3.2.1 Regional Features of Sakai Shimamura

Sericulture prospered in Sakai Shimamura in the late 18th century, taking advantage of geographical characteristics of the site. Sakai Shimamura is located on the floodplains of

midstream of Tone River and people have been engaged in water transportation and upland cropping. While croplands are damaged by flood every year and sandy land had limited the types of crops, this is an advantage in Mulberry cultivation where the breeding of Uzi flies, of which their eggs are laid on Mulberry leaves and its larvae is parasitic in silkworms, can be suppressed by flood. The distribution of silkworm eggs and cocoon through water transport had help progressed the local sericulture industry. Sakai Shimamura then grew into the core region for sericulture by late 19th century as local farmers incorporated techniques from advanced areas in Fukushima prefecture. Attic spaces of farmhouses were originally used to carry out sericulture activities and later modified into a proper second floor. As sericulture further prospered, some farmhouses would add a third floor to accommodate to the industry. Sericulture techniques were also improved and popularized in various regions in the nation. A diversity of techniques was practiced in Sakai Shimamura as local innovative farmers experimented and improved these techniques and had it popularized. Local sericulture farmers would reconstruct their farmhouses to improve the efficiency of the technique practiced at that time. The characteristic designs of former sericulture farmhouses which remained in the village is proof that a diverse of sericulture techniques had been practiced.

There are several significant features which makes the village prominent against its surroundings (see Figure 3-5 & 3-6). The first and most significant feature is nonetheless the former sericulture farmhouses remaining in the village. These sericulture farmhouses are constructed on stone foundations which make up one of the significant features of the village. Cobblestones were cut and stacked three-tiers to form a 1 metre tall stone foundation where the sericulture farmhouses and other sericulture-related buildings sit on. The buildings were lifted as a measure to combat yearly floods of Tone-gawa river which brought both disadvantages and advantages in terms of flood damage but also soil suitable for the growth of high-quality mulberry leaves. Fifty amongst the seventy-two existing sericulture farmhouses

are found to be built on stone foundations (Waku et al., 2012; Kikuchi et al., 2011). As opposed to the use of walls, sliding doors were widely installed at the lower floors of the *omoya* as they are removable during the flood to reduce flood damage to the interior. Low stone walls approximately 0.9 metre in height are also arranged surrounding the perimeter of the site and act as the first level of defence against floods.

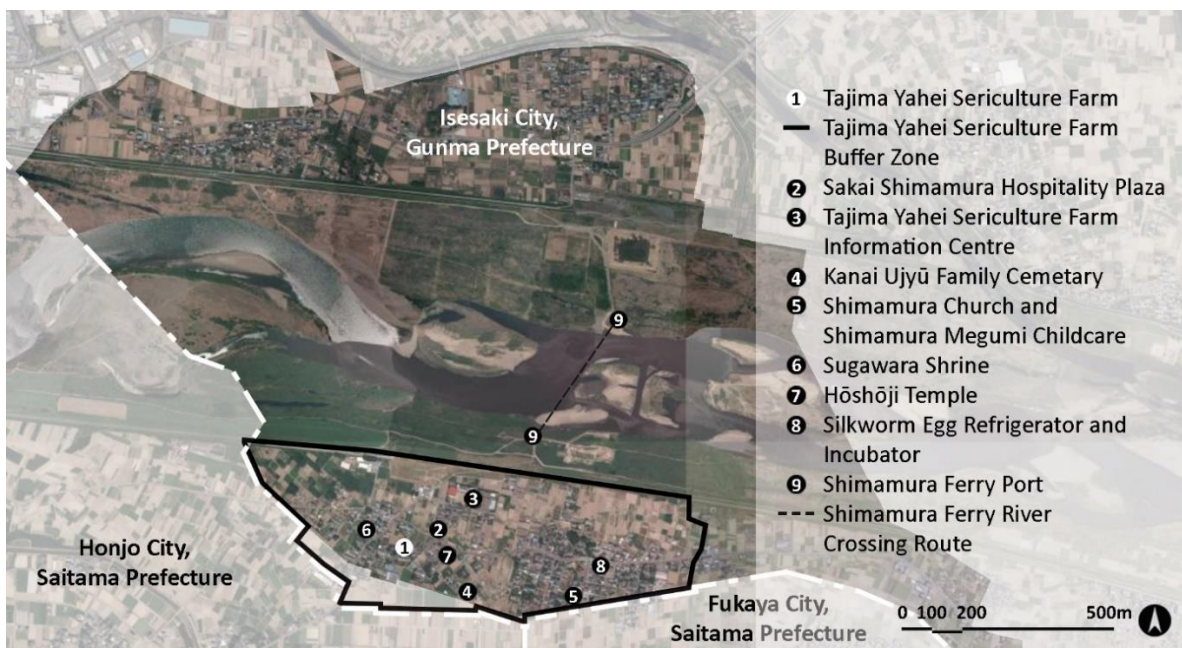


Figure 3-5: Sakai Shimamura’s regional landscape feature.

(Map source: Google Map. Edited by author.)

Most sericulture farmhouses are also surrounded by *kashigune* along the low stone walls which defines the perimeter of the site. These L-shaped tall fencing trees on the southern bank of the Tone-gawa river may span up to 250 metres in length and range from 1.2 metres to 2 metres in height, *kashigune* at the maegawara area at the northern bank of the river is found to span 250 metres in length and more than 6 metres in height (Tajima, 1872). The fencing trees are arranged to the west and north and are great against strong north winds and the western

sun. This was believed to be formed during the mid-Meiji period when the *secchū-iku* technique was widely practiced (Waku et al., 2012). In his first sericulture guidebook (Tajima, 1872), Yahei Tajima mentioned that the *seiryō-iku* technique requires the supply of unobstructed wind by having low garden trees. The reason for this was because sericulture farmhouses were originally carried out in one storey farmhouses. As sericulture farmhouses were reconstructed with a sericulture space on the second floor, the need for tall fencing trees rose as the need to shade the *omoya* from strong winds and sun. The farm today can be seen shaded by a long row of *kashigune* on the back and a couple of tall trees on its west façade.

Sericulture-related structures such as *kuwaba* (mulberry leave storage) and water well are also commonly seen in the site of sericulture farmhouses. In some cases, buildings specifically used for sericulture and personal silkworm egg refrigerators are available and located in the site. Besides sericulture farmhouses, a large silkworm egg refrigerator and incubator remains in the village. The Hōshōji temple assumed to be built in 1593 and the Shimamura Church built in 1897 are a few of the religious buildings remaining in the village. Stone monuments which dates back to Edo period are also seen remaining in the site. The commemorative stone plaque, stone pagoda, shrine torii and others are part of the stone structures which tells not only the story of sericulture industry in the village, it also tells the folklore and beliefs of the people of Sakai Shimamura. The tombstone of the late Ujyū Kanai, a famous painter in the Edo period is also designated as a Historic Site by the Gunma prefecture. The current riverbank was constructed in the Taisho period due to severe aftermath of a flood in 1910. Spanning 900 metres in width and 5 kilometres in length, the riverbank as seen today has helped to prevent the flood of the river. As one of the main means of transportation back in the days, the river crossing of Sakai Shimamura ferries was revitalized in 1996 and continued as a yearly event to commemorate and promote this local history.

Most sericulture villages of Important Preservation District for Groups of Traditional Buildings in Japan were designated under the criteria (3) Preservation districts for groups of historic buildings and the environs which noticeably show local characteristics (see Table 3-1). Similarly, Sakai Shimamura has also remained its group of sericulture farmhouses and significant regional landscapes from the olden days. Sakai Shimamura now portrays a village skyscape of sericulture farmhouses with various roof ventilation systems telling a story of the past of innovative sericulture farmers and the diverse sericulture techniques practiced, the ingenious design of perimeter stone walls, detachable doors and riverbank as flood prevention mechanisms (see Figure 3-7) against the yearly floods, the eye-pleasing scenery of tall fencing trees to control indoor conditions of sericulture spaces, and historically and culturally-rich building structures, stone monuments and croplands are significant features of Sakai Shimamura which should be preserved at their best.

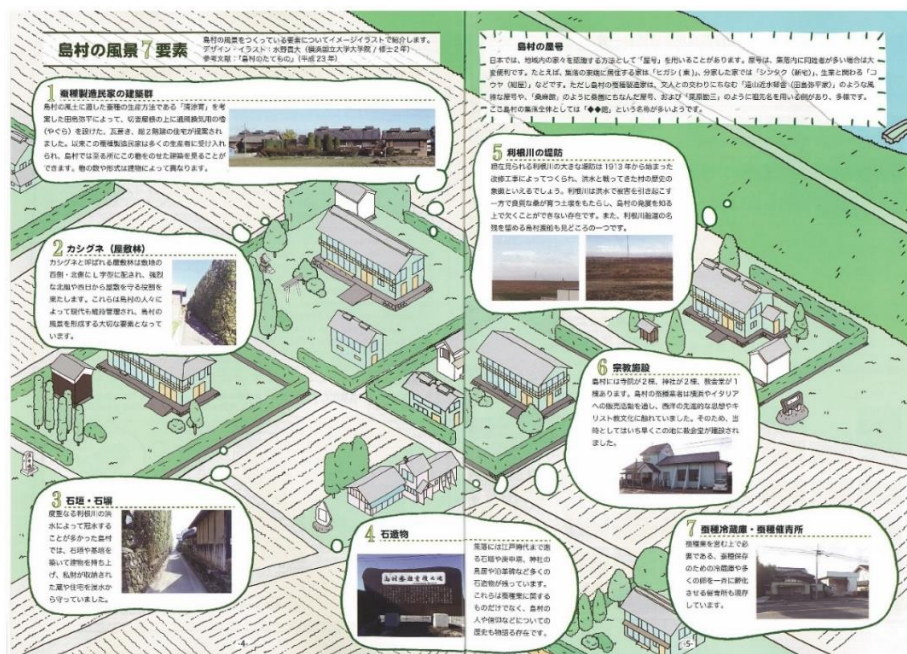


Figure 3-6: Seven elements of Sakai Shimamura's landscape drawn by Takahiro Mizuno as part of student's creative proposal.

(Source: Shimamura (Isesaki-shi) no sanshu seizo minka kenchikugun, 2016)

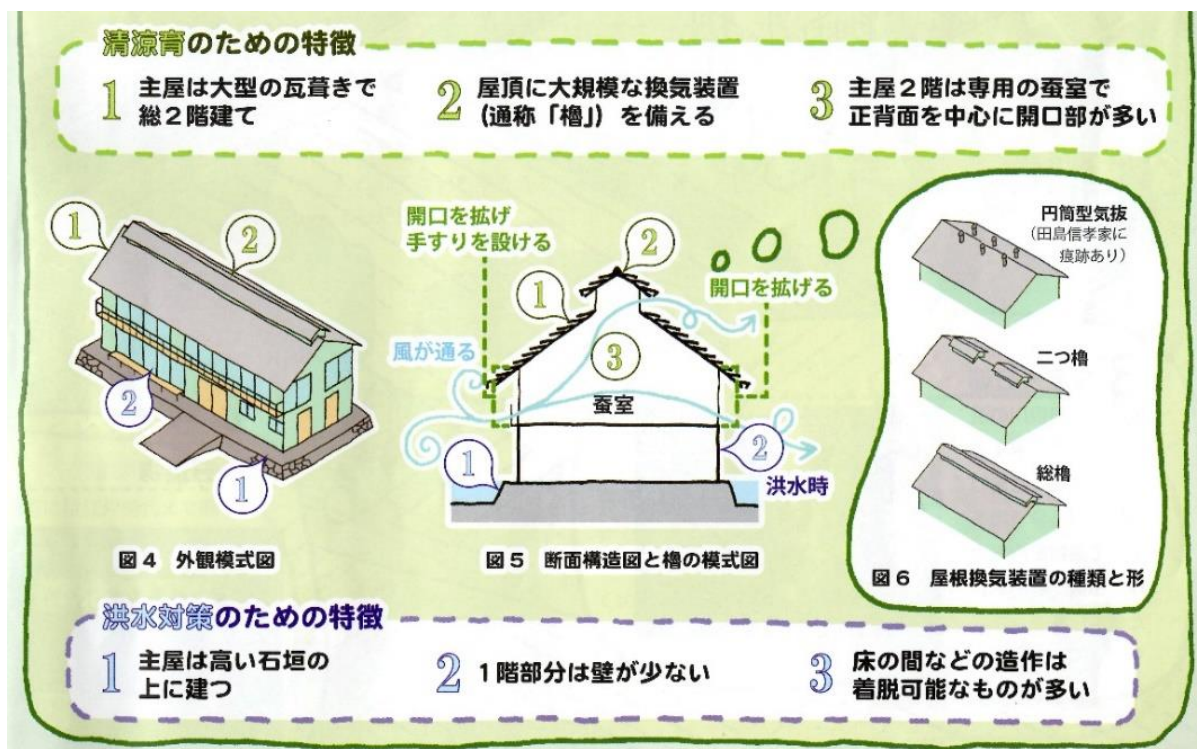


Figure 3-7: Characteristics of sericulture farmhouses in Sakai Shimamura and water prevention methods drawn by Takahiro Mizuno as part of student's creative proposal.

(Source: Shimamura (Isesaki-shi) no sanshu seizo minka kenchikugun, 2016)

3.2.2 Spatial and Structural Innovation of Former Tajima Yahei Residence

The most significant sericulture farmhouses in Sakai Shimamura is no other than the Former Tajima Yahei Residence. The Former Tajima Yahei Residence *omoya* as seen today was constructed in 1863 after Yahei Tajima's successful attempt of a sericulture space on a storehouse and a sericulture building. The *omoya* consists of two-storeys and a tile roof with *sō-yagura* roof ventilation system. Attached to the *omoya* is a tatami room (*shin-zashiki*) and strongroom (*bunko-gura*). Sericulture-related buildings such as the *bessō*, a large mulberry barn (*kuwa-ba*), silkworm egg storehouse (*tane-gura*), sericulture equipment storehouse (*sangu-okiba*), roofed water well (*ito-jōya*), a local deity shrine (*uji-gami-sama*) and three gates

(*omote-mon*, *higashi-mon*, *ura-mon*) are located south, east and north parameter of the site. Other structures such as an outdoor toilet, cow-chicken barn (*ushi-niwatori-koya*), pig shed (*buta-koya*), an outdoor refrigerator (*reizōko*) are built in the site. Multiple important sericulture-related buildings such as the *kōgetsu-rō* (built in 1858) and *shin-sanshitsu* (built in 1875) were demolished as sericulture in Sakai Shimamura declined. Both buildings were built to specifically carry out sericulture activities on the lower and upper floors.

As a strong advocator for the *seiryō-iku* sericulture technique and after successful attempts on two separate buildings, Tajima believed that sericulture should be carried out in an unpartitioned space on the second storey of a farmhouse with openings on all four façades under a tile roof with a monitor on top for ventilation purposes (Tajima, 1879). A common knowledge regarding sericulture farmhouses is that sericulture can be carried out most effectively under a thatch roof, second by a plank roof, explained by Yahei in a sericulture guidance book. While tile roof is fire resistant as compared to thatch and plank, heat accumulating under the tile roof space is considered unsuitable for sericulture. However, Yahei had desired to build the *omoya* with a tile roof for fire prevention purposes as his farmhouse had experienced fire twice. Also, to fulfil the social desire of using high-quality tile roof as wealthy farmers do. As a result, Yahei built a two-storey storage in 1856 and used the second floor as a sericulture space. Sericulture in the first year was not successful and Yahei had an epiphany that interior of the sericulture space should be kept as close as possible to natural climate. In the following year, two monitors were added to the roof and he had produced good-quality cocoon due to increased ventilation efficiency. In 1858, openings were expanded and windows installed on all four sides, further success was achieved. Based on this experience, Yahei in his *seiryō-iku* theory, believes that to nurture healthy silkworms and high-quality cocoons, it is vital to consider the ventilation of sericulture spaces through a roof ventilation system and openings on four sides.

The sericulture space in the *omoya* is now a large unpartitioned room which spans 25.4 metres by 9.4 metres with sliding windows installed on the front, back and east façades. A 1.9 metres wide monitor with windows on both sides was constructed along the ridge as a roof ventilation system. Described as *mado* (window) or *nukimado* (window vent) in Tajima's book, the roof ventilation system is now commonly referred to as *sō-yagura* (combined monitor). The first modification of the *omoya* is believed to be the addition of a roofed corridor on the east façade connecting the second floors of the *omoya* and the *shin-sanshitsu* (Ono et al., 2016). On the front façade, original windows were modified into full height windows with *ranma* (transom windows) and a narrow balcony with short handrails were added (see Figure 3-8). A 0.5 *ken* and 1 *ken* opening near the west façade is expanded into a 1.5 *ken* wide opening²⁰. Modifications on the front façade was implemented for the convenience of transporting large sericulture tools through the expanded opening and drying of straw mats used in sericulture on the balcony. The height of rear windows was also increased with *ranma* installed above to increase the efficiency of cross ventilation. On the front and back façades, lavishly-patterned decorative rafters were substituted with simple-patterned decorative rafters to fit the *ranma* above the windows. On the east façade, the threshold was lowered and sill height was increased to expand the openings. West façade windows were assumed to be left disused around 1925 when the *shin-zashiki* was built attached to the west side of the *omoya*. No *ranma* was installed in the east and west façades. Bracings on walls and the roof truss is believed to be installed after the Kantō earthquake in 1923. A microscope room was constructed on the rear east side of the sericulture space. Microscopic examinations are believed to have been performed since the late 1870s but the construction of the microscope room was uncertain. At one point, the sericulture space was equally partitioned into six rooms with low ceilings and a 1 *ken* and 0.5

²⁰ *Ken* is a traditional Japanese measurement system used for column spacing. In the case of the *omoya* of the Tajima Yahei Sericulture Farm, 1 *ken* is equivalent to 1.879 metres.

ken passageway at the east and back façades respectively. It is assumed that the partition was Shōji sliding doors and *ranma* Shōji doors as observed from the frame and columns which remained until today. Weatherstripping sealants found on the ceiling and *ranma* partition proves that at a certain period, the *secchū-iku* sericulture technique was carried out in these rooms. Tajima's efforts to modify the *omoya* proves that he has been improvising his sericulture technique and environment in hopes to increase the efficiency of sericulture.

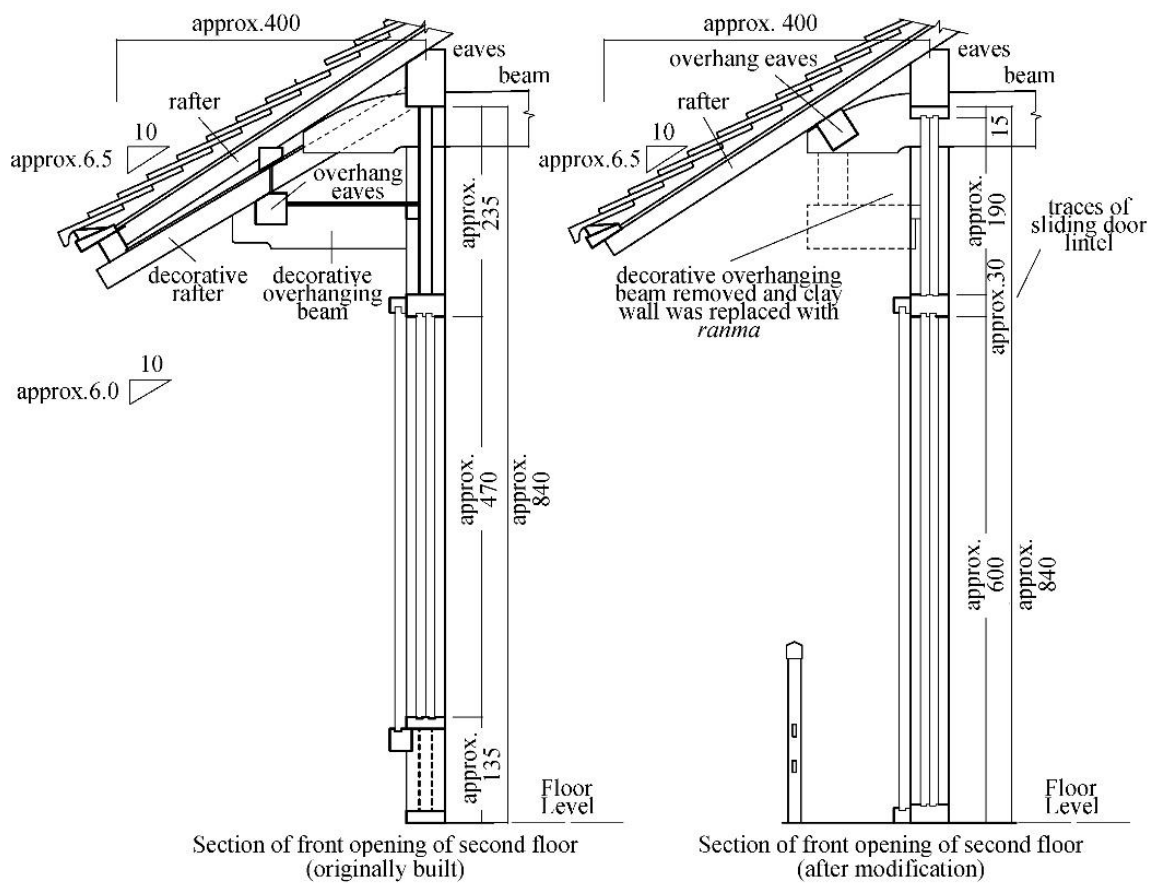


Figure 3-8: Section of front opening of second floor of Former Tajima Yahei Residence *omoya*.

(Source: Satoshi Ono. Edited by author.)

Basically, openings were expanded, rafters were modified and *ranma* partitions were installed to increase the efficiency of cross ventilation while sacrificing the previous lavish architecture style in devotion to improve the function of the sericulture space in accordance to the *seiryō-iku* technique. At the same time, the modification of front windows (expanded openings and installation of balcony and handrails) had largely contributed to improving the efficiency of silkworm breeding. The addition of microscope room was important to ensure the quality production of silkworm eggs through examinations. On the other hand, west-facing openings disused around 1925 meant that Yahei had corrected his theory of having openings on four sides of the sericulture space. Also, division of the sericulture space using passages meant the recognition of *secchu-iku* technique which also emphasizes temperature control. Installation of bracings on walls and roof truss showed positive effort to ensure safety of building.

3.2.3 Relationship between Former Tajima Yahei Residence and Surrounding Sericulture Farmhouses

Shinchi Area

Including Former Tajima Yahei Residence, fifteen sericulture farmhouses are found remaining in the Shinchi area. Averaged at 9 *ken*, sericulture farmhouses in Shinchi area are relatively large with Former Tajima Yahei Residence (13.5 *ken* by 5 *ken*), Tajima Zenichi Residence (13 *ken* by 5 *ken*) and Tajima Kameo Residence (12 *ken* by 5 *ken*) spanning more than 10 *ken* in length, Tajima Nobutaka Residence spanning 15 *ken* by 5 *ken* is the largest sericulture farmhouse remaining in Shinchi area and in Sakai Shimamura. Column distances of sericulture farmhouses in Shinchi area are averaged at 1 *ken* equivalent to 1.879 metres (6.2 *shaku*). Former sericulture farmhouses surrounding the farm (see Figure 3-9) share similar basic features of a large, two storey tile roof building with a roof ventilation system but possess

various features in terms of size and modification of openings, windows and roof ventilation system. Similar to that of the farm, the Tajima Nobutaka Residence²¹ (built in 1963) and Tajima Tatsuyuki Residence (built in 1866) sericulture space was originally built with openings on all four façades. Together with the farm, these sericulture farmhouses may have devotedly practiced the *seiryō-iku* technique. The east façade openings of Tajima Tatsuyuki Residence were left disused when a shed was attached on that side of the residence. Tajima Nobutaka Residence is the only farmhouse which had persisted with having openings on four façades until its retirement from sericulture in 1980 when the *omoya* was scaled down and *yagura* was removed. The Tajima Shōji Residence (built in 1861), Tajima Zenichi Residence (built around end of Edo period), Tajima Kameo Residence (built in 1868) and Kogure Shigeru Residence (built between 1874 and 1877) are originally built with openings on three façades. The west wall of Tajima Kameo residence is built as an *ōkabe* (finished wall with no exposed columns) and was believed to be done to withstand the winter monsoon winds and high temperatures of the west sun. Generally, sericulture farmhouses with openings on front and back façades are considered a national standard but openings on three façades are considered rare. In Sakai Shimamura, farmhouses with openings on three façades are standard and four façades are considered rare. Regarding the expansion of windows, Tajima Shōji Residence and Tajima Zenichi Residence installed a narrow balcony and short handrail on the front façade similar to that of the farm. While Tajima Nobutaka Residence and Tajima Tatsuyuki Residence had also installed a balcony on the front façade, the ground floor was expanded with a corridor located right below the balcony. The front windows of Tajima Kameo Residence and Kogure Shigeru Residence remained in its original form.

²¹ Nobutaka Tajima is the descendant of Buhei Tajima, the head family of Yahei Tajima.

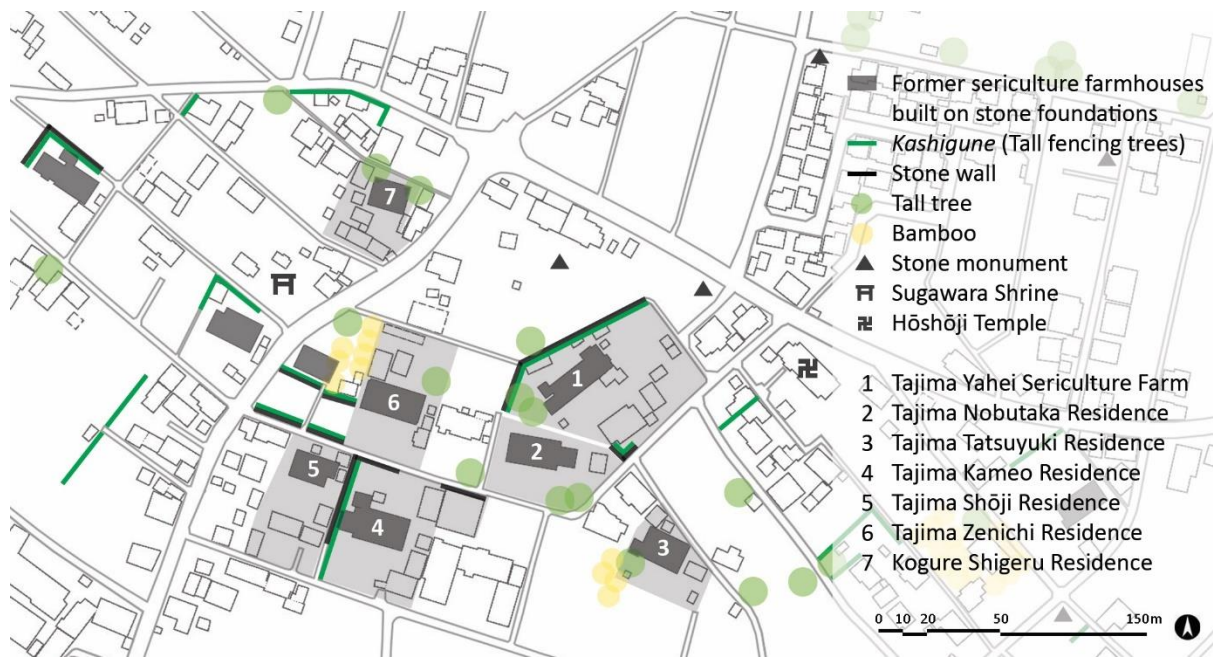


Figure 3-9: Former sericulture farmhouses surrounding the farm. (Drawn by author.)

Observations from the roof ventilation system is the fastest way to assume the sericulture technique practiced by the farmhouse owner. Tajima Tatsuyuki Residence and Tajima Zenichi Residence adopted the *sō-yagura* while Tajima Kameo Residence, Tajima Shōji Residence, and Kogure Shigeru Residence adopted a *mitsu-yagura*²². In the case of Tajima Nobutaka Residence, it is assumed that the roof was originally built with plank roofing without a *yagura* in 1863. In 1870, the plank roofing was replaced with tile roofing and a *sō-yagura*. Around 1897, the *sō-yagura* was replaced with six cylindrical vents. Later around 1907, the vents were replaced with *mitsu-yagura* as observed from archives and old photographs. With regards to the partitioning of the sericulture space, it is certain that all of the above examples are retrofits and were originally single rooms. However, it is still uncertain when the installation or modification took place. Residences found to have structural reinforcement

²² *mitsu-yagura* means three monitors in Japanese. A type of roof ventilation system commonly seen in farmhouses who practiced the *seion-iku* or *secchū-iku* technique.

include Tajima Shōji Residence, Tajima Nobutaka Residence, Tajima Kameo Residence and Kogure Shigeru Residence. Amongst them, Tajima Kameo Residence reinforced its floor, frame and roof trusses with iron hoops. Regarding Tajima Tatsuyuki Residence, an eaves was extended on the east side of sericulture space and a microscope room was added to the rear in 1928.

Shinno and Nitta Areas

There are twenty-four sericulture farmhouses found remaining in the Shinno and Nitta areas. The Kurihara family is believed to be one of the earliest farmers in the village to be engaged in sericulture. Descending from the Kurihara head family, the Kurihara Shigeyuki Residence *omoya* built in 1864 with a tile roof and *sō-yagura*, is the oldest sericulture farmhouses remaining in Sakai Shimamura. The sericulture space was originally unpartitioned with openings on the front and back façades and later partitioned into eight rooms, a corridor on the back and balcony with low handrails on the front façade. Using an older column distance measurement of 1 *ken* equivalent to 1.897 metres or 6.26 *shaku*, the *omoya* is currently 10 *ken* by 5.5 *ken* in size and sits on a stone foundation with a slope on the front façade. The Kurihara Toshishige Residence *omoya* built in 1889 also spans 10 *ken* by 5.5 *ken* (1 *ken* = 1.885 metres or 6.22 *shaku*) with a tile roof and *sō-yagura*. The sericulture space was also partitioned into six rooms with corridors surrounding the rooms on all sides and a balcony with low handrails on the front and east façades. Both residences are the largest remaining sericulture farmhouses in Shinno and Nitta areas spanning 10 *ken* in length.

Other significant *omoya* with tile-roofed *sō-yagura* in Shinno and Nitta areas include Kurihara Kiyoshi Residence (built in 1887), Kurihara Nobuhiro Residence (built in 1985), Kanai Naho Residence (built in early 19th century and moved to Sakai Shimamura around end of Edo period). Sericulture farmhouses in Shinno and Nitta areas built in later periods also

possess a larger column distance (1 *ken* = 1.882 metres to 1.888 metres or 6.21 *shaku* to 6.23 *shaku*) than the standardized column distance in Shinchi area (1 *ken* = 1.879 metres or 6.2 *shaku*). Sericulture space of these farmhouses were later partitioned into smaller rooms and some farmhouses were installed with a balcony with low handrails on the front façade. Kurihara Shigeyuki Residence and Kurihara Nobuhiro Residence is still equipped with its significant *sō-yagura* roof ventilation system while other residences had removed its roof ventilation system. Kurihara Nobuhiro Residence is found originally built with a thatched roof and later reconstructed with a plank roof in 1884 and a tile roof in 1895 with a truss-like roof system and *sō-yagura*.

The Sekiguchi Toshihiro Residence and Kanai Akiyoshi Residence are two examples of sericulture farmhouses in Shinno and Nitta areas possessing a different roof ventilation system. Sekiguchi Toshihiro Residence *omoya* was built in early Meiji period with the only farmhouse possessing a significant *hitotsu-yagura* in Sakai Shimamura. Spanning at 7 *ken* by 3.5 *ken* (1 *ken* = 1.888 metres or 6.23 *shaku*), the front and east façade of the *omoya* remained as it was in the olden days. The current Kanai Akiyoshi Residence is the former residence of Ujyū Kanai, a famous painter in the Edo period. *Tonzanro*, Ujyū's two-storey atelier was relocated from Maejima area and the *omoya* was built in 1884 in the current location and possess a *futatsu-yagura* as seen today. Both farmhouses were also built using a larger column distance of 1 *ken* equivalent to 1.885 metres and 1.888 metres respectively as compared to farmhouses in Shinchi area.

Ryūsaku Area

There are eight sericulture farmhouses found remaining in the Ryūsaku area. The Machida family is believed to have been one of the main sericulture farmhouses in Ryūsaku which supported the sericulture industry. Machida Yasuhisa Residence (built in 1874) was built

spanning 11 *ken* in width and 5 *ken* in depth with the old column distance of 6.25 *shaku* (1.894 metres). Including a *nagayamon*-style sericulture building and tennis court, there are thirteen building structures in the site of Machida Yasuhisa Residence, making it the residence with the most building structures in Ryūsaku area. Machida Kazuhisa Residence, a branch family of the Yasuhisa family was built in 1889 spanning 8.5 *ken* by 5 *ken*. Machida Kiyoshi Residence, a branch family of Kazuhisa family was built in 1923 spanning 5 *ken* by 6 *ken*. Kurihara Hitoshi Residence *omoya*, demolished in 2015 was built in 1874 spanning 9 *ken* by 5 *ken*. Sericulture spaces of all residences were built as one large space and later partitioned into smaller rooms.

Nishijima Area

There are seven sericulture farmhouses found in the Nishijima area. Tajima Gō Residence (built in end of Meiji period) and Hashimoto Toshio Residence (built in 1868) are two significant sericulture farmhouses located in Nishijima area on the northern bank of the Tone-gawa river. Tajima Gō residence is 9.5 *ken* by 5 *ken* and Hashimoto Toshio residence is 8.5 *ken* by 5 *ken* but was built with a column distance of 1 *ken* equivalent to 1.876 metres (6.19 *shaku*) and 1.882 metres (6.21 *shaku*) respectively. Similar to that of the farm, both residences possess a narrow balcony and short handrail. However, both residences were originally built with a large sericulture space later partitioned into smaller rooms but with openings only on the front and back façades. The east and west façades of both residences are built with mud walls to resist the morning and evening heat from the sun.

From the above discussion, the architecture style of sericulture farmhouses in Sakai Shimamura can be deduced. Possessing multiple oldest sericulture farmhouses remaining in Sakai Shimamura, Shinno area was where sericulture first started, sericulture then prospered in Shinchi, Ryūsaku and Nishijima areas. Sericulture buildings built before 1889 was

constructed according to the *seiryō-iku* theory as it was the mainstream sericulture technique practiced at that time. At the same time, the installation of full height windows, balcony and handrails on the front of the sericulture space was popularized. Ranma partitions were also installed above windows on the front façade and openings were not installed on the west façade of sericulture farmhouses. These farmhouses were also built with larger column distances between 1.879 metres (6.2 *shaku*) and 1.897 metres (6.26 *shaku*). As other sericulture techniques were later introduced and popularized, farmhouses were modified accordingly to enhance the efficiency of silkworm breeding.

3.2.4 Preservation Conditions

The first building survey on sericulture-related buildings in Sakai Shimamura was carried out from 2007 to 2011 (Kikuchi et al., 2012). Seventy-two former sericulture farmhouses located on both riverbanks, one silkworm egg refrigerator and incubator, and a church forming important historical and cultural components of the village were surveyed. Working towards the designation of the farm into the national system as a Historic Site, the Preservation Management Plan (Isesaki City Board of Education, 2012b) was devised in 2012 to catalogue the current conditions of buildings structures and landscapes remaining in the site of the farm, formulate a management plan for the preservation of each building structure and landscape, and propose a direction for the maintenance and utilization plan. The preservation management plan catalogued twenty building structures and landscape features which still exists in the site, five stone foundations of demolished building structures, and two collapsed building structures. The *torii* and local deity shrine were found to be constructed as early as 1856 and an outdoor toilet built in 1985. Amongst the demolished buildings are sericulture-related buildings such as *kōgetsu-rō*, *shin-sanshitsu* and silkworm egg refrigerator which were demolished between 1852 and 1941. Building structures are categorized as components of the Historic Site, landscapes are categorized as components of surrounding landscapes of the

Historic Site, and historical documents are categorized as components related to the value of the Historic Site. The maintenance, structural reinforcement and disaster prevention mechanisms for building structures and landscaping of the surrounding greeneries were devised in the preservation management plan. Due to private ownership of the farm, utilization of building structures and areas open to public are considered after discussions with the owner.

The Maintenance Basic Plan (Isesaki City Board of Education, 2016) was later devised in 2016 as an extension plan to utilize building structures and historical documents listed in the Preservation Management Plan to educate visitors, promote the farm through cultural tourism and town planning. Sericulture tools such as the microscope, historical documents such as diaries and personal belongings are subjected for exhibition in the mulberry storage. The commentary of the exhibition was proposed to be carried out by the owner and local community. The basic plan also suggested the continuous research on historical documents of the Tajima family. Daily management of the site is subjected under the responsibility of the owner and local community while monitoring of the site is subjected under the responsibility of the local government. To protect the privacy of the owner and his family, the omoya and areas north of it are private areas whereas east and south areas of the site are open to the public.

Maintenance works started in 2017 where the *bessō* and silkworm egg refrigerator remains were carried out (Gunma Prefecture Planning Department, 2017). Maintenance works for the Mulberry storage and east gate started in 2018, maintenance works for the silkworm egg storage and main gate started in 2019 and the two livestock barns were demolished in 2016 (Gunma Prefecture Planning Department, 2016, 2017, 2018, 2019). Historical documents in the possession of the Tajima family was also carried out since 2015 (Gunma Prefecture Planning Department, 2015). As the short-term maintenance plan for existing building structures are about to come to an end, the remains of demolished buildings are ready to be

carried out as mid-term maintenance plan between 2022 and 2026, the maintenance of the *omoya* and main gate are subjected for repairs in the long-term maintenance plan from 2027.

In addition to the plans devised for the World Heritage component, the Sakai Shimamura Community Development Vision was devised in 2015 as a ten-year plan to provide guidance for community development, reposition Sakai Shimamura as the buffer zone of a World Heritage component and create a village for the coexistence of local residents and visitors. Visions proposed by the plan include maintaining sceneries of the village to portray a sericulture village with important historical and cultural value, creating a comfortable living environment for local residents and creating an area where tourists can move around easily. For plans to maintain sceneries of the village, croplands and fields are to be kept healthily green. For plans to create a comfortable living environment for local residents and an area where tourists can move around easily, setting up parking spaces and rest stops for visitors, setting up free shuttle buses to-and-fro the village and nearby train stations, and create a network of resident volunteers to carry out guided tours and hands-on experience classes for visitors, etc.

All three plans are still effective as of 2022. Two plans devised for the World Heritage component covering technical repairs, maintenance and utilization is generally sufficient as these plans are still at the early and mid-stages of the proposed duration. However, while the vision suggests to maintain village sceneries as a measure, other than the farm, other sericulture farmhouses in the village are not provided with any guides for preservation and maintenance as they are currently not inscribed in any protection system. As the vision was also devised to solve social issues, it is important that the vision is used as a checklist where measures proposed in the vision are monitored to reflect and response to the latest issues.

3.2.5 Local Communities in Sakai Shimamura

As discussed in Chapter 2, each municipal has one main local community active in the promotion of each World Heritage components and its buffer zone. Other than the Shimamura Kaiko No Furusato Kai as the main organization in promoting the farm and the village, there are various communities in research and culture promotion actively carrying out relevant activities in Sakai Shimamura.

The Gunma Shimamura Sanshu No Kai²³ was established as early as 2005 after the announcement of the Gunma World Heritage Project. The organization was formed by descendants of local sericulture farmers aimed to proactively study the history of Sakai Shimamura including the achievements of their ancestors which had developed the sericulture industry, to promote the spirit of Sakai Shimamura and mutual friendship between members (Gunma Shimamura, 2012, 2013). The ‘Sakai Shimamura Related Documents’²⁴ (see Figure 3-10) are a series of booklets published by the organization which includes history of local sericulture industry, the stories of local sericulture farmers working as imperial sericulturists in the imperial palace, the achievements of their ancestors in advancing the sericulture industry, diaries of local sericulture farmers, the *yagō* (house name) of their sericulture farmhouses and others. Members of the organization are also members of Shimamura Kaiko No Furusato Kai accommodating guided tours by opening up their farmhouses and allow visitors to experience climbing into the *yagura* (see Figure 3-11). On the other hand, non-sericulture farmhouse owners in Shimamura Kaiko No Furusato Kai would help provide verbal explanation on information panels to group of visitors visiting the area.

²³ ぐんま島村蚕種の会 in Japanese.

²⁴ 境島村関係資料 in Japanese. Thirteen issues published as of February 2019.

Collaborating with the Shimamura Ferry Fiesta Executive Committee²⁵, the Shimamura Ferry Fiesta has been an ongoing event since 1996 (Gunma Prefecture Planning Department, 2019) (terminated in 2019). After the fall of the sericulture industry, the river crossing event (see Figure 3-12) was revitalised to promote this local cultural activity in which visitors can enjoy scenic views of the village on a free boat ride. A carnival is organized as part of an event of the fiesta with performances, workshops, stalls selling local produce and cycling tours (see Figure 3-13).

Formed by members of Shimamura Kaiko No Furusato Kai and Gunma Shimamura Sanshu No Kai, members of the Jōshū Shimamura Shinchi Yagibushi Aikō Kai²⁶ performs the Yagibushi, a famous folk song in Ryōmō region (now Gunma and Tochigi prefecture) at local events using barrel beats and flutes (Isesaki Machizukuri, n.d.). The event connects local geographical features to local history and culture and promoting the village's specialities to outsiders, creating a rare experience for visitors spending their weekends in the village.

In a questionnaire regarding residents' awareness on Shimamura's historic properties in 2016 (Mizuno, 2017), about 66% of sericulture farmhouse owners and 58% of non-owners are keen in the succession of sericulture farmhouses in Sakai Shimamura. 77% of residents have responded to positive intentions of participating in activities to learn and disseminate Sakai Shimamura's charm and history but only 35% of residents responded to have been actively participating in such activities and residents living in the southern bank have a higher participation rate. In the interview, non-owners raised concern in the lack of information available for non-owners to understand preservation methods for heritage buildings in their village and the difference in the state of awareness between the residents on the northern and

²⁵ 島村渡船フェスタ実行委員会 in Japanese.

²⁶ 上州島村新地八木節愛好会 in Japanese.

southern bank of the river. It was suggested that the most effective method to invoke enthusiasm of non-participating residents is to organize interesting and fun activities.

In Sakai Shimamura, local organizations are formed with specific aims to carry out certain activities by residents which overlaps with multiple organizations as a way for residents to get involved with activities they are passionate about. Gunma Shimamura Sanshu No Kai was established by descendants of local sericulture farmers to study the achievements and contribution of their ancestors towards Sakai Shimamura, Shimamura Kaiko No Furusato Kai was established by sericulture farmhouse owners and non-owners as the main voluntary group to promote sericulture farmhouses and the scenic features of Sakai Shimamura, Shimamura Ferry Fiesta Executive Committee was established to promote the local culture of river crossing in Sakai Shimamura, and Jōshū Shimamura Shinchi Yagibushi Aikō Kai performs local folk song at local events to promote this local culture. From the above, it is understood that residents of Sakai Shimamura are involved in multiple local organizations and are well-informed in each sector to provide diverse and insightful knowledge on their history and culture to outsiders visiting the site. In order to heighten the awareness and participation of inactive residents, more diverse culture clubs or organizations can be formed to gather people of the same interests in certain activities and promote them in local events.

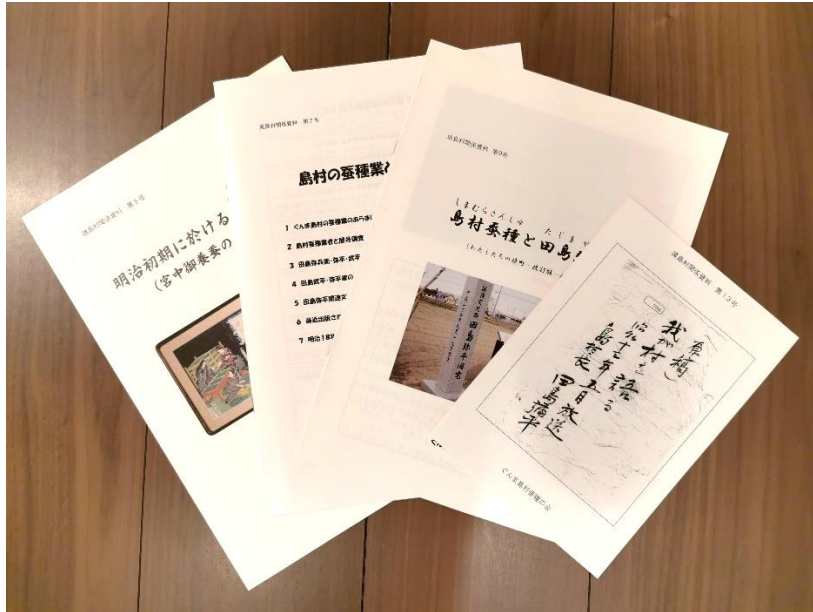


Figure 3-10: Four booklets of ‘Sakai Shimamura Related Documents’.

From left: Issue 5 ‘Sericulture in the Imperial Palace in the early Meiji period (Beginning of Sericulture in the Imperial Palace)’, Issue 7 ‘Shimamura’s Sericulture and the Tajima Family’, Issue 9 ‘Shimamura’s Sericulture and Yahei Tajima (Our Sakaimachi – revised edition - excerpt)’, Issue 13 ‘Stories of My Village’.



Figure 3-11: Sceneries in a *yagura*. (Left) A visitor climbing into the *yagura* of Tajima Zen-ichi Residence *omoya*. (Right) Space inside a *yagura*. (Taken by author on May 19, 2019)



Figure 3-12: Sceneries of Shimamura ferry boat ride.

(Left) Visitors experiencing the Shimamura ferry boat ride. (Right) View across Tone-gawa river from the southern bank. (Taken by author on May 19, 2019)



Figure 3-13: Sceneries of events and activities in Sakai Shimamura.

(Left) Carnival booths on the southern bank of Tone-gawa river. (Right) A visitor on the southern bank cycling route. (Taken by author on May 19, 2019)

3.3 Chapter Conclusion

This chapter concludes the development and decline of modern sericulture industry affecting the formation of sericulture villages in Japan, basic forms and characteristics of sericulture farmhouses in Gunma prefecture and other regions of Japan by analysing examples of well-preserved sericulture villages, re-evaluated the historical and cultural values of Sakai Shimamura and analysed the potential of the village to be inscribed as a preservation district, its current preservation conditions and local communities present in the village.

Generally, modern sericulture had been blooming since the late 19th century, peaked in 1930 and declined ever since due to the effects of the Showa Depression. Sericulture advanced areas are concentrated in eastern regions as sericulture was better carried out in warmer areas. As sericulture techniques were advanced, sericulture was able to be practiced in colder areas and sericulture villages began spurring in western and northern regions. Architecture style of sericulture farmhouses are highly affected by its regional characteristics such as local climate and culture, and can be easily observed in the physical form of the farmhouses from the number of storeys, roof form and structure, roof and wall materials, window sizes, type of foundation, etc. Sericulture farmhouses in warmer areas are usually built with low roofs and large windows while farmhouses in colder areas are usually built with steep roofs, thick walls and small windows. Farmhouses in rich and advanced sericulture areas are usually built or renovated into three storeys with tile roofs as compared to less advanced areas where farmhouses are built in one to two-storey with thatch roofs. Sericulture farmhouses in areas with uneven terrain and areas in floodplains are usually built on stone foundations. The development of sericulture techniques also affected the style of roof ventilation systems where the ventilation and temperature of sericulture rooms were controlled to achieve a better efficiency for sericulture.

While the after effects of the Showa Depression had heavily impacted the sericulture industry, advanced sericulture areas such as Nagano and Gunma prefectures had remained on the top for the nation's cocoon production. The sericulture industry in Gunma prefecture developed around the end of 17th century and the innovation of silkworm breeding was considered to peak around mid-18th century with the introduction of new hybrids of Mulberry leaves. Sericulture prospered in Sakai Shimamura in the late 18th century, taking advantage of geographical characteristics of the site. Sakai Shimamura grew into the core region for sericulture by late 19th century as local farmers incorporated techniques from advanced areas in Fukushima prefecture. Attic spaces of farmhouses were originally used to carry out sericulture activities and later modified into a proper second floor. As sericulture further prospered, some farmhouses would add a third floor to accommodate to the industry. Sericulture techniques were also improved and popularized in various regions in the nation. A diversity of techniques was practiced in Sakai Shimamura as local innovative farmers experimented and improved these techniques and had it popularized. Local sericulture farmers would reconstruct their farmhouses to improve the efficiency of the technique practiced at that time. The characteristic designs of former sericulture farmhouses which remained in the village is proof that a diverse of sericulture techniques had been practiced.

As Japan advances its tertiary sectors, outward migration of population in rural areas progressed and mulberry farmlands were destroyed or converted for other crop cultivations. Today, while there are isolated sericulture farmhouses seen all across rural areas in Japan, there are few sericulture villages and its olden days sceneries preserved presently portraying high historical and cultural values. Sericulture villages designated as Important Preservation District for Groups of Traditional Buildings has significant regional architecture and landscape features with high historical and cultural values, and its local communities and governments had worked

to preserve their respective history and culture, and to promote the site in hopes of passing down this heritage to future generations.

Similar to most of the sericulture villages of Important Preservation District for Groups of Traditional Buildings which fulfilled criteria (3) Preservation districts for groups of historic buildings and the environs which noticeably show local characteristics, Sakai Shimamura has also remained its group of sericulture farmhouses and significant regional landscapes from the olden days. The seven regional landscapes observed in Sakai Shimamura is, firstly, the presence two-storey tile-roof sericulture farmhouses possessing a diverse sericulture farmhouse architecture styles portrayed through various roof ventilation systems. Secondly, the planting of tall fencing trees arranged around the site perimeters of residences against the hot sun and strong winds. Thirdly, 1-metre tall low stone walls constructed below sericulture farmhouses and on the outer perimeters of the residences against the yearly floods. Fourthly, stone monuments erected on various locations in the village to commemorate local history and tell local folklore. Fifthly, the presence of a vast riverbank constructed to fight the yearly floods. Sixthly, the presence of multiple religious buildings including two temples and two shrines which was built for old religion and a church built as a result of Christianity brought back after Yahei Tajima's voyage to overseas. Lastly, the remains of two sericulture-related buildings which are the silkworm egg refrigerator and incubator.

Sericulture farmhouses in Sakai Shimamura are unique on its own, possessing significant characteristics in response to when and where it was built and the sericulture technique practiced in various periods. The Kurihara families, believed to be the first families to engage in sericulture in Sakai Shimamura is concentrated in the Shinno area with Kurihara Shigeyuki Residence *omoya* built in 1864 being the oldest and largest sericulture farmhouse remaining in Sakai Shimamura. Sericulture buildings built before 1889 was constructed according to the *seiryō-iku* theory as it was the mainstream sericulture technique practiced at

that time. While the standard column distance measurements of Former Tajima Yahei Residence's *omoya* is 1.879 metres (6.2 *shaku*), sericulture farmhouses in Shinno and Nitta areas are built with larger column distances of 1.882 metres to 1.888 metres (6.21 *shaku* to 6.23 *shaku*), Kurihara Shigeyuki Residence's *omoya* was built with the old column distance measurement of 1.897 metres (6.26 *shaku*). Later, settlements in Shinchi area began engaging in sericulture and powerful sericulture farmers such as the Tajima families expanded and sericulture farmhouses were innovatively modified. In accordance to the sericulture techniques practiced in various periods, openings were enlarged and rooms were partitioned to control the cross ventilation of sericulture spaces, roofs were modified to control the stack ventilation of sericulture spaces, walls were thickened to resist heat from the sun, balconies with low handrails were installed to ease the sericulture workload. While sericulture spaces built according to the *seiryō-iku* theory was a mainstream, a variety of *sō-yagura*, *hitotsu-yagura*, *futatsu-yagura* and *mitsu-yagura* roof ventilation systems can be seen today. Installation of full height windows and balcony with low handrails were popularized. Lavishly-patterned decorative rafters were substituted with simple-patterned rafters and *ranma* were installed on the front façade of sericulture spaces to increase the efficiency of cross ventilation. No openings were installed on the west façade of sericulture spaces to resist heat from the sun.

Currently, there are sufficient plans implemented for the preservation and maintenance of the farm. However, other sericulture farmhouses in the village are not provided with any guides for preservation and maintenance as they are currently not inscribed in any protection system. Other than governmental proposed plans, local plans such as the Sakai Shimamura Community Development Vision devised specifically for community development of the village and its residents should be monitored to reflect and response to the latest issues. It is also understood that residents of Sakai Shimamura are involved in multiple local organizations and are well-informed in each sector to provide diverse and insightful knowledge on their

history and culture to outsiders visiting the site. In order to heighten the awareness and participation of inactive residents, more diverse culture clubs or organizations can be formed to gather people of the same interests in certain activities and promote them in local events.

In a nutshell, Sakai Shimamura now portrays a village scape of sericulture farmhouses with various roof ventilation systems telling a story on the past of innovative sericulture farmers and the diverse sericulture techniques practiced, the ingenious design of perimeter stone walls, detachable doors and riverbank as flood prevention mechanisms against the yearly floods, the eye-pleasing scenery of tall fencing trees to control indoor conditions of sericulture spaces, and historically and culturally-rich building structures, stone monuments and croplands are significant features of Sakai Shimamura. Local residents and communities are the main stakeholders to ensure that these significant features are preserved at their best. However, as the village is lacking in building research and guidance on preservation of heritage buildings, it is important to invite other interested parties as supportive stakeholders to assist the main stakeholders in preserving their heritage. Therefore, examples of professional services of research institutes are suggested as methods of preservation and regional revitalization of a heritage site in Chapter 4 and the relationship between related stakeholders are analysed to form a sustainable preservation system for the inheritance of historical assets and sites.

CHAPTER 4

SUSTAINABLE PRESERVATION &

REGIONAL REVITALIZATION THROUGH

THE COLLABORATION OF LOCAL COMMUNITIES

& RESEARCH INSTITUTE

4.1 Technical Research of Buildings

This sub-chapter discuss ways to preserve Sakai Shimamura, the buffer zone of Tajima Yahei Sericulture Farm through the collaboration of local communities and research institutes, specifically between the members of local organizations and members of Yokohama National University (YNU). Methods and ideas discussed in this chapter includes the preservation request for the maintenance of buildings, building surveys through measured drawing and interviews, restoration of buildings and the inscription of local heritage into the national system. The author was partly or fully involved in all activities discussed in this chapter.

4.1.1 Preservation Requests for the Maintenance of Buildings

The crisis of heritage buildings in Sakai Shimamura was first acknowledged by researchers even before the inscription of the Former Tajima Yahei Residence as the World Heritage component. As the Former Tajima Yahei Residence was newly designated as a Historic Site and World Heritage component in 2012 and 2014 respectively, the farm had received much support and financial assistance for the maintenance and repairs of building structures in the site of the farm. With the halting of original plans of designating the village as a Preservation Districts for Groups of Traditional Buildings, there were concerns among researchers that other seventy-some sericulture farmhouse owners would be discouraged from the misunderstanding that their property is not recognized for its value and accelerating the demolition of these buildings. This was further verified as a request was received for the demolition of Kurihara Hitoshi Residence *omoya* in the Ryūsaku area of Sakai Shimamura in 2015. An urgent survey to perform measured drawing on the *omoya* was carried out on 18 August 2015 by YNU Ono Laboratory. Although there is only one case of demolition of heritage buildings in Sakai Shimamura, it is also clear that there are many sericulture farmhouse

owners whom are keen in the preservation and succession of heritage buildings. One example is the maintenance of Tajima Kameo Residence's *sanshitsu* (sericulture building).

In 2017, an emergency request (see Appendix E) was made for the *sanshitsu* of Kameo Tajima as the roof was destroyed in a typhoon which resulted in water leakage and sloping of the frame. The incident encouraged the owner, Mr. Kameo Tajima to consider for the demolition of the building due to the exuberant repairment and maintenance costs. Recognized as one of the most important landscape in Sakai Shimamura, the *omoya* and *sanshitsu* of Tajima Kameo Residence (see Figure 4-1) sits strategically next to the border of Gunma prefecture in Saitama prefecture and is an eye-catching feature from southern areas. As a large part of Sakai Shimamura is located in Gunma prefecture, Tajima Kameo Residence and parts of Tajima Shōji Residence are located in Honjō city of Saitama prefecture, and Shimamura Megumi Nursery in located in Fukaya city of Saitama prefecture. Consequently, even with authority over the World Heritage component and its buffer zone, Isesaki city and Gunma prefecture is in a difficult position to provide direct assistance to these heritage buildings located in other cities and prefecture.

Understanding the importance of heritage buildings in Sakai Shimamura to be preserved in its entirety, a preservation request for the repairs and utilization of the *sanshitsu* was drafted by Professor Satoshi Ono, a member of YNU on behalf of the Architecture Institute of Japan (AIJ) and sent to multiple stakeholders including the Agency of Cultural Affairs, Gunma and Saitama prefectures, Isesaki, Honjō and Fukaya city government the same year. The request letter submitted in August 2017 described the values and importance of the physical preservation of the *sanshitsu* towards the preservation and inheritance of Sakai Shimamura as a whole was intended to encourage related stakeholders to reconsider issues regarding the buffer zone of Tajima Yahei Sericulture Farm. In other words, the request was aimed at the three cities in two prefectures to raise their attention in collaborating with one

another in the preservation of heritage buildings and inherit them to future generations of the nation.



Figure 4-1: Scenery of Tajima Kameo Residence *omoya* (left) and *sanshitsu* (right) from Miyado area. (Taken by author on July 2, 2019)

Preservation request or *hozonyōbōsho*²⁷ is a written demand to stakeholders by stakeholders of potential heritage buildings facing the possibility of demolition in the near future. Preservation requests are usually drafted by architects or professionals in the industry emphasizing values of the building and stressing importance in preserving it. The first preservation request letter to support the preservation of the Former Sapporo Post Office Building was submitted in 1962. A research in 2006 (Toyoshima & Fujiya, 2006) on the

²⁷ 保存要望書 in Japanese.

survival rate and conservation status of buildings between 1962 to July 2006 had shown an increase in the submission of preservation requests, especially in 1980s where approximately 280% increase of preservation requests were submitted as opposed to the previous decade. Data from August 2006 to December 2022 was tabulated together with previous data from 1962 to July 2006 (see Table 4-1) and it is obvious that preservation request submissions are increasing over the decades with 224 requests submitted as of December 2022. In the first two decades, less than ten preservation requests were submitted in each decade. In the next two decades of 1980s and 1990s, each decade had received about thirty preservation requests or 280% more than the previous two decades. In the next decades as the country moves into the next century, preservation request submissions became more and more popularized as more than fifty preservation requests were submitted in the 2000s and ninety preservation requests were submitted in the 2010s.

Table 4-1: Number of preservation requests submitted in various years.

(Data from 1962 to 1999 extracted from *A study of the survival rate and the save situation of a building by the save demand book which Architectural Institute of Japan submitted, 2006.*

Data from 2000 to 2022 tabulated by author.)

Years	Cases
1962-1969	6
1970-1979	8
1980-1989	27
1990-1999	29
2000-2009	54
2010-2019	90
2020-2022	10
Total to date (December 2022)	224

In some cases, submitted preservation requests were replied by related stakeholders providing written support or technical support for the building owners in preserving their heritage building. Toyoshima and Fujiya (2006) concluded that although the submission of a preservation request does not necessarily promise the implementation of preservation activities, it is influential towards the physical preservation of a building. In fact, there are many cases where the demolition of heritage buildings is reconsidered by the building owner after the submission of preservation requests. Furthermore, some heritage buildings were later inscribed or registered into the national preservation system and even planned for utilization. Generally, this system is unique in Japan and is a method to shine light to the wider public on the help needed for a heritage building. From 1962 to 2022, a total of 222 buildings were subjects of the 224 submitted preservation requests (AIJ, n.d.) and sixty-seven buildings were listed into the national preservation system (see Table 4-2).

Table 4-2: Sixty-eight buildings of which preservation requests were submitted
(in order of submission).

No	Name of Building(s) (in Japanese)	Date of Preservation Request Submission(s)	Date of Reply(s)	Current State of Building	Current Usage of Building(s)	Date of Inscription/Registration	Title of Inscription/Registration
1	姫路城周辺地区	Oct 1965	-	Existing	Open-air museum	20 Sept 1928	Historic Site/Scenic Monument
2	藤原宮跡	18 Apr 1967	-	Existing	Open-air museum	21 Nov 1946	Historic Site/Scenic Monument
3	帝国ホテル旧館	①26 May 1967 ②6 Nov 1967 (memorandum)	-	Partially demolished	Parts of building reused in another building and relocated to Meijimura	17 Feb 2004	Registered Tangible Cultural Property
4	平城宮東院跡	25 Dec 1967	-	Restored	Open-air museum	23 July 2009	Historic Site/Scenic Monument
5	京都中京郵便局	2 Nov 1973	-	Existing	Post office	2 June 1986	Registered Tangible Cultural Property
6	名古屋高等裁判所庁舎	20 Apr 1978	-	Existing	Courthouse and museum	21 May 1984	Important Cultural Property
7	東京芸術大学奏楽堂	16 Oct 1979	-	Existing	Concert hall	13 Jan 1988	Important Cultural Property
8	旧中野刑務所正門	①22 Mar 1983 ②19 Aug 2015 ③12 Oct 2018	-	Existing	Relocated to Heiwanomori Park as monument	4 June 2021	Ward Designated Cultural Property
9	国鉄二条駅本屋	①1 May 1985 ②22 May 1992	-	Existing	Relocated to Kyoto Railway Museum. Utilized as museum.	1 Apr 1996	City Designated Cultural Property
10	御成小学校校舎	①15 Nov 1985 ②19 Aug 1993	-	Existing	Utilized as multipurpose hall	28 June 2017	Registered Tangible Cultural Property
11	日本火災海上保険 横浜支店	29 July 1986	-	Partially demolished	Façade is preserved. Utilized as office building.	1988	Yokohama City Certified Historical Building
12	旧鹿兒島刑務所	10 Sept 1986	-	Partially demolished	Gate is preserved. Utilized as open-air museum	17 Apr 2015 (Gate)	Prefecture Designated Cultural Property (Gate)
13	聖路加国際病院	19 Oct 1987	-	Existing	Hospital	16 Apr 1999	Tokyo City Certified Historical Building

14	東京駅丸の内口駅本屋	11 Dec 1987	-	Existing	Train station	30 May 2003	Important Cultural Property
15	旧日本銀行松江支店	18 Dec 1988	-	Existing	Utilized as art studio	25 Feb 2016	Registered Tangible Cultural Property
16	千葉市役所中央地区市民センター (旧川崎銀行千葉支店)	27 Sept 1989	-	Existing	Utilized as museum for Chiba City Museum of Art	27 June 1995	City Designated Cultural Property
17	大阪市中央公会堂	13 Dec 1989	-	Existing	Utilized as art and community space	26 Dec 2002	Important Cultural Property
18	国税庁醸造試験所酒類醸造工場	11 Oct 1990	-	Existing	Utilized as museum	10 Dec 2014	Important Cultural Property
19	大分県立大分図書館	9 Nov 1992	-	Existing	Utilized as exhibition hall for Art Plaza	31 Oct 2022	Registered Tangible Cultural Property
20	旧岩崎久弥邸の歴史的環境	19 Apr 1993	-	Existing	Utilized as museum	28 Dec 1961	Important Cultural Property
21	自由学園明日館	22 Dec 1993	-	Existing	Utilized as multipurpose hall	29 May 1997	Important Cultural Property
22	旧富山県立農学校本館 (現富山県立福野高等学校蔵浄閣)	20 July 1994	-	Existing	Utilized as museum	29 May 1997	Important Cultural Property
23	石川県庁舎	20 July 1994	-	Partially demolished	South wing is preserved. North wing is renewed. Utilized as museum and visitor centre for Shiinoki Geihinkan.	24 June 2021	Registered Tangible Cultural Property
24	神奈川県立図書館*1	19 Oct 1994	-	Existing	Library	13 Aug 2021	Prefecture Designated Important Cultural Property
25	神奈川県立音楽堂*1	19 Oct 1994	-	Existing	Concert hall	13 Aug 2021	Prefecture Designated Important Cultural Property
26	西田橋	27 Apr 1995	-	Existing	Relocated to Ishibashi Memorial Park as monument	7 Sept 1953	Prefecture Designated Cultural Property
27	海岸ビル	26 May 1995	-	Existing	Façade is preserved. Utilized as commercial and office building. Renamed Ship Kobe Kaigan Building.	11 Dec 1998	Registered Cultural Property
28	東京都復興記念館	24 Mar 1997	-	Existing	Memorial hall and museum	1999	Tokyo City Certified Historical Building
29	誠之堂*2	22 Oct 1997	16 Dec 1997	Existing	Relocated to Daiyadoriki Community Centre grounds. Utilized as museum.	30 May 2003	Important Cultural Property
30	清風亭*2	22 Oct 1997	16 Dec 1997	Existing	Relocated to Daiyadoriki Community Centre grounds. Utilized as museum.	23 Mar 2004	Prefecture Designated Cultural Property
31	東京三菱銀行横浜中央支店ビル	18 May 1998	-	Partially demolished	Façade is preserved. Utilized as high-rise apartment.	2003	Yokohama City Certified Historical Building
32	日本工業倶楽部会館	27 July 1998	-	Partially demolished	Façade is preserved. Interior is restored. Utilized as museum, financial institute and office building.	23 Aug 1999	Registered Cultural Property
33	第一勧業銀行京都支店	①14 Sept 1998 ②22 Oct 1998	-	Existing	Bank	1997	Kaiwai Landscape Maintenance District
34	旧日本勧業銀行(現第一勧業銀行)熊本支店	18 Dec 1998	-	Existing	Utilized as exhibition hall and office building for PS Orangerie	2 Sept 1998	Registered Cultural Property
35	旧下関郵便局電話課事務室	1 Feb 2000	-	Existing	Utilized as museum for Kinuyo Tanaka Bunkakan	2002	City Designated Cultural Property
36	富士銀行横浜支店ビル	25 Dec 2000	-	Existing	Utilized as Yokohama Campus for Graduate School of Film and New Media, Tokyo University or the Arts	2003	Yokohama City Certified Historical Building
37	波佐見町中央小学校講堂兼公会堂	24 Oct 2001	-	Existing	Utilized as multipurpose hall	15 Jan 2010	Registered Cultural Property
38	豊郷小学校校舎	①14 Dec 2001 ②5 Feb 2003	-	Existing	Utilized as library, exhibition hall and governmental building	29 Mar 2013	Registered Cultural Property
39	国際文化会館	12 May 2003	9 July 2004	Existing	Assembly hall	3 Aug 2006	Registered Cultural Property
40	日土小学校校舎	15 Mar 2005	-	Existing	School	28 Dec 2012	Important Cultural Property
41	大阪府庁舎本館	14 July 2006	-	Partially demolished	East wing is preserved as governmental building	14 Oct 2021	Registered Cultural Property
42	旧夕張鹿ノ谷倶楽部(夕張鹿鳴館)	29 May 2007	-	Existing	Dormant	28 Oct 2011	Registered Cultural Property
43	高野口小学校校舎	3 Sept 2007	-	Existing	School	27 Jan 2014	Important Cultural Property
44	横浜松坂屋本館	1 Aug 2008	①18 Aug 2008 ②22 Aug 2008	Partially demolished	Façade is preserved. Utilized as commercial building.	2004	Yokohama City Certified Historical Building
45	伊賀市庁舎	18 Jan 2010	-	Existing	City hall	24 Mar 2020	City Designated Cultural Property
46	米子市公会堂	25 May 2010	-	Existing	City hall	1998	Top 100 Public Buildings by Ministry of Land, Infrastructure and Tourism
47	旧三井鉱山箱根山荘「環山」	25 Oct 2010	11 July 2011	Existing	Dormant	26 Mar 2015	Registered Cultural Property

48	荒巻配水所旧管理事務所	19 July 2011	16 June 2011	Existing	Utilized as museum	7 June 1999	Registered Cultural Property
49	能代市議会議事堂	12 Oct 2012	27 Dec 2012	Existing	Governmental building	31 July 2007	Registered Cultural Property
50	香川県庁舎東館 (旧本館)	26 Dec 2012	-	Existing	City hall	9 Feb 2022	Important Cultural Property
51	西脇小学校木造校舎	8 Aug 2013	-	Existing	School	2 Aug 2021	Important Cultural Property
52	神奈川県立近代美術館	19 Dec 2013	-	Existing	Museum	23 Dec 2020	Important Cultural Property
53	日本真珠会館	2 June 2014	-	Existing	Utilized as museum for Kobe Pearl Museum	12 July 2005	Registered Cultural Property
54	奈良少年刑務所	10 June 2015	①22 Aug 2016 ②5 Oct 2016 ③22 Dec 2016 (2部)	Existing	Utilized as hotel	23 Feb 2017	Important Cultural Property
55	加古川市立加古川図書館	15 July 2015	-	Existing	Dormant	2008	Hyogo Prefecture Landscape Formation Important Buildings
56	旧万代順四郎・トミ夫妻別邸 (横須賀市万代会館)	13 Aug 2015	-	Existing	Utilized as community space	10 Sept 2019	City Designated Cultural Property
57	旧安川邸内「洋館棟」	6 Sept 2017	-	Existing	Utilized as museum	1 Aug 2018	City Designated Cultural Property
58	田島亀夫家蚕室	①15 Aug 2017 ②16 Aug 2017 ③8 Sept 2017	27 Sept 2017	Existing	Dormant	17 Feb 2022	Registered Cultural Property
59	UR都市機構赤羽台団地の既存住棟 (41号棟) *3	25 July 2018	-	Existing	Utilized as museum	5 Dec 2019	Registered Cultural Property
60	UR都市機構赤羽台団地の既存住棟 (42号棟) *3	25 July 2018	-	Existing	Utilized as museum	5 Dec 2019	Registered Cultural Property
61	UR都市機構赤羽台団地の既存住棟 (43号棟) *3	25 July 2018	-	Existing	Utilized as museum	5 Dec 2019	Registered Cultural Property
62	UR都市機構赤羽台団地の既存住棟 (44号棟) *3	25 July 2018	-	Existing	Utilized as museum	5 Dec 2019	Registered Cultural Property
63	旧安田家住宅	19 July 2019	-	Existing	Dormant	①1994 ②2010	①Takarazuka City Landscape Formation Important Buildings ②Top 100 Hyogo Modern Residence
64	大牟田市庁舎本館	12 Feb 2020	-	Existing	To be utilized as museum	26 Dec 2005	Registered Cultural Property
65	旧ロシア領事館	26 June 2020	21 July 2020	Existing	Dormant	1 Mar 1989	Hakodate City Landscape Formation Designated Building
66	旧室谷家住宅	26 Jan 2007	-	Demolished in 2007	-	21 Dec 1996	Registered Cultural Property (Title removed on 5 Dec 2007)
67	初代松江警察署庁舎	①4 Mar 2014 ②22 July 2014	-	Demolished	Some building materials are preserved.	26 Nov 2014	City Designated Cultural Property

*1, *2, *3 are multiple buildings listed in the same Preservation Requests.

Amongst sixty-seven buildings, forty-two (63%) buildings were designated while twenty-five (37%) buildings were registered into the national preservation system. Nineteen buildings (28.5%) have remained its original usage, thirty-nine buildings (58%) have been repurposed or utilized while seven buildings (10.5%) are left dormant and two buildings (3%) are demolished (see Table 4-3). While some buildings may remain its original usage such as city halls, post offices, banks, concert halls and schools, more than half of the buildings were repurposed for a new life. In the case of Tokyo-Mitsubishi Bank Yokohama Branch Building (No.31), the façade is preserved to remain the cityscape of the lower floors while a high-rise

apartment building is built on top. The Fuji Bank Yokohama Branch Building (No.36) is currently utilized by the Graduate School of Film and New Media of Tokyo University of Arts as its Yokohama Campus. As seen in table 4-3, there is a high percentage of buildings to be repurposed if designated or registered into the national preservation system.

Table 4-3: Sixty-seven buildings designated or registered into the national preservation system and its current usage.

Usage of building	Number (%)
Same usage	19 (28.5%)
Utilized	39 (58%)
Dormant	7 (10.5%)
Demolished	2 (3%)
Total	67 (100%)

Albeit investigators from the Agency for Cultural Affairs, prefectural and city governments had visited the site, the *sanshitsu* of Tajima Kameo Residence (No.58) received a reply (see Appendix F) by Isesaki city stating that there is no plan for any utilization of the building by the city government. However, given the work and anticipation of submitting the preservation request, Mr. Kameo Tajima had decided to repair the *sanshitsu* ‘one last time’ in hopes that the building can be utilized for the regional revitalization of Sakai Shimamura. To push forward preservation plans, the *omoya* of Tajima Kameo Residence was first registered into the national preservation system in 2011 while the *sanshitsu* was later registered in 2022 after its repairment (Figure 4-2). Both successful registrations were reported by Gunma prefecture’s local newspaper Jomo Shimbun and Saitama prefecture’s Mainichi Shimbun as efforts to promote and celebrate this achievement. As part of the preservation plans of the

Tajima Kameo Residence *sanshitsu*, utilization of the sericulture building was included as a studio project for architecture students of YNU.

In reference to the tabulation of results in table 4-3 and the conclusion of Toyoshima and Fujiya (2006) that the submission of a preservation request does not necessarily promise the implementation of preservation activities but is influential towards the physical preservation of a building. This was confirmed in the case of Tajima Kameo Residence *sanshitsu*. While submission of the preservation request did not result in any actual assistance to Mr. Kameo Tajima in preserving his *sanshitsu* due to jurisdiction issues and low awareness of city governments, a member of YNU was able to step in and provide to the owner advise on the importance of preserving their building and prepare drafts for the submission of preservation requests.



Figure 4-2: Tajima Kameo Residence *sanshitsu* after repairment.

(Taken by Satoshi Ono on March 30, 2021)

4.1.2 Building Surveys – Measured Drawings and Interviews

The first building survey on former sericulture farmhouses and sericulture-related structures in Sakai Shimamura started in 2007. The four-year project was a collaboration between the local residents, local government and research institutes to have a basic understanding on the number of former sericulture farmhouses and sericulture-related structures remaining in Sakai Shimamura. Seventy-two former sericulture farmhouses were recorded in Sakai Shimamura focusing in areas such as Shinchi, Shinno, Nitta and Ryūsaku areas in the southern bank of the Tone-gawa river and Maegawara, Nishijima and Kitamukai areas on the northern bank. As the Former Tajima Yahei Residence was nominated for the inscription as a World Heritage component, fifteen former sericulture farmhouses and three sericulture-related structures in Shinchi, Shinno and Nitta areas, which are areas near Yahei's residence and two former sericulture farmhouses in Nishijima area had been performed measured drawing.

In October 2015, an urgent measured drawing was carried out on the Kurihara Hitoshi²⁸ Residence *omoya* as there were plans to demolish the building. The request by the Isesaki city government to Professor Ono was assisted by two university students including the author. Floor plans of the *omoya* were drawn and photographs were recorded (see Figure 4-3 & 4-4). This alarming request became an urgent issue for researchers as farmhouses with high cultural values do not receive much recognition and might be demolished gradually as owners are discouraged from keeping or maintaining these buildings.

²⁸ 栗原均 in Japanese.

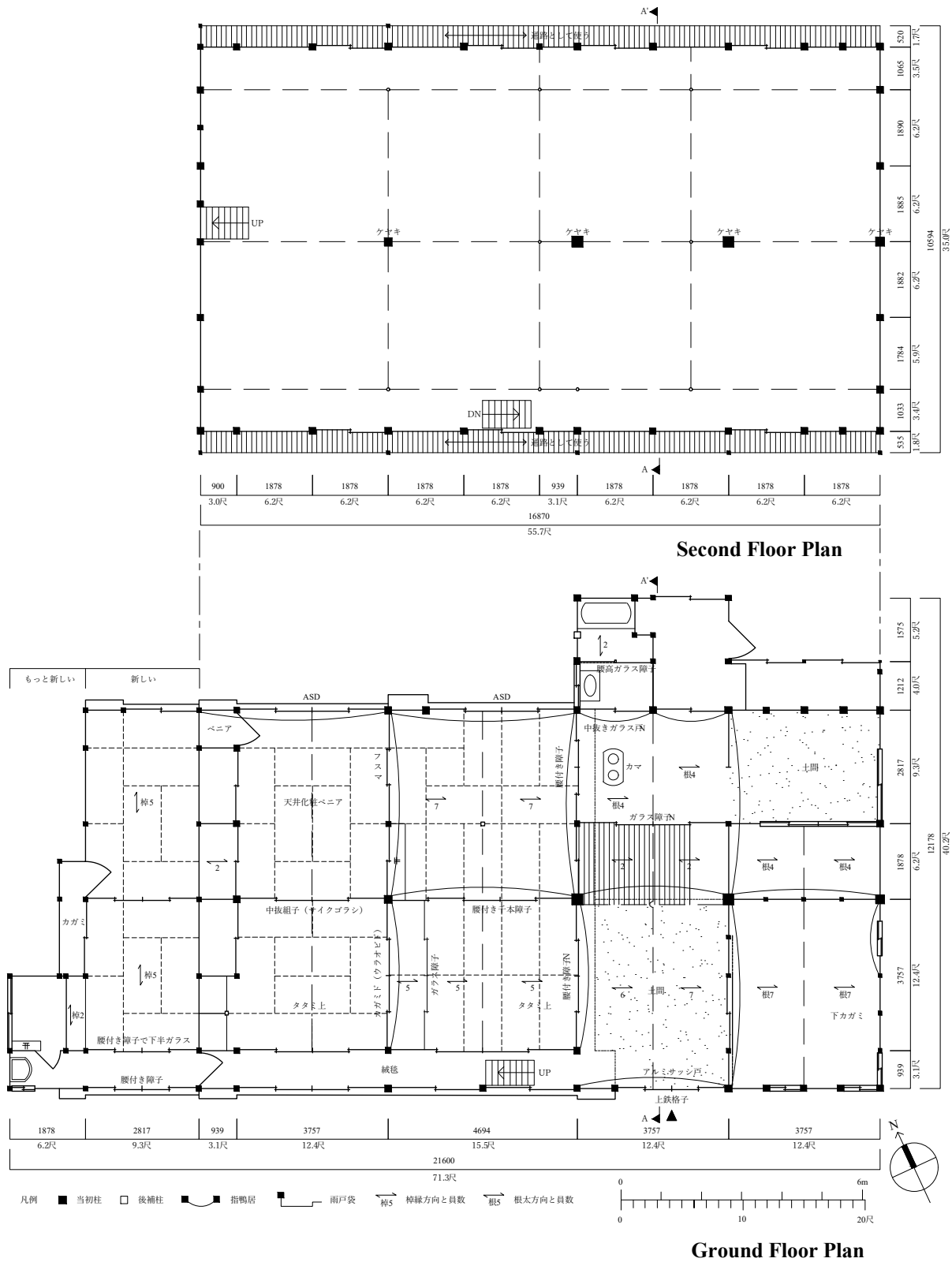


Figure 4-4: Floor plans of Hitoshi Kurihara Residence former *omoya*.

(Drawn by author. Measured drawing performed on October 18, 2015.)

In 2016, a questionnaire regarding residents' awareness on Shimamura's historic properties was carried out by university student Takahiro Mizuno (2017). Considering the low awareness of Sakai Shimamura residents, Mizuno had carried out the questionnaire survey to understand the stance of residents in preserving and maintaining their local historic properties and to identify factors affecting it. The questionnaire was sent to residents of Sakai Shimamura specifically in Shinchi, Shinno, Nitta, Ryūsaku, Kitamukai, Nishijima and Maegawara areas (see Figure 4-5).

Amongst the 852 questionnaires sent, 186 out of 193 replies were valid, making up only 21.8% of response rate. Regarding inheriting sericulture farmhouses to future generations, as opposed to 12% of residents whom agreed strongly, 32% of residents disagree strongly to the succession of sericulture farmhouses and 54% of residents believed that there are issues to be tackled. With 75% of residents age 60 and above, sericulture farmhouse owners raised concerns on the lack of funds in the maintenance of these buildings facing natural deterioration and natural hazards and this will cause a serious issue for descendants inheriting these buildings. On the other hand, 58% of non-sericulture farmhouse owners hope these farmhouses are preserved as opposed to only 1% whom disagreed to it. However, 36% of non-sericulture farmhouse owners have no concern in this topic. Altogether, majority of residents are keen in the succession of sericulture farmhouses.

Regarding intentions to participate in activities to learn and disseminate Sakai Shimamura's charm and history, 35% of residents responded to have been actively participating in such activities while 23% of residents are apathetic towards participating due to reasons such as busily engaged with other personal activities. However, it is a relatively high value as 77% of residents have responded to positive intentions of participating in such activities. It is also understood that residents of Shinchi and Nitta have a higher participation

rate in such activities while residents from the northern bank of Tone-gawa river are less interested.

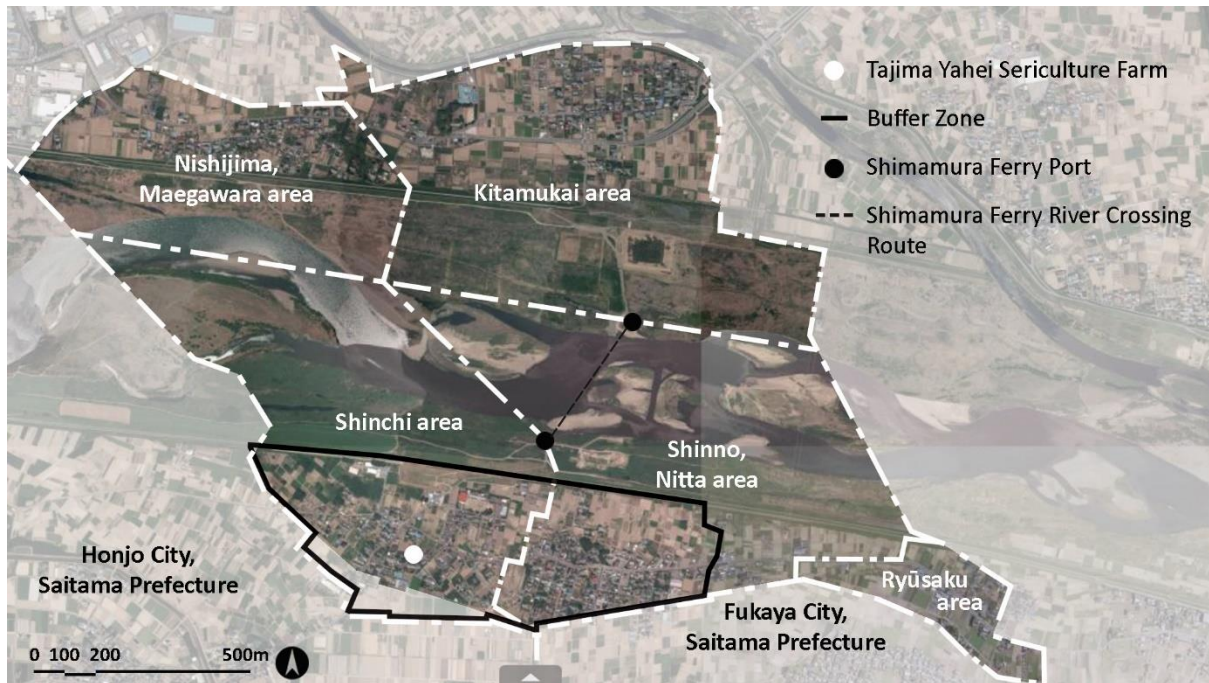


Figure 4-5: Areas in Sakai Shimamura. (Map source: Google Map. Edited by author.)

To further understand the reason behind the questionnaire results, interviews were carried out with twenty-nine residents including current and former sericulture farmhouse owners and non-owners. The interviews were aimed to understand the cause and thoughts of participating in such activities of all interviewees and the thought of owners towards their sericulture farmhouse. Nine out of twelve interviewees responded that they would like to preserve the buildings as it is without maintaining it. Public assistance, presence of successors, professionals with technical skills and a know-how guide are requirements suggested by farmhouse owners for the succession of these buildings. Non-owners raised concern in the lack of information available for non-owners to understand preservation methods for heritage

buildings in their village. ‘The love for Shimamura’, ‘value of inheritance’, ‘responsibility from predecessor’ and ‘pride of a prospered local sericulture history’ were responded as factors affecting preservation awareness of residents. It was suggested that the most effective method to invoke enthusiasm of non-participating residents is to suggest interesting and fun activities. Regarding issues of Sakai Shimamura, residents responded with the lack of shops and economic activities resulting in the inconvenience in tourism and daily lives of residents. The outward migration of younger generation is also an issue due to the complications in ‘building a house’ or ‘starting a family’ in Sakai Shimamura. Interview results also showed that there is a difference in the state of awareness between the residents on the northern and southern bank of the river.

Considering the lack of research on the remaining former sericulture farmhouses, university student Taisuke Kajino (2018) carried out measured drawing on seven former sericulture farmhouses in Ryūsaku area in 2017. Amongst, Tajima Kiyoshi Residence (assumed to be built in 1923) was registered as a Tangible Cultural Property in 2021. Former sericulture farmhouses in Ryūsaku area were assumed to be built in a range between mid-Meiji period and late Shōwa period but most are built around 1890. The oldest sericulture farmhouse was found to be Kanai Fusao²⁹ Residence built in the early Meiji period around 1870 in Miyado area of Fukaya city in Saitama prefecture. Four sericulture farmhouses still possess sericulture buildings in the site of its residence. Amongst, in the site of Machida Yasuhisa³⁰ Residence is a large *Nagayamon* style sericulture building not found in any other sites in Sakai Shimamura. A microscope room is also found attached to the *omoya* of Machida Yasuhisa Residence. Including a tennis court, the Machida Yasuhisa Residence site possess thirteen structures and has the most structures located in a sericulture farmhouse site in Ryūsaku area. The Machida

²⁹ 金井總雄 in Japanese.

³⁰ 町田泰久 in Japanese.

family is believed to have been one of the main sericulture farmhouses in Ryūsaku area which supported the sericulture industry. Similar to Kameo Tajima's *sanshitsu* (Shinchi area), the sericulture building of Kazuhisa Machida³¹ also possess a *futatsu-yagura* roof ventilation system. While all recorded sericulture farmhouses were built in *yo-madori*³² in a smaller scale, the Machida Yasuhisa Residence *omoya* was built in a large-scale *mu-madori*³³ spanning 11 *ken* in width and 5 *ken* in depth. Large scale sericulture farmhouses are usually built with a central column of more than 0.9 *shaku* (approximately 0.273 metre) in size but small-scale Machida Yasuhisa Residence and Kanai Naho Residence were built with a thick central column. Column spacings were usually designed as 1 *ken* equivalent to 6.2 *shaku* (approximately 1.88 metres) but column spacings of Machida Kazuhisa Residence and Machida Yasuhisa Residence were measured to be 6.25 *shaku* (approximately 1.894 metres). In reference to Kurihara Shigeyuki Residence which was measured to be 6.26 *shaku* (approximately 1.903 metres), the 6.25 *shaku* to 6.26 *shaku* column spacing is believed to be the older standards for sericulture farmhouses. In other words, sericulture farmhouses built with the said column spacing can safely assumed to be built earlier than the Former Tajima Yahei Residence *omoya*. Observations on the extension of the front façade and balcony of Machida Kazuhisa Residence concluded that the *omoya* was possibly relocated from other sericulture areas in Gunma or Saitama prefecture. Kanai Fusao Residence *omoya* possessing an olden architecture style as opposed to other sericulture farmhouses built with the *dashigeta* style is also believed to have been relocated from areas outside of Sakai Shimamura. Although there are many cases of sericulture farmhouses relocated from other areas into Sakai Shimamura, Kajino concluded that sericulture farmers in Sakai Shimamura and Miyado area are somewhat related.

³¹ 町田一尚 in Japanese.

³² 四間取り in Japanese.

³³ 六間取り in Japanese.

Measured drawing is one method to record and preserve buildings in 2D form and allow a clearer understanding on the background of buildings including history, culture and architecture. With some research done for Shinchī, Shinno, Nitta and Ryūsaku areas, other areas such as Kitamukai, Nishijima and Maegawara in the northern bank of the river and Miyado area in Fukaya city lack research. Questionnaires and interviews are straight forward methods to understand the voices and thoughts of residents on current issues which needs to be resolved. While the Isesaki city government has been periodically carrying out satisfaction surveys on comprehensive plans, questionnaire and interviews specifically on the preservation of the World Heritage component and its buffer zone needs to be implemented as a way to monitor the World Heritage component and its buffer zone.

4.1.3 Restoration of Buildings

As mentioned previously, the time constraints imposed on the city during the World Heritage Site selection period resulted in only the bare minimum in research of the farm and its buffer zone. Nomination documents placed emphasis on the *omoya* of the farm and only mentioned the presence of other buildings and structures in the site. By studying old drawings, it was found that throughout the course of time, some buildings in the site were demolished. However, these buildings lack written records on their usage and existence. In 2021, some old photographs which showed Yahei Tajima's *shin-sanshitsu* were found by the city's archive research team and shared with YNU Ono Laboratory in hopes to study the space and structure progression of the building from its construction until its demolition. Restoration of the floor plans and structure of the *shin-sanshitsu* was co-researched by Professor Ono and the author.

Tajima's second sericulture guidebook documented the design of a two-storey sericulture building with a large roof ventilation system known as the *shin-sanshitsu* (see Figure 4-6). The building was demolished around 1952 while the foundation remains on site

until this day (see Figure 4-7). Old photographs of the *shin-sanshitsu* was shown to have been standing in the site of the farm between Meiji period to late Shōwa period. The *shin-sanshitsu* was located east of the *omoya* and was connected to it on the second floor through a *watari-rōka*³⁴ (connecting corridor). After the *shin-sanshitsu* was demolished, half of the *watari-rōka* was demolished while the remaining half remains attached to the *omoya* as seen today.

The year of construction of the *shin-sanshitsu* remains unknown. However, it is confirmed that former Shōnai samurais had learn sericulture from Yahei Tajima between April to June of 1874. These samurais built ten similar two-storey sericulture buildings with long roof ventilation system on a hipped tile roof in the Matsugaoka Reclamation Land³⁵ between 1875 and 1876. It is assumed that Tajima had planned for the construction of the *shin-sanshitsu* in 1872 and construction works started the following year as a sketch depicting a tower building located east of the *omoya* was present in Tajima's first guidebook (see Figure 4-8) published in 1873 (Tajima, 1872).

The *omoya* and *shin-sanshitsu* are part of the farm which played an important role as a place for the practice, research and dissemination of the *seiryō-iku* technique. While there are multiple old photographs taken, there is no restorative research on the structural progression of the building. As survey and excavation of buildings in the farm advances, old documents and photographs on the *shin-sanshitsu* was also found. These old documents and photographs were examined and the structural changes of the *shin-sanshitsu* was deduced.

³⁴ 渡り廊下 in Japanese.

³⁵ 松ヶ岡開墾 in Japanese. Five of the ten sericulture buildings remained until this day and are designated as a National Historic Site.

Analysis of Materials

Materials examined are as follows:

- ① *Kasō-zu* (drawing of physiognomy of the site) drawn in 1863 (see Figure 4-6)
- ② ‘New Theory of Sericulture’ (1872) and ‘New Theory of Sericulture Sequel’ (1879) (see Figure 4-9 & 4-8)
- ③ Remains of foundation of the *shin-sanshitsu* and remains of the *omoya* and *watari-rōka* (see Figure 4-10 to 4-13)
- ④ Old photographs of the *shin-sanshitsu* and calligraphy writings on the ridge of the *higashi-mon* (east gate) (see Figure 4-14 to 4-19)
- ⑤ Interview transcripts of late Mr. Kenichi Tajima³⁶ (great-great grandson of Yahei Tajima) and Mr. Hideo Tajima (younger brother of Mr. Kenichi)
- ⑥ Survey results on research of Sakai Shimamura sericulture buildings
- ⑦ Sericulture buildings of Matsugaoka Reclamation Land in Tsuruoka city, Yamagata prefecture (see Figure 4-20)
- ⑧ Sericulture farmhouses in Agatsuma-gun county, Gunma prefecture

From the *kasō-zu* and the first guidebook ‘New Theory of Sericulture’ (see Figure 4-7 & 4-8), it was understood that the *shin-sanshitsu* did not exist until the writing of the second guidebook in 1879. The *shin-sanshitsu* depicted in the sequel is a large two-storey building with hipped tile roof, a large monitor roof also with hipped tile roof, a balcony on the centre front of the building and a veranda on the second floor extending from the front façade to the east façade and to the back façade (see Figure 4-9). However, in the first guidebook, a tower-

³⁶ 田島健一 in Japanese. Born in 1929, died in 2014. Sixth generation head of the residence. Current seventh generation head of the residence is son of Kenichi, Hideo Tajima, 田島英雄 in Japanese. Not to be confused with Hideo Tajima, 田島秀男 in Japanese, younger brother of Kenichi Tajima.

like building was depicted locating east of the *omoya*. The remains of the foundation lay facing north and can be seen on the front, east and west as the cut stones were stacked together. Remains of the foundation is unseen on the north because the ground on the back is high but has stones aligned northeast of the foundation which is believed to be the boundary of the north façade of the foundation. The foundation is 26 metres by 12 metres with 5.2 metres by 3 metres ground in the centre front and 1.3 metres by 1.5 metres ground on the northeast corner of the centre front ground (see Figure 4-10). Also seen in figure 4-10, on the west of the centre front ground are three stone steps (approximately 0.75 metre deep). On the north corner of the west façade is a ground of 4 metres by 3.5 metres. The stone foundation surrounds the outer perimeters of the grounds. Height of the stone foundation is approximately 1 metre tall on the front façade but the lowest stone step is currently buried underground. The layout of the *shin-sanshitsu* could not be deduced from on-site observations as the ground on the foundation was converted to a field. After the demolition of the building, most column foundation stones were not found, except three stones remained west on the foundation (see Figure 4-11). The three column foundation stones arranged from the front to the back are distanced at 4.73 metres and 3.77 metres and is 0.8 metre from the boundary of the foundation. Two column foundation stones (see Figure 4-12) remained in the centre front ground distanced at 3.79 metres and 2.84 metres deep. The design and structure of the *watari-rōka* (see Figure 4-13) can be deduced from the remaining half attached to the *omoya*.

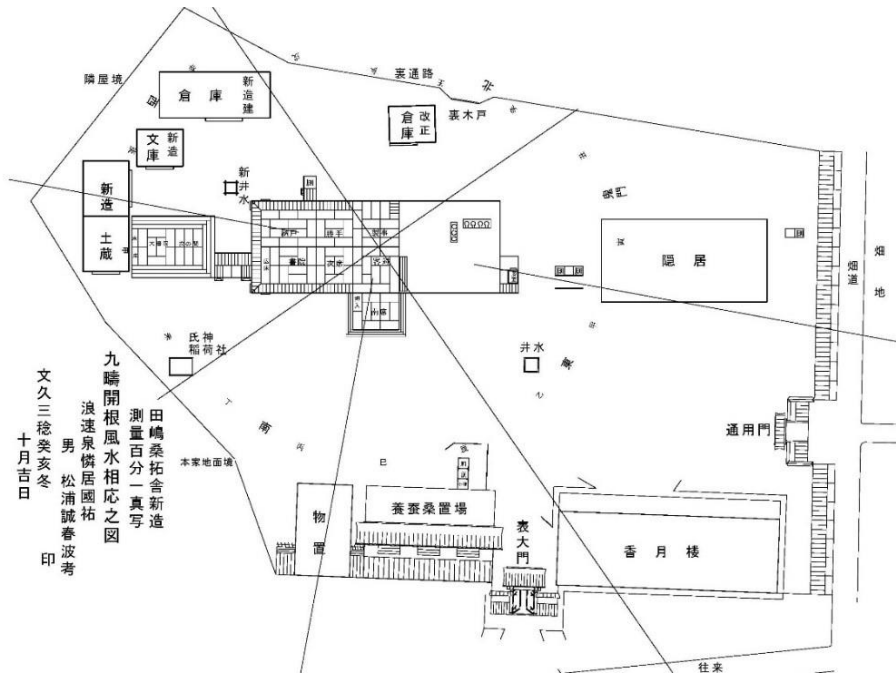


Figure 4-6: *Kasō-zu* of Former Tajima Yahei Residence.

(Source: Personal collection. Redrawn by Satoshi Ono.)

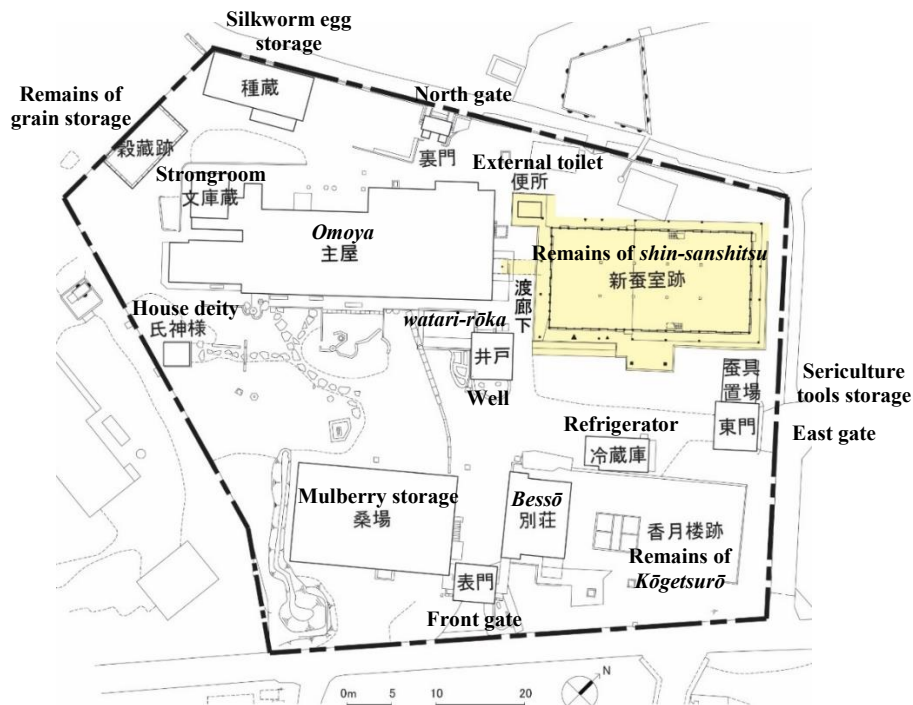


Figure 4-7: Site plan of Former Tajima Yahei Residence and location of *shin-sanshitsu* (in yellow). (Map source: Isesaki City Board of Education. Edited by author.)

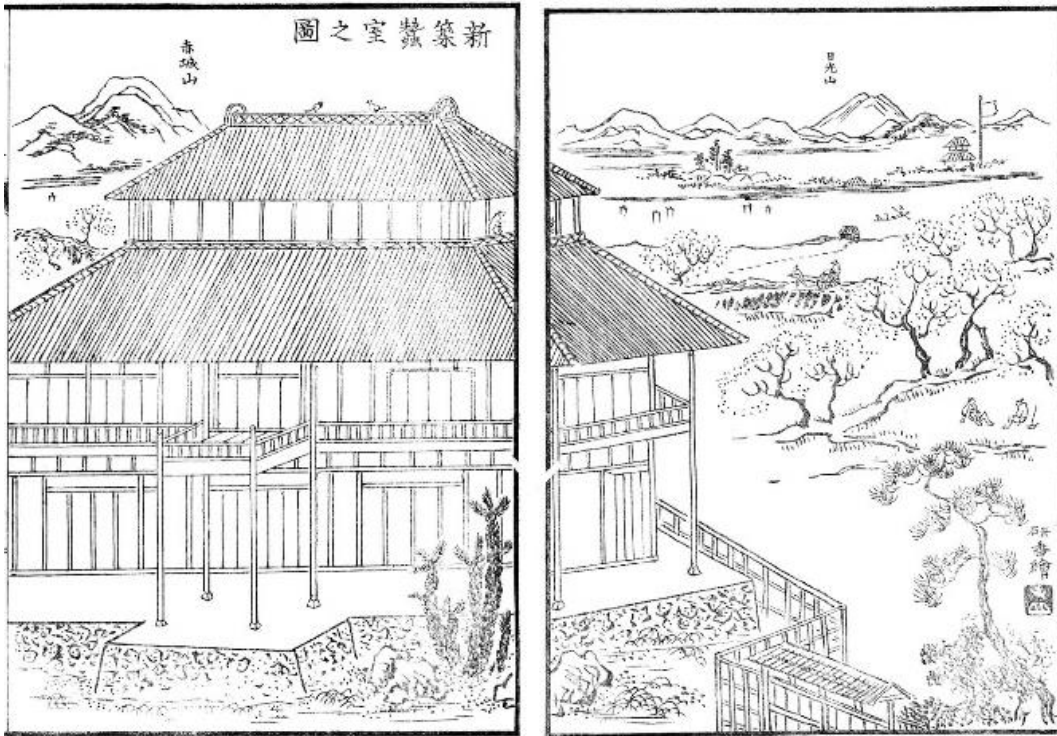


Figure 4-8: Sketch of the *shin-sanshitsu*.

(Source: The New Theory of Sericulture Sequel, 1879)

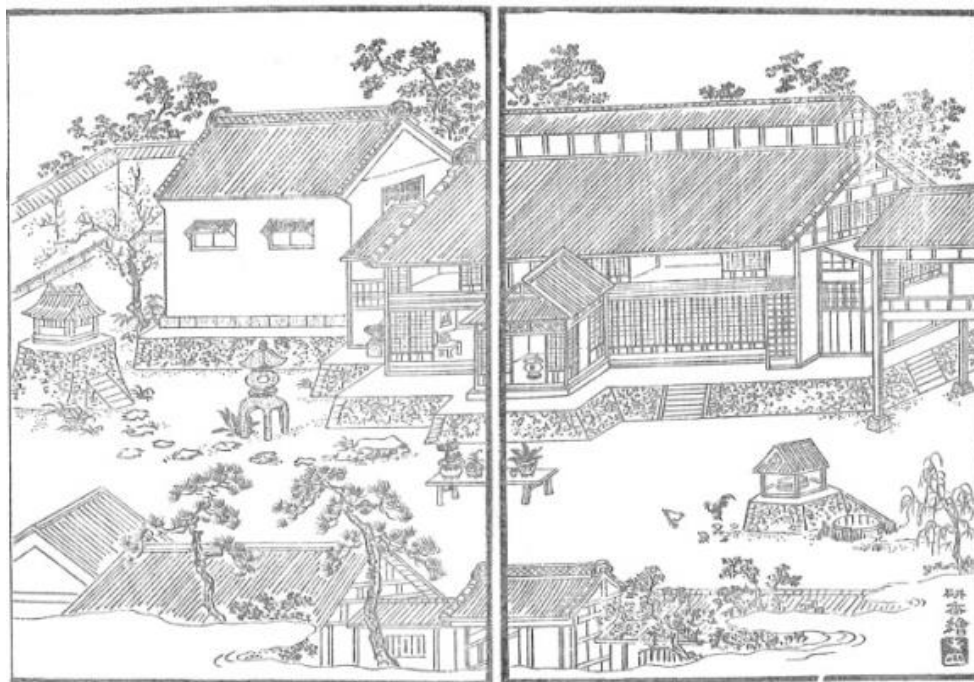


Figure 4-9: Sketch of the farm portraying the *omoya*, a tower like structure located on its east and other structures in the site. (Source: The New Theory of Sericulture, 1872)



Figure 4-10: Front or south façade of stone foundation remains of *shin-sanshitsu*.
(Taken by Satoshi Ono on January 23, 2022)



Figure 4-11: Three column stone foundation on the west of remains of *shin-sanshitsu*.
(Taken by Satoshi Ono on January 23, 2022)



Figure 4-12: Column stone foundation on central front façade of stone foundation remains of *shin-sanshitsu*.
(Taken by author on January 23, 2022)



Figure 4-13: Remains of *watari-rōka* attached to the *omoya*.
(Taken by Satoshi Ono on January 23, 2022)

There are six photographs of the *shin-sanshitsu* found including one published in the ‘History of Gunma Prefecture’ (1978), ‘The Meiji period of Japan: Photographs owned by the Imperial Household Archive’ (2000), New Year’s postcard for the year 1911 printed by the Tajima family and four photographs later found by the Isesaki City Board of Education in the

archive survey. The oldest photograph taken was published in ‘History of Gunma Prefecture’ (1978) and its original photograph was found by the Isesaki City Board of Education in clear details. Figure 4-14 showing the *shin-sanshitsu* in white roof plaster is assumed to be taken between 1874 and 1875 shortly after the completion of the building. Figure 4-15 archived in the Imperial Household Archive was one of the photographs submitted by the prefecture for the collection of when Emperor Meiji visited Takasaki in September 1878 and the photograph is assumed to be taken in the same year. In the background shows the *omoya* of Tajima Buhei Residence (current head of the family is Nobutaka Tajima) with a *sō-yagura* which was believed to be installed between 1870 and 1897 and this does not contradict the assumption of which the photograph was taken in 1878. In figure 4-14 and 4-15, a balcony on the centre front of the building is observed and height of openings of the roof ventilation system are tall. However, in figure 4-16, the balcony on the centre front of the building is not observed, height of the openings of the roof ventilation system were narrowed down with planks covering the lower half and bracings were added on the outer columns of the first floor. These adjustments can be appropriately deduced to be repairment measures against water leakage and drooping of girders after a certain period of time. The current east gate is undergoing maintenance works since 2020 and calligraphy writings stating the construction date on the ridge of the gate was found. The writings on the ridge showed that the current gate was constructed in January of 1897. The east gate in figure 4-14 and 4-15 are different from what is seen today and therefore figure 4-16 is assumed to be taken before 1896. Figure 4-17 was a photograph printed on the New Year’s postcard in 1911 sent out by Yahei Tajima. The photograph was named ‘Photograph of Tajima Yahei’s *shin-sanshitsu* in Sakai Shimamura Saba-gun county of Gunma prefecture’³⁷ as translated from the original language of Japanese. Judging from the state of the planks covering the roof ventilation system openings, it is safe to assume that the photograph

³⁷ 「群馬県佐波郡島村田島弥平養蚕室之図」 in Japanese.

was taken in 1910 for its use in the New Year's postcard. Figure 4-18 is an aerial photograph providing an overview of the entire residence and presumed to be taken in the latter half of 1930s as observed from the surrounding conditions. The presence of the *watari-rōka* connecting the *omoya* and *shin-sanshitsu* on the second floor and column positions on the west façade can be observed. An external staircase at the location where the centre front balcony used to be can also be observed in this photograph. Figure 4-19 is one of the two photographs found together showing the *shin-sanshitsu* from the east gate and from the southwest corner. The latter (see Figure 4-19) shows the condition of the veranda on the second floor of the front façade, first floor openings on the front and a slight peek on the entrance of the building. The date of this photograph is unknown but the photographic paper where it is printed on looks newer than that in figure 4-18 and therefore is assumed to be from the latter half of 1940s.



Figure 4-14: *Shin-sanshitsu* estimated to be around 1874 and 1875. (Source: private collection)



Figure 4-15: *Shin-sanshitsu* estimated to be around 1878.

(Source: Meiji period of Japan: Photographs owned by the Imperial Household Archive, 2000)



Figure 4-16: *Shin-sanshitsu* estimated to be between 1878 and 1896. (Source: private collection)



Figure 4-17: *Shin-sanshitsu* estimated to be in 1910. (Source: private collection)

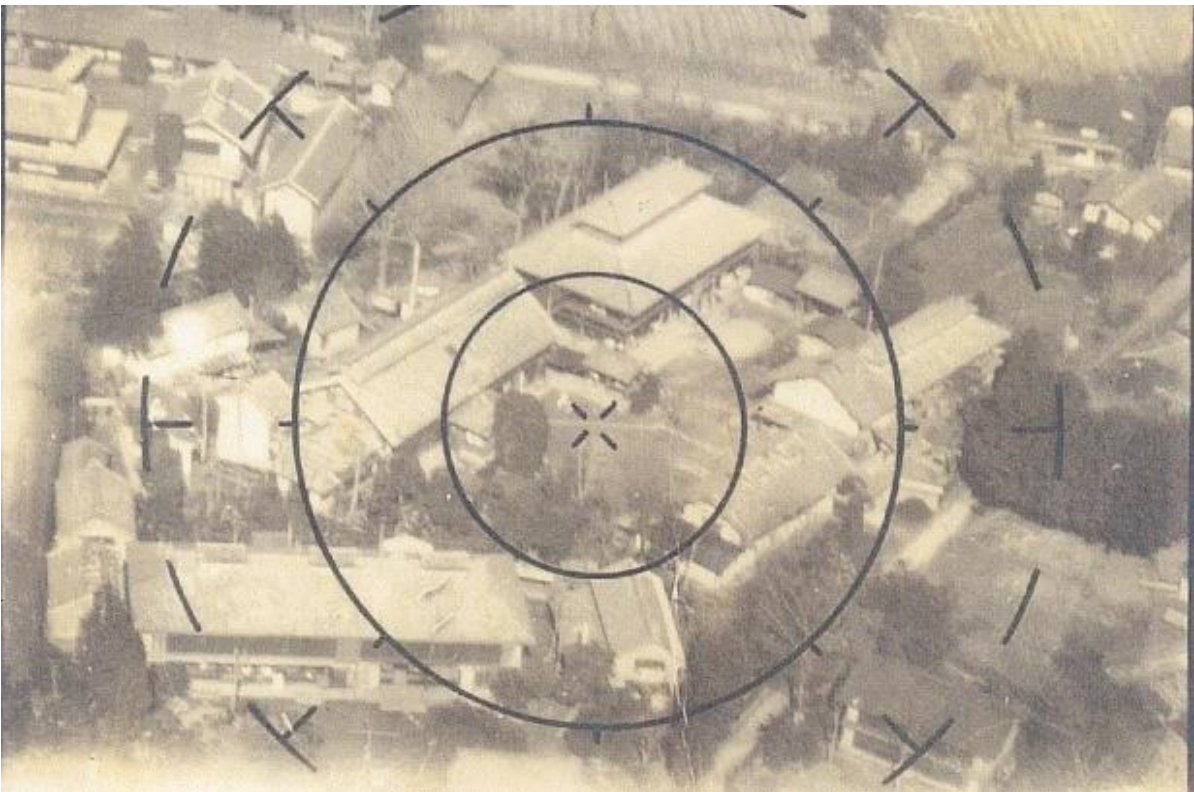


Figure 4-18: *Shin-sanshitsu* estimated to be in latter half of 1930s. (Source: private collection)



Figure 4-19: *Shin-sanshitsu* estimated to be in latter half of 1940s. (Source: private collection)

In an interview, the late Mr. Kenichi Tajima confirmed that the *shin-sanshitsu* was demolished in 1952 because it was damaged and left unused after the second world war. Another interview was arranged in 2021 with Mr. Hideo Tajima, the younger brother of Mr. Kenichi whom recalled his childhood memories of the *shin-sanshitsu*. In the interview, he confirmed that ‘the size of the *shin-sanshitsu* was as large as its foundation’, ‘the second floor was used for sericulture, the ground floor west area (concrete flooring) was used for sericulture tools storage and the east area (timber flooring) was used for sericulture’, ‘in his childhood memory of running on the outer corridor felt like it was more than 1 metre in width’, ‘did not remember if the roof ventilation system was called *yagura* but had memories of the flooring made of slats were arranged widely that his legs would fall right through the gaps and the windows were of sliding doors’, ‘entrance to the second floor was through the centre front stairs (see Figure 4-19)’, ‘there are no memories of the arrangement of the interior columns

and stairs but the stairs may have been on the north side'. From the interview, it is noted that the ground floor was divided into two areas, *doma* (concrete floor) and *yuka-ue* (timber flooring), the veranda and corridor surrounding the building was more than 1 metre wide, there was no memory on the name of the roof ventilation system but the flooring was made of slats which was a common feature of the *yagura* of sericulture farmhouses in Sakai Shimamura.

Also discussed in Chapter 3, basic features of sericulture farmhouses in Sakai Shimamura includes the construction of buildings and structures on a stone foundation, farmhouses are of two-storey with tile roof spanning 8 *ken* (1 *ken* = 1.879 metres) and above in width, 5 *ken* in depth and central columns arranged along the ridge, second floors were specifically used for sericulture activities with openings installed in three or four façades, *yagura* on the roof are approximately 5 *shaku* (1.515 metres, 1 *shaku* = 0.303 metre) with the largest recorded width of 8 *shaku* with windows 2 *shaku* in height installed on the front and back façades. Sericulture buildings in the Matsugaoka Reclamation Land were of two-storey with hipped tile roof and a large and long monitor roof. Five out of ten buildings built remain on site until this day and possess appearances similar to the *shin-sanshitsu* of the farm. However, the outer corridor on the ground floor of sericulture buildings in the Matsugaoka Reclamation Land are built with a roof while the outer corridor on the second floor of the *shin-sanshitsu* was built as a veranda. The second floor of the ten buildings span approximately 21 *ken* in width and 5 *ken* in depth (1 *ken* = 1.818 metres). Four sericulture buildings were constructed by Kanekichi Takahashi³⁸ while the other four was by Tomikichi Sōma³⁹, and there is basically no difference in scale and form but are different in terms of cross-sectional shape and placement of central columns. Takahashi's sericulture buildings have 0.8-0.9 *shaku* (about

³⁸ 高橋兼吉 in Japanese. Born in 1845, died in 1894. Engineer whom designed mainly *giyōfū* architecture. Representative buildings such as Shōnai Shrine (1877), Former Nishidagawa District Hall (1881) and Former Tsuruoka Police Station (1884).

³⁹ 相馬富吉 in Japanese.

0.24 metre to 0.27 metre) square central columns which are 1.5 *ken* apart using locally harvested timber from Shōnai. Sōma's sericulture buildings were built with octagonal central columns in 1.2 *shaku* (0.364 metres) and is placed at an interval of 1.5 *ken*, 3 *ken*, 4 *ken*, 4 *ken*, 4 *ken*, 3 *ken*, and 1.5 *ken* using timber from Mogami area.

There are no examples with similar roof ventilation system found possessed by other sericulture farmhouses in Sakai Shimamura. Judging from the size of the roof ventilation system of the *shin-sanshitsu*, it would fit more as a 'third floor' rather than a roof ventilation system. On the other hand, there are multiple examples of three storey sericulture farmhouses with sizes similar to the *shin-sanshitsu* located mainly in Agatsuma-gun county. However, the relation of these farmhouses to the *shin-sanshitsu* would need further research.

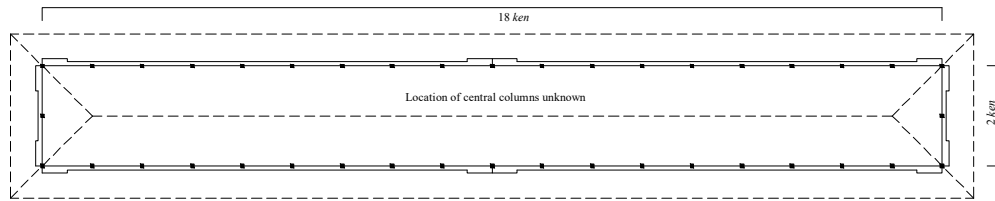
In addition to results discussed above submitted to the AIJ Journal of Technology and Design (2022, October Issue), additional information is discussed as below. As reference case studies to deduce the restoration of the *shin-sanshitsu*, potential farmhouses remaining in the Agatsuma-gun county possessing similar roof ventilation systems were studied for its roof structure while the sericulture buildings in the Matsugaoka Reclamation Land (see Figure 4-20 to Figure 4-22) were studied for its spatial arrangements. In a collaborative project organized between 2021 and 2022 to identify traditional buildings remaining in the eastern parts of Gunma prefecture, mainly Agatsuma-gun county, traditional buildings such as farmhouses and *dozō* (earthen storehouses) built before the World War II are identified and surveyed. Amongst, the 2400 buildings surveyed, only two remaining farmhouses (see Figure 4-23) were identified with hip-roofed roof ventilation systems as opposed to the majority of farmhouses identified possessing gable-roofed roof ventilation systems. In a brief interview with the farmhouse owner, Honda Residence is found to be relocated to its current site in 1924 and Terajima Residence is assumed to be built between 1905 and 1912. In 2022, measured drawing was carried out on five three-storey sericulture farmhouses in Agatsuma-gun county (see Figure 4-

24 to Figure 4-26). However, interviews and archival research will need to take place to further understand the background details of these sericulture farmhouses and their possible relationship with the *shin-sanshitsu*.

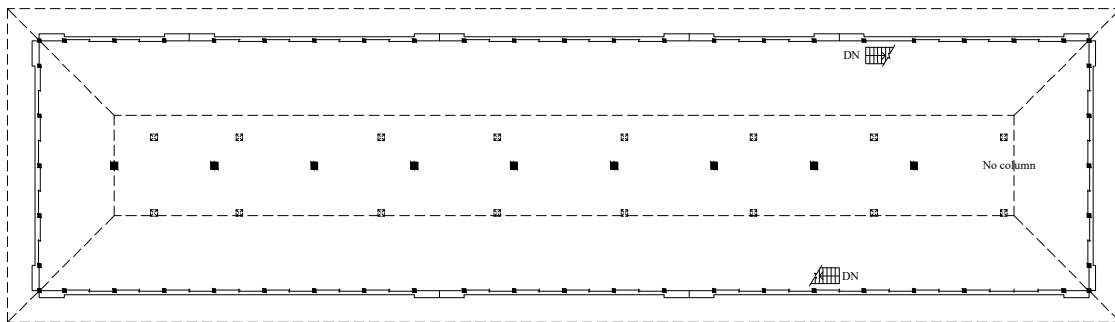


Figure 4-20: No.1 sericulture building in Matsugaoka Reclamation Land.

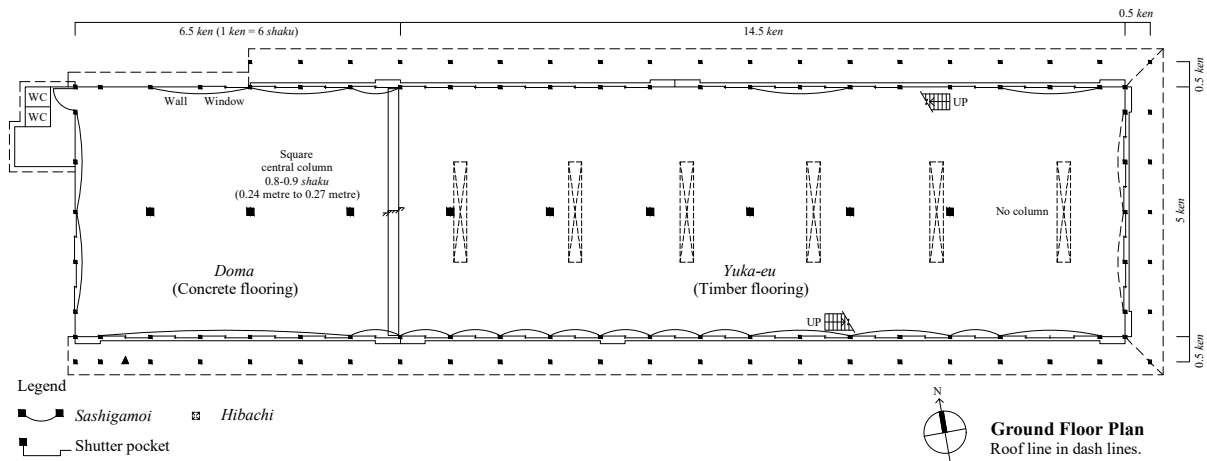
(Taken by author on October 18, 2021.)



Yagura Floor Plan
Roof line in dash lines.



Second Floor Plan
Roof line in dash lines.



Ground Floor Plan
Roof line in dash lines.

Figure 4-21: Floor plans of No.1 sericulture building in Matsugaoka Reclamation Land.

(Drawn by author. Measured drawing performed on November 28, 2020.)

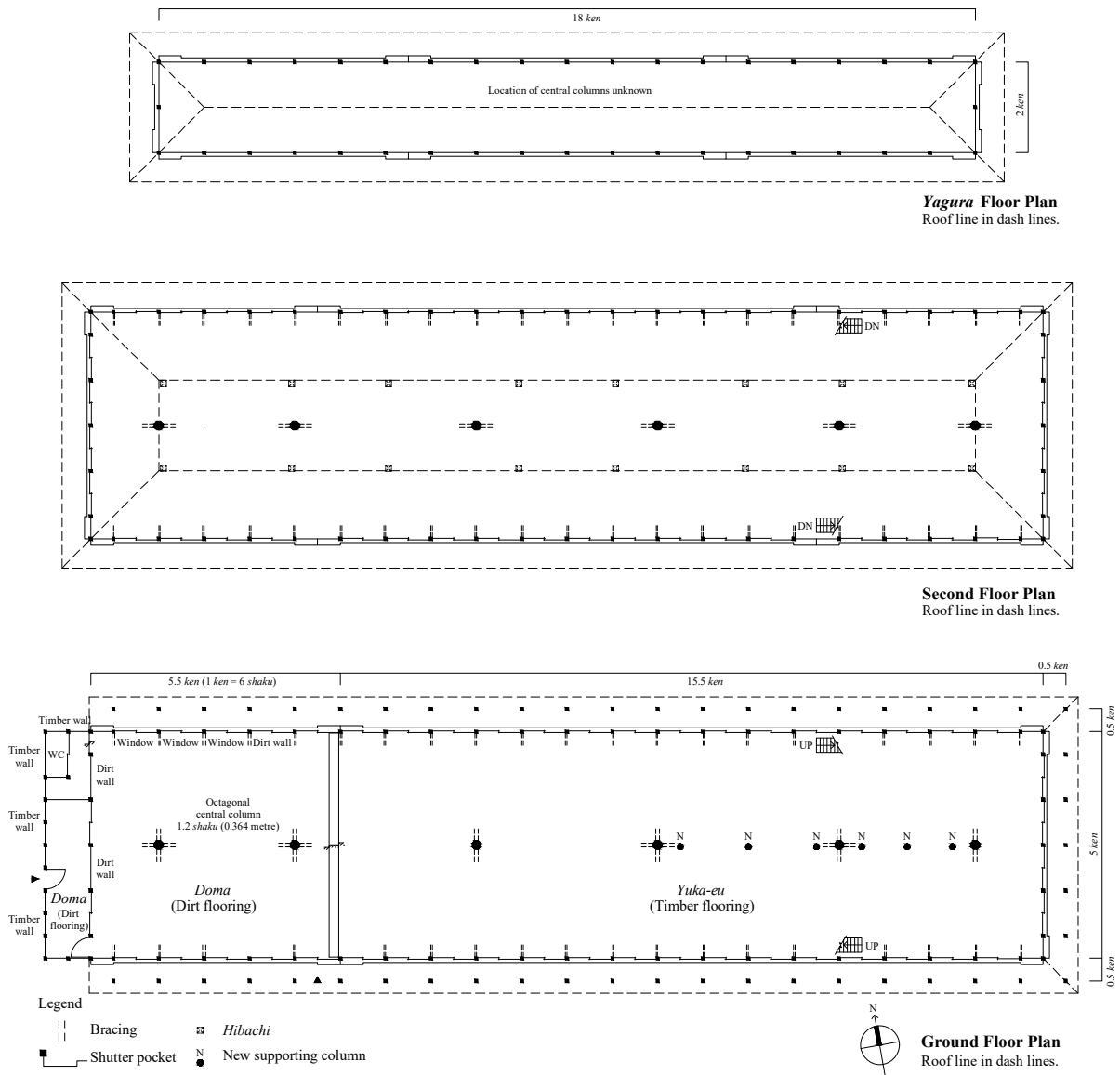


Figure 4-22: Floor plans of No.5 sericulture building in Matsugaoka Reclamation Land.

(Drawn by author. Measured drawing performed on November 28, 2020.)



Figure 4-23: Honda Residence *omoia* with roof ventilation system possessing hipped roof in Ueguri, Agatsuma-gun. (Source: Satoshi Ono. Taken on September 14, 2022.)

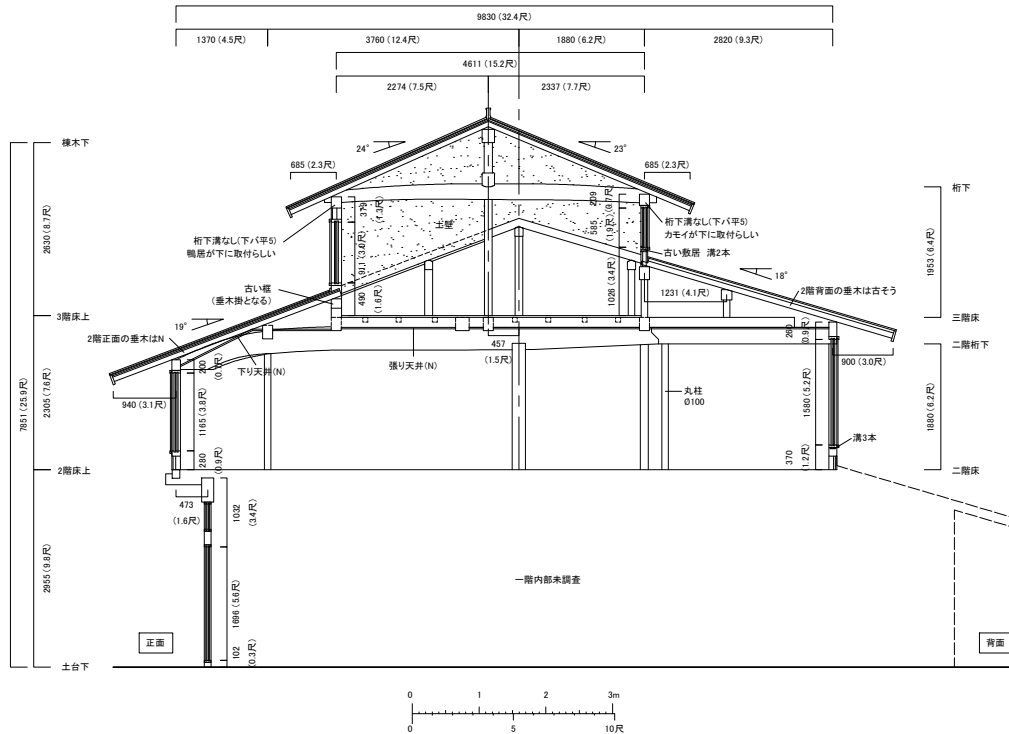


Figure 4-24: Section of Nakai T. Residence *omoia* in Moto-juku, Agatsuma-gun county. (Drawn by author. Measured drawing performed on June 25, 2022.)

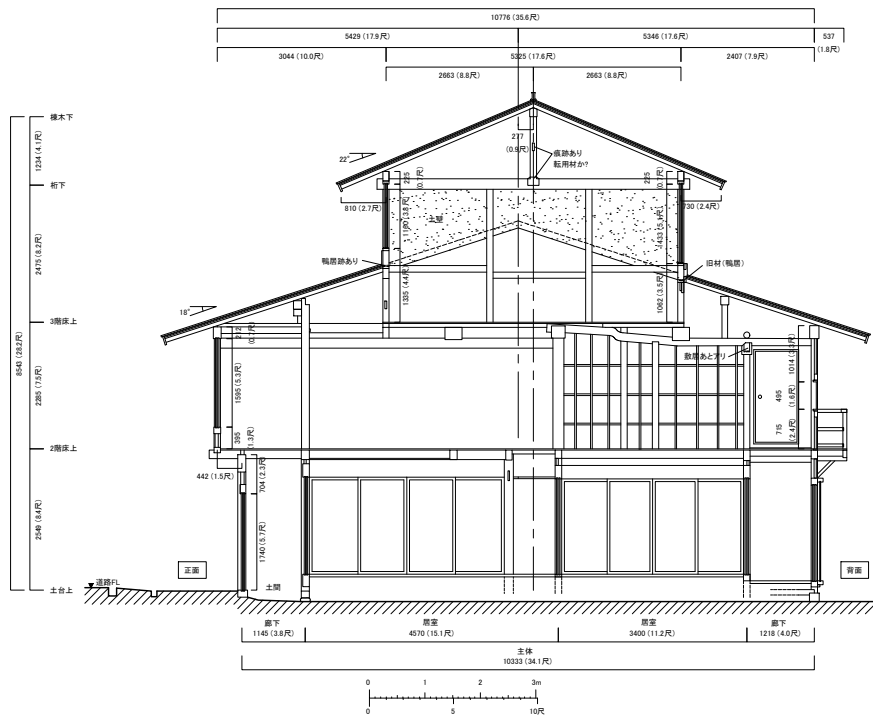


Figure 4-25: Section of Karasawa Y. Residence *omoya* in Haneo, Agatsuma-gun county.
 (Drawn by author. Measured drawing performed on July 17, 2022.)

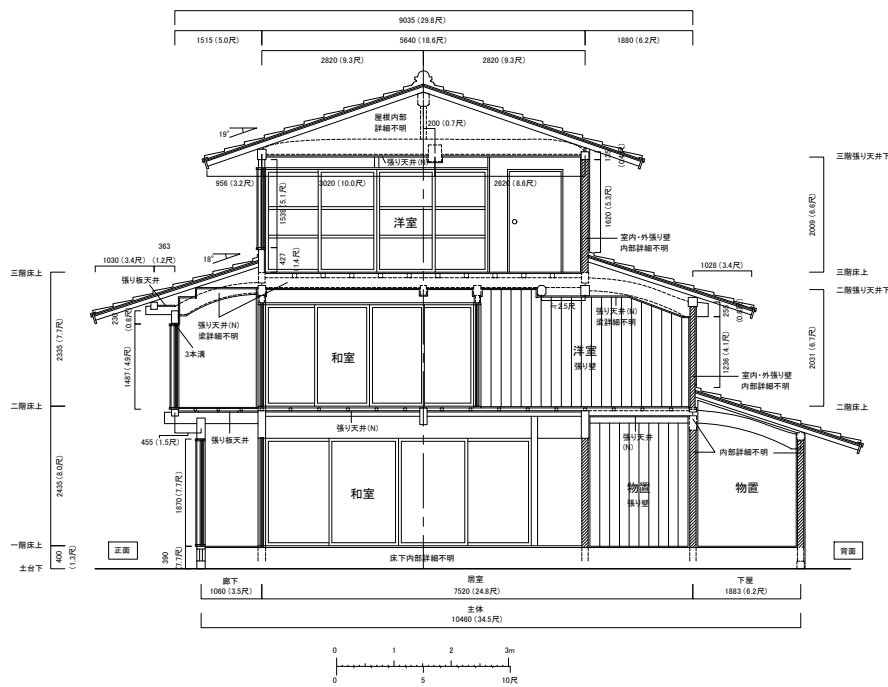


Figure 4-26: Section of Kobayashi M. Residence *omoya* in Mishima, Agatsuma-gun county.
 (Drawn by author. Measured drawing performed on June 19, 2022.)

Restoration of Floor Plans - *Yagura*

From figure 4-14, it is clear that the *yagura* spanned 8 *ken* in width and 2 *ken* in depth. All 8 *ken* were openings and were equipped with sliding shutters and shutter pockets on both ends, 6 *ken* in the centre was equipped with short *koshi* Shōji⁴⁰ sliding doors. On the east façade, 0.5 *ken* on each end were also equipped with sliding shutters and shutter pockets. Figure 4-15 shows the *yagura* without its fittings and the condition of the back and west façades can be observed. It is safe to assume that the back and west façades were similar to the front and east façades. *Yagura* of sericulture farmhouses in Sakai Shimamura are usually equipped with *koshi* sliding doors on the front and back façades. However, *yagura* with openings on the side façades were not found except for the *shin-sanshitsu*. In other words, *yagura* of the *shin-sanshitsu* was an unprecedented epochal design with large openings and no walls on all four façades while fitted only with *koshi* Shōji sliding doors and sliding shutters. The outer perimeters of the *yagura* was later covered with wainscoting planks and shutter pockets were installed on the centre of the front façade as seen in figure 4-16. In figure 4-17, sliding shutters and *koshi* Shōji sliding doors were used together as fittings of the *yagura*. In contrast, the roof ventilation system of sericulture buildings in Matsugaoka Reclamation Land are only fitted with sliding shutters.

Restoration of Floor Plans - Ground floor

As shown in figures 4-14, 4-16, 4-17 and 4-19, the body of the building on the ground floor was 12 *ken* and 0.5 *ken* on both ends were either roofed dirt floor or a veranda, which totalled up to 13 *ken* in width, a total of 7 *ken* on the side façade including 6 *ken* of the building body itself and 0.5 *ken* on both ends. The size of the restored building measuring to 24.68

⁴⁰ 腰障子 in Japanese. Sliding doors where the 2/3 on the upper part is Shōji papers and 1/3 on the lower part is timber.

metres in width and 13.4 metres in depth fits into the remains of the foundation. Column spacings of the east façade was three 2 *ken* spaces which made up 6 *ken* and two 0.5 *ken* veranda on each end. Four outer columns of the ground floor veranda support the veranda of the second floor. Each 2-*ken* spacing was strengthened by a *sashigamoi*⁴¹. Fittings were equipped with four *koshi* Shōji sliding doors on the inside, sliding shutters on the outside and shutter pockets installed only on the northern side. Spacings of the outer columns were 2.5 *ken*, 2 *ken*, 2.5 *ken* from the front façade and bracings were later installed to prevent the drooping of the beams of the second-floor veranda (see Figure 4-16 & 4-17).

On the front façade, five column spacings of 3 *ken*, 2 *ken*, 2 *ken*, 2 *ken*, 3 *ken* from the east end was designed and each column was strengthened by a *sashigamoi*. The veranda from the east end extended all the way to the third column, leaving a 0.5 *ken* dirt floor corridor starting from the third column extending to the last column on the west end. Space in front of the third and fourth column expanded out, creating a balcony on the second floor and a porch below. It is possible that an external staircase was installed against the veranda on the west end of the balcony. 3 *ken* from the west end was installed with *koshitaka* Shōji⁴² sliding doors. From the column where the veranda ended were two 0.5 *ken* spacings of which both are equipped with shutter pockets. West of the shutter pockets was a 1 *ken* opening which might had acted as a narrow entrance and a 3-*ken* wide opening strengthened by a long *sashigamoi* is assumed to be the main entrance of the building. Regarding the flooring of the interior, from observations on the dirt floor corridor, it is safe to assume that interior space of 5 *ken* from the west was *doma* (dirt floor). Mr. Hideo Tajima's memories of the flooring being concrete was

⁴¹ 指鴨居 in Japanese. Thick load-bearing lintel on top of an opening, usually with sliding door rails.

⁴² 腰高障子 in Japanese. Similar to *koshi* Shōji sliding doors but with up to 1/2 on the lower part is timber and 1/2 on the upper part is Shōji papers.

an important point in terms of hygiene management in sericulture. However, it is unknown if concrete flooring had existed from the beginning.

There are few materials showing the west façade of the ground floor therefore it is assumed that the dirt floor corridor and veranda location on the back façade mirrored the front. Believed to have been existed from the beginning, it is assumed that an east facing external toilet was present and located on the northwest foundation which was easily accessible from the entrance of the back façade. Considering the flow of movement, it is assumed that column spacing on the back façade is 0.5 *ken*, 0.5 *ken*, 2 *ken*, 1 *ken*, 0.5 *ken*, 0.5 *ken* from west, with the 2-*ken* opening being the back entrance and a window on the 1 *ken* opening. The current south facing external toilet located on the northwest foundation is believed to be constructed after demolishing the previous building located on the same site. As there were no steps on the west façade of the foundation and the building was connected to the *omoya* on the second floor, it is possible that the openings on the west façade were fitted with windows and walls instead of doors. Also observed in other sericulture farmhouses in Sakai Shimamura, the column spacing for each non-load bearing wall of the *shin-sanshitsu* was 0.5 *ken* wide instead of 1 *ken* for better strength with the installation of more columns in between the walls.

Restoration of Floor Plans - Second floor

Size of the second floor was similar to that of the ground floor which is 13 *ken* in width and 7 *ken* in depth with the body of the building spanned 12 *ken* in width, 6 *ken* in depth and 0.5 *ken* veranda surrounding the building on all façades. As observed in figure 4-16, the veranda was installed on the east façade and extended to the front and back façades. This corresponds to the second-floor veranda as seen in figure 4-15. The east façade from north is 1 *ken* opening fitted with two Shōji sliding doors, next 1 *ken* opening fitted with two shutter pockets which provided for both directions, 2 *ken* at the centre was equipped with four *koshi* Shōji sliding

doors, south of it was 0.5 *ken* plastered wall and a 0.5 *ken* shutter pocket which provided for the next 1 *ken* opening fitted with two *koshi* Shōji sliding doors on the south end of the façade. Ratio of openings to walls had accounted to more than half on all façades (see Table 4-4).

Observed in figures 4-14 and 4-19, column spacing on the front façade from the east was two 0.5 *ken* plastered wall, one 2 *ken* *sashigamoi* supported opening, four 0.5 *ken* plastered walls with a shutter pocket on the eastern end, one 2 *ken* *sashigamoi* supported opening, four 0.5 *ken* plastered walls with a shutter pocket on the eastern end, one 2 *ken* *sashigamoi* supported opening and two 0.5 *ken* plastered wall with a shutter pocket on the eastern end. All 2 *ken* *sashigamoi* supported openings were fitted with four *koshi* Shōji sliding doors. In other words, from east was 1 *ken* wall, 2 *ken* openings, 2 *ken* walls, 2 *ken* openings, 2 *ken* walls, 2 *ken* openings, 1 *ken* wall which totalled up to 12 *ken* and 0.5 *ken* veranda on both ends which further totalled to 13 *ken*. Amongst three openings on the front façade, the centre opening corresponded to the balcony in front of it. The same handrails extended all around the veranda and the balcony and corner columns of the balcony extended all the way down to the ground floor. It is unknown whether walls of shutter pockets were plastered or not but is assumed plastered similar to other non-load bearing walls.

The west façade can be observed in figure 4-19 where from south is a 1 *ken* opening, two 0.5 *ken* walls and one 2 *ken* opening. The condition of the last 4 *ken* is unclear in the photograph. The arrangement of walls and fittings are assumed to mirror the east façade. Unfortunately, there is no available material showing the back façade. As Tajima's *seiryō-iku* theory advocated for the installation of openings on all four façades, the front and back façades of the sericulture space of the *omoya* was originally built with *hijikake mado*⁴³ windows. 6 *ken* on the back façade and 9 *ken* on the front façade were installed with smaller *hijikake mado*

⁴³ 肘掛窓 in Japanese. Window with a low wall below.

windows due to an annex attached at the ground floor. In contrast, the design of the second floor of the *shin-sanshitsu* with full height windows surrounded by a veranda is revolutionary. On the other hand, there are not many sericulture farmhouses in Sakai Shimamura similar to the *shin-sanshitsu* where its front façade possessed 1:2 ratio of openings to walls. Therefore, it is reasonable to assume that the openings on the west and east façades are the similar while openings on the back façade are less than that in the front façade. However, since the veranda extended all around the building of the second floor, it is very likely that the number of openings on the back façade would match the number of openings on the front. The *watari-rōka* was supported by two columns, one extending into the ground floor annex of the *omoya* and another column which also supported the veranda of the *shin-sanshitsu*. The foundation stone of the column supporting the *watari-rōka* is remained and can be observed in figure 4-11. In other words, the northern side of the *watari-rōka* was aligned with the third column from front façade which supported the veranda.

Restoration of Floor Plans – Size of Exterior Columns and Spacing

Column spacing width are typically 6.2 *shaku* which is approximately 1.880 metres. In the case of the *shin-sanshitsu*, it is appropriate to assume the column spacing width is also 6.2 *shaku*. However, for standard gable roof sericulture farmhouses in Sakai Shimamura, the last 0.5 *ken* nearing the front and back façades are usually 3.5 *shaku* (approximately 1.061 metres) which is more than half of 6.2 *shaku*. This is also consistent with Mr. Hideo Tajima's memories that the corridor was 1 metre wide. Therefore, for this restoration proposal, the spacing of outer most columns or the size of the veranda is assumed to be 3.5 *shaku*. However, this value differs from the column foundation stones found on the west side which is measured to be 3.17 *shaku* (approximately 0.96 metre). This difference will be a subject to be looked into in future researches. The size of façade columns is unknown but assumed to be 0.5 *shaku* (approximately 0.152 metre) by referring to column dimensions of the *omoya*.

Restoration of Floor Plans – Arrangement of Interior Columns and Partition

It is understood that on the ground floor, 5 *ken* on the west was *doma* and 7 *ken* on the east had flooring but the location of interior columns remains unknown. As the *shin-sanshitsu* was built during the golden period of *seiryō-iku* technique sericulture, the second floor is assumed as a single room with no ceiling, the sericulture space on the ground floor was also a single room. This assumption is based on observations of sericulture buildings of Matsugaoka Reclamation Land. However, the *secchū-iku* technique was popularized in Sakai Shimamura during the latter half of the Meiji period and sericulture spaces were partitioned into 2 *ken* by 2.5 *ken* rooms and corridors. However, from Mr. Hideo Tajima's interview, the second floor was not duckboard flooring but it is possible that a part of the flooring was duckboard to ensure ventilation of the ground floor. It would also be reasonable to assume the external staircase on the front façade landed on the flat ground in between the steps and the centre front foundation.

Central columns of sericulture farmhouses in Sakai Shimamura are basically arranged below the ridge and are usually thick and extend all the way from ground floor to the roof. There are also cases where central columns are cut below the beams of the second floor and another column sits on top of the beam and extends to the roof. The four central columns of sericulture buildings of the Matsugaoka Reclamation Land align with the ridge of the roof, are of same sizes and space inside the building is not partitioned. Based on the above, the layout arrangement of the central columns is considered in the following two proposals.

1-row: Four thick pillars (assumed to be approximately 0.273 metre) aligned below the ridge of the roof.

2-rows: Eight pillars arranged at the centre of the building, separating the space into three equal rows from front to back.

The 1-row proposal is suggested in reference to other sericulture farmhouses of Sakai Shimamura and the Matsugaoka Reclamation Land. The 2-rows proposal is suggested due to a more feasible structure. Figure 4-27 shows the restored floor plans of the *shin-sanshitsu*.

Table 4-4: Ratio of openings to walls of *shin-sanshitsu*.

Floor	Façade	Length of wall (in <i>ken</i>)	Length of opening (in <i>ken</i>)	Ratio of opening to wall (Opening ÷ Total length)
Ground	Front	12.0	11.0	0.92
	East	6.0	5.5	0.92
Second	Front	12.0	6.0	0.50
	East	6.0	4.0	0.67
<i>Yagura</i>	Front	8.0	7.0	0.88
	East	2.0	1.5	0.75

Note: The values for west and back façades are omitted as the location of openings are assumed.

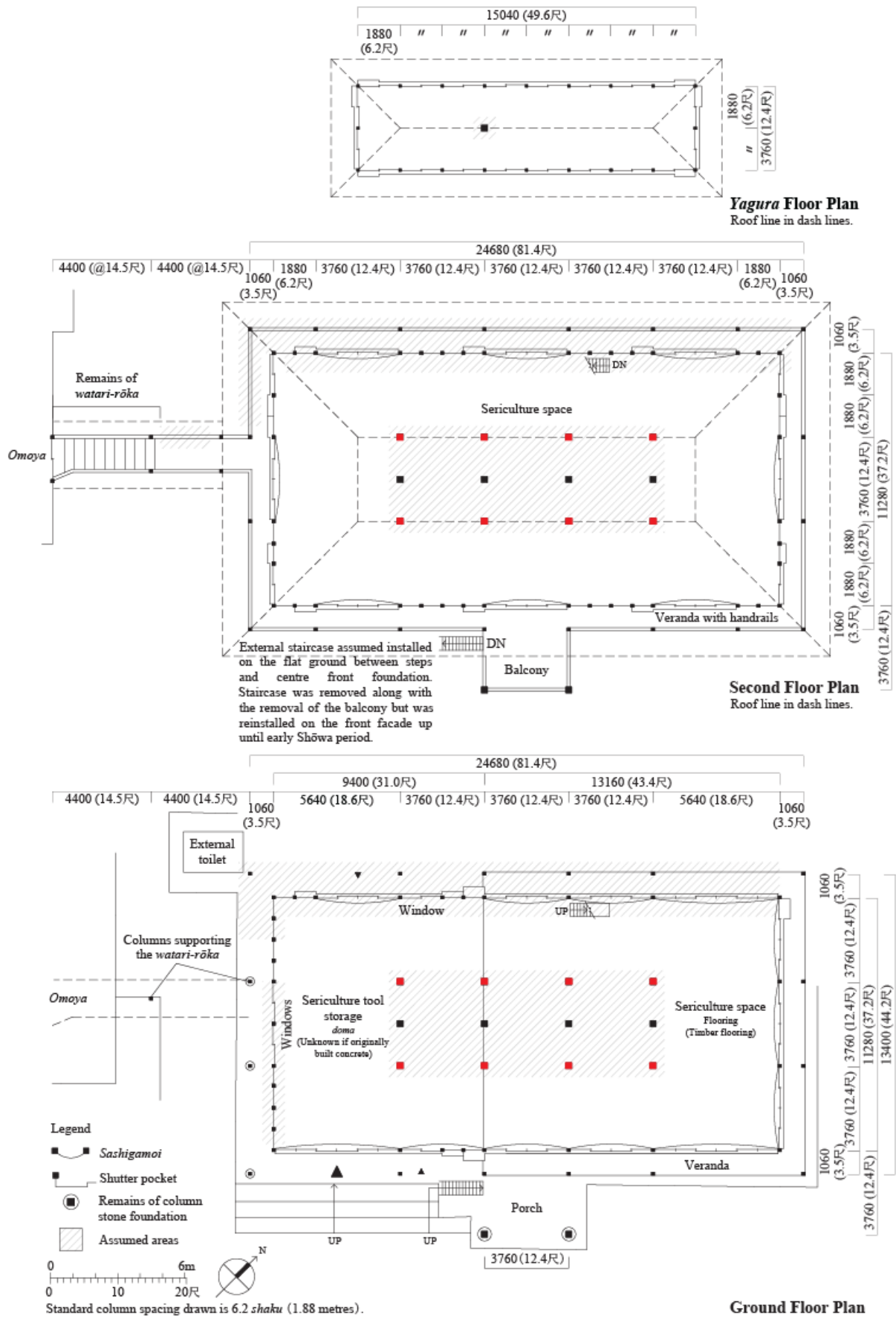


Figure 4-27: Restored floor plans of *shin-sanshitsu*. (2-rows proposal in red. Drawn by author.)

Restoration of Section and Framework

From a structural point of view, the structure of the shin-sanshitsu is restored by considering similar sericulture farmhouses such as the *omoya* of Tajima Nobutaka Residence (1863) and Tajima Tatsuyuki Residence (1866) (see Figure 4-28 & 4-29). The structural characteristics of sericulture farmhouses in Sakai Shimamura include load bearing façade columns and non-load bearing walls. In other words, the connection between the central columns and façade columns are strengthened to ensure the firmness of the façade columns. Therefore, the corner columns are sometimes thicker than other façade columns. There are cases where annexes, verandas and corridors are installed on the ground floor which allows the space above it to also be used. This is seen at the front extension of Nobutaka and Tatsuyuki Residence. The method of adding an extension on the front façade is considered a sericulture building architecture style with the body of the building being surrounded by additional structures. In many cases, additional structures are about 2.5 *ken* or 3.5 *ken* in size. This spacing is considered too far and bracings were added to these structures and additional columns were added between spacings more than 3 *ken*.

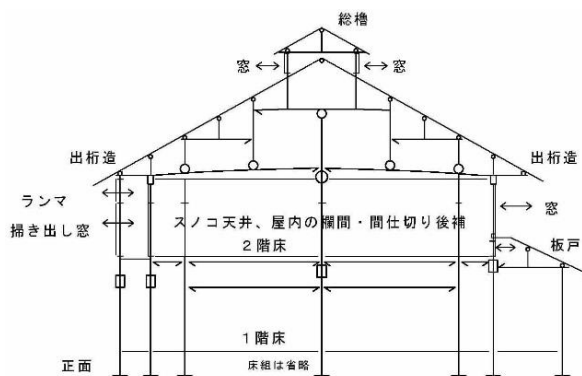


Figure 4-28: Section of Tajima Tatsuyuki Residence *omoya*. (Source: Satoshi Ono)

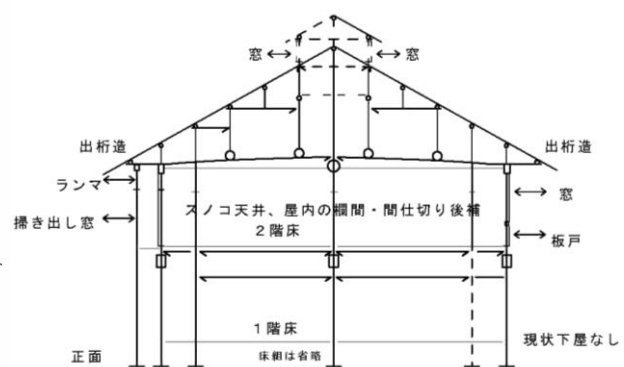
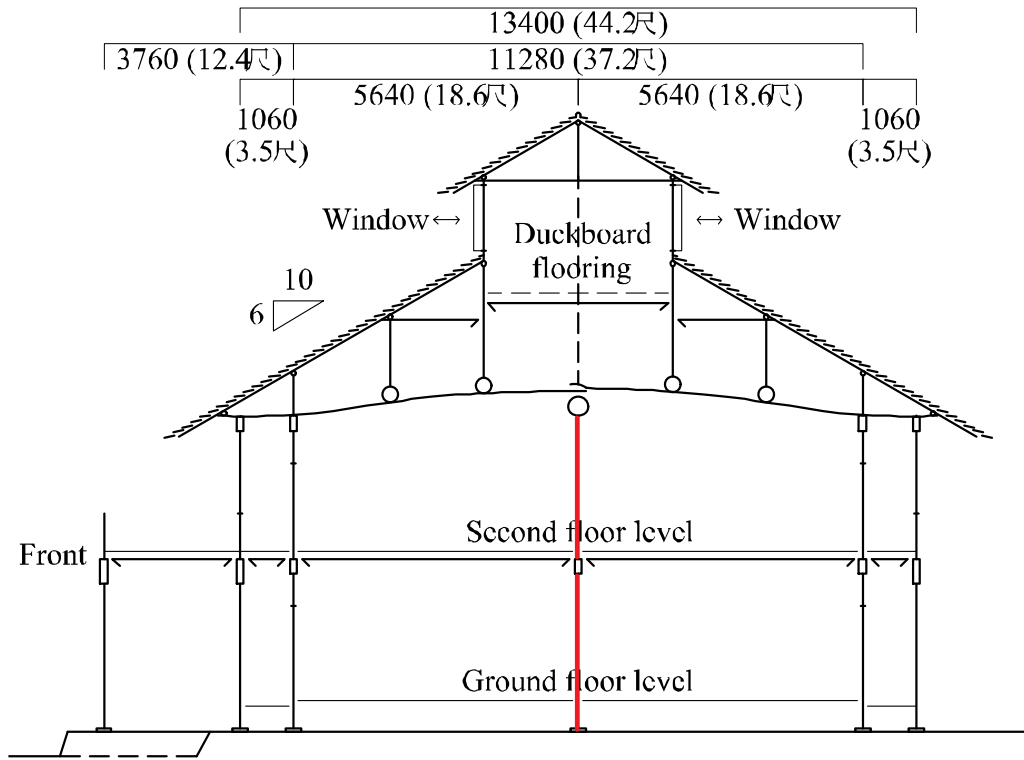


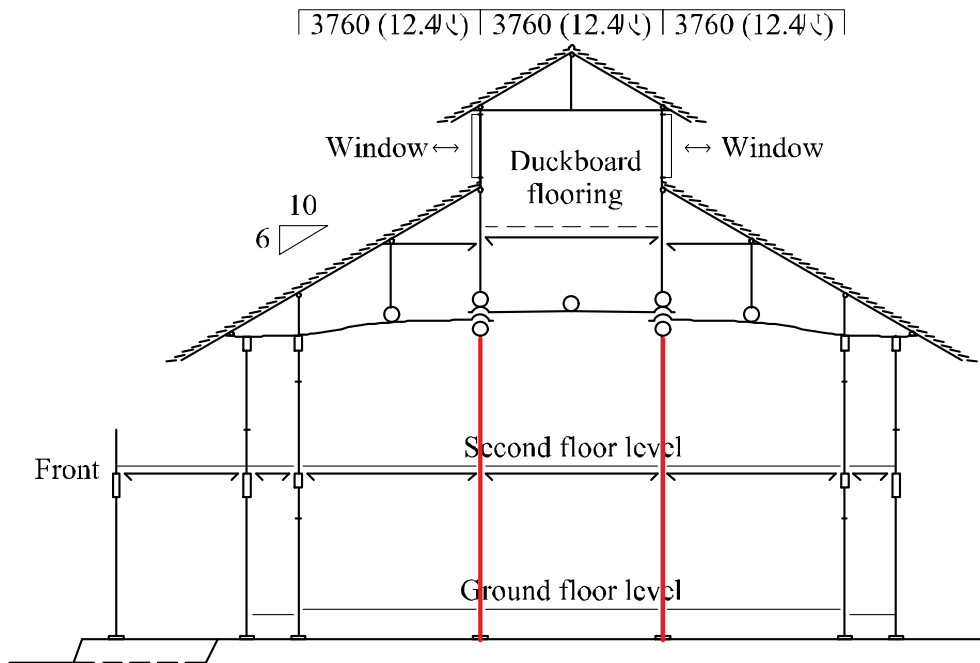
Figure 4-29: Section of Tajima Nobutaka Residence *omoya*. (Source: Satoshi Ono)

For the arrangement of central columns, the construction of one row would require reinforcement of support columns while 2-row central columns would be better in terms of structural balance. However, the 1-row central column is commonly seen in sericulture farmhouses in Sakai Shimamura and the Matsugaoka Reclamation Land. The arrangement of central columns is also commonly aligned in the centre along the ridge of the roof, supporting beams and the roof structure above it. If the 1-row central column was adopted by the *shin-sanshitsu*, the girder of the building would need to be thickened as there were no support columns in the interior. In the case where the 2-row proposal was adopted, girders may be arranged above the central columns (see Figure 4-30 and 4-31). In addition, many sericulture farmhouses in Sakai Shimamura have *yagura* on top of upper central beams (see Figure 4-28), there are also cases where the *yagura* is built on lower beams (see Figure 4-29). The size of the *yagura* of the *shin-sanshitsu* being 2 *ken* in depth is relatively wide and it would be too tall to build on top of the second-floor roof beams and would be unstable if the former construction method was adopted. Therefore, it is safer to assume that the *yagura* was constructed using the latter method.

The eaves were the same length arranged on all sides of the hipped roof. Distance from the centre of the column foundation stone and the edge of the foundation is about 0.8 metre and safe to assume that the eaves extended 1.2 to 1.3 metres out from the outer columns. The eaves of the *omoya* is 4 *shaku* (1.2 metres) and was originally supported by decorative beams known as *segai-nuki* or *dashigeta-zukuri* but was later remodelled and the eaves are now supported by actual beams. As former sericulture farmhouses in Sakai Shimamura all possess *segai-nuki* which is an extension of the actual beam, it is safe to assume the same for the *shin-sanshitsu*. The eaves girder on the front façade is slightly visible in figure 4-14 and can be considered as part of the complete architecture of the *shin-sanshitsu*.



Proposal: 1 Row



Proposal: 2 Row

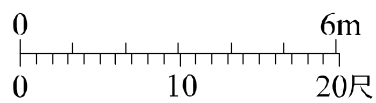
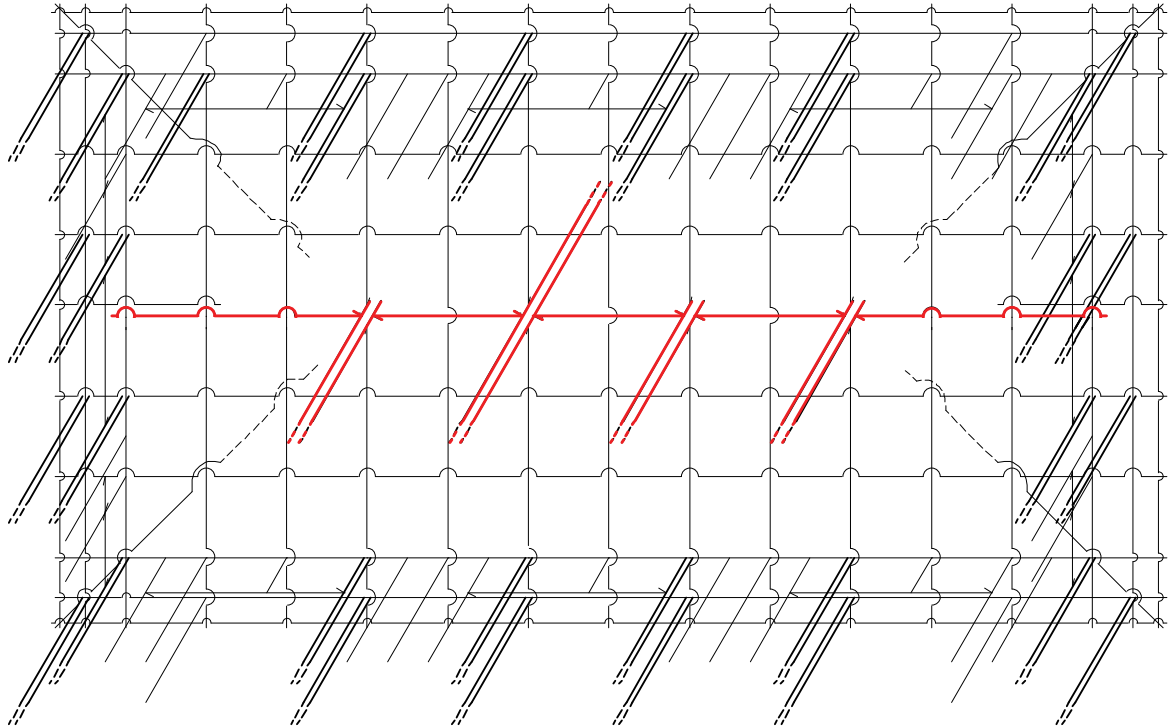
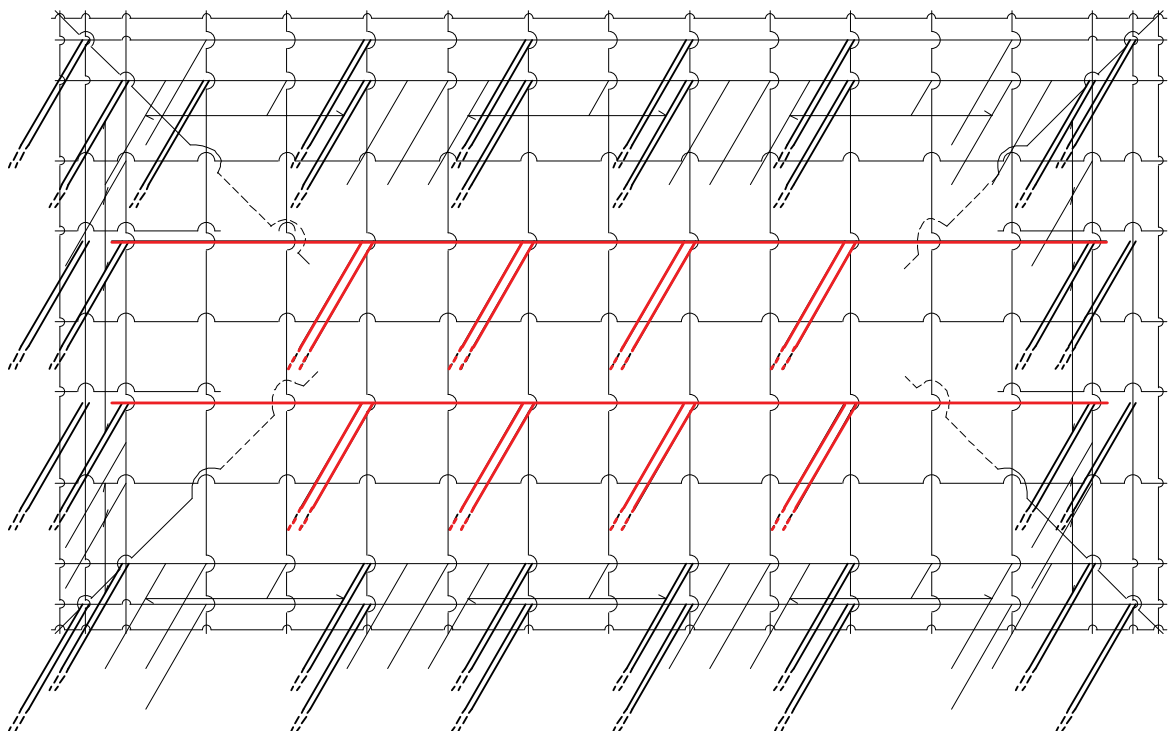


Figure 4-30: Proposed section of *shin-sanshitsu*. (Drawn by author)



Proposal: 1 Row



Proposal: 2 Row

Figure 4-31: Proposed structural framework of second floor of *shin-sanshitsu*.

(Drawn by author)

Initial Restoration Proposal of the *Shin-sanshitsu*

Based on the materials and information currently available, the initial restoration of the *shin-sanshitsu* is concluded as below.

For the floor plan, the building body is 12 *ken* by 6 *ken* and a 0.5 *ken* veranda surrounding the body on all façades, a 2 *ken* in width and 1.5 *ken* in depth balcony on the second floor. The roof ventilation system (*yagura*) is 8 *ken* by 2 *ken* and had full openings on all façades. A surprising characteristic of the second floor of the building was the ratio of openings to walls on the side façades as they were larger than that of the front façade. The design of full height windows and veranda on all facades are revolutionary. The balcony was also originally planned to be fitted on to the *omoya*. The small flat ground between the stone steps and centre front foundation is assumed where the external staircase was installed. The installation of the balcony is assumed to be Tajima's interest in western architecture which can be seen from the eaves decoration of the *watari-rōka*. However, it should also be noted that the balcony was also designed for rational purposes such as for moving up and down the second floor. Size of the ground and second floor were the same but 7 *ken* on the east end of the ground floor were installed with flooring and surrounded with an extended veranda while 5 *ken* on the west end had concrete floor on the interior and exterior. The ground floor had a wide front entrance located on the west end with stone steps leading up to it.

However, column spacings of the back façade and interior central columns remain unknown. In particular, there is still no definitive plan on whether the central columns are in 1-row or 2-rows. Therefore, the author hopes that more photographs or documents would be found so that these issues may be cleared.

4.1.4 Inscription of Local Heritage into the National System

The village of Sakai Shimamura had anticipated to inscribe the village as a Preservation District for Groups of Traditional Buildings as early as 2007. At the same time, the prefectural government had been nominating silk-related cultural properties into the World Heritage list. While the World Heritage story was refined, unsuitable cultural properties were un-nominated while cultural properties which matched the theme such as the Former Tajima Yahei Residence was nominated into the Tentative List. The idea was not well received by residents of Sakai Shimamura as there were concerns on the nomination of the farm will ‘steal the limelight’ of other sericulture-related buildings that remained in the village. However, conceding to the prefectural government’s plans, the farm was finally nominated into the Tentative List in the latter half of the selection period. This resulted in the halting of previous plans to prepare the village into the national system as all emphasis was shifted to the farm for its inscription into the national system instead. While achieving only the bare minimum, the farm was designated as a Historic Site in 2012 and as a component of the World Heritage Site in 2014. After the successful inscription of the farm, most resources were allocated to planning and implementation of measures to maintain and repair the farm to accommodate local and foreign visitors. At the occasion of Mr. Kameo Tajima planning to demolish his *sanshitsu* due to the lack of funds in maintaining it from natural deterioration, research institutes such as YNU started its Sakai Shimamura regional revitalization project in 2018 and assigned students with various themes to brainstorm for ideas on utilization and regional revitalization.

On 15 June 2019, a hearing session on registering former sericulture farmhouses as Cultural Properties was organized to invite local residents to discuss their concerns on this plan. To understand the process of registering a property into the national system, students of YNU were tasked to prepare documents for the registration of Tangible Cultural Properties in the 2019 project. Five former sericulture farmhouses in Sakai Shimamura were prospected to be

applied into the national protection system of Tangible Cultural Property namely Kogure Shigeru Residence, Tajima Zenichi Residence, Tajima Kameo Residence, Tajima Tatsuyuki Residence and Kanai Yoshiaki Residence. Students produced documents which included points of attraction, technical drawings such as site plans and floor plans, calculations of floor area and photographs of the site and buildings (see Appendix G). The verdict for Registered Tangible Cultural Properties are announced thrice a year in March, July and November. Application documents for Tajima Zenichi Residence, Tajima Tatsuyuki Residence and Kanai Yoshiaki Residence were submitted to the Agency of Cultural Affairs in Autumn 2020 and the verdict was announced in November the same year. The three residences were officially registered as Tangible Cultural Properties on 26 February 2021. Later in July 2021, the verdict for Machida Kiyoshi Residence was announced and officially registered as a Tangible Cultural Properties on 14 October 2021. There are currently six Registered Tangible Cultural Properties located in the village of Sakai Shimamura along with two Historic Sites and one city designated Important Cultural Property (see Table 4-5).

The Cultural Property Registration System (see Figure 4-32) was introduced in 1996 to protect local cultural properties built more than 50 years ago with definitive social values and encourage the utilization of these buildings. Endangered buildings due to lifestyle changes which fits the registration criteria of (1) buildings contributing to historical landscape of the country, (2) prototype form of other related buildings, or (3) buildings which cannot be easily reproduce, are moderately protected by national laws allowing modifications for utilization of the buildings. Registered buildings also receive partial financial assistance on maintenance and tax deductions. Today, there are more than 10,000 buildings registered (Agency for Cultural Affairs, 2020). The Japanese government has been urging for the active utilization of the Tangible Cultural Property registration system to promote urban development (Murakami, 1997). It is hoped that the utilization of the heritage building can help develop an environment

by connecting and strengthening relationships between owners, residents and local communities, and promote understanding on the importance of preserving these cultural properties as part of the daily lives of the people and community.

Matsui, Kubota and Nishimura (2012) suggested a public-private collaboration on the registration of cultural properties by inviting a third-party stakeholder with technical skills to carry out building surveys in order to compensate the lack of human resources in governmental organizations, as a guide to local residents in registering their property as a cultural property, and as a point of contact between governmental bodies and local residents. The researchers (Matsui et al., 2012) also suggested the registration of cultural properties may raise the awareness of local residents on the importance of preserving these heritage buildings.

Table 4-5: List of Cultural Properties in Sakai Shimamura and nearby areas.

Location	Name of Component	Category of Preservation	Unit of Protection	Date of Inscription	Type of Property
Isesaki city Gunma prefecture	Tajima Yahei Residence 田島弥平旧宅	Historic Site	National	19 September 2012	Site
	Family Tomb of Ujyū Kanai 金井鳥洲と一族の墓	Historic Site	Prefecture	24 December 1973	Site
	Timber Storehouse of Shimamura 鳥村の板倉	Important Cultural Property	City	10 February 1973	Building
	Shimamura Church and Shimamura Megumi Kindergarten 日本基督教団鳥村教会教会堂・鳥村めぐみ保育園本館	Cultural Property	National	18 April 2008	Buildings
	Kanai Yoshiaki Residence <i>Omoya</i> 金井義明家住宅主屋	Cultural Property	National	26 February 2021	Building
	Tajima Zenichi Residence <i>Omoya</i> 田島善一家住宅主屋	Cultural Property	National	26 February 2021	Building
	Tajima Tatsuyuki Residence <i>Omoya</i> 田島達行家住宅主屋	Cultural Property	National	26 February 2021	Building
	Machida Kiyoshi Residence <i>Omoya</i> 町田清家住宅主屋	Cultural Property	National	14 October 2021	Building
Honjō city Saitama prefecture	Tajima Kameo Residence <i>Omoya</i> 田島亀雄家主屋	Cultural Property	City	24 June 2021	Building
	Tajima Kameo Residence <i>Sanshitsu</i> 田島亀雄家蚕室	Cultural Property	City	17 February 2022	Building
Fukaya city Saitama prefecture	The Birthplace of Shibusawa Eiichi 渋沢栄一生地	Cultural Property	City	31 March 1951	Site

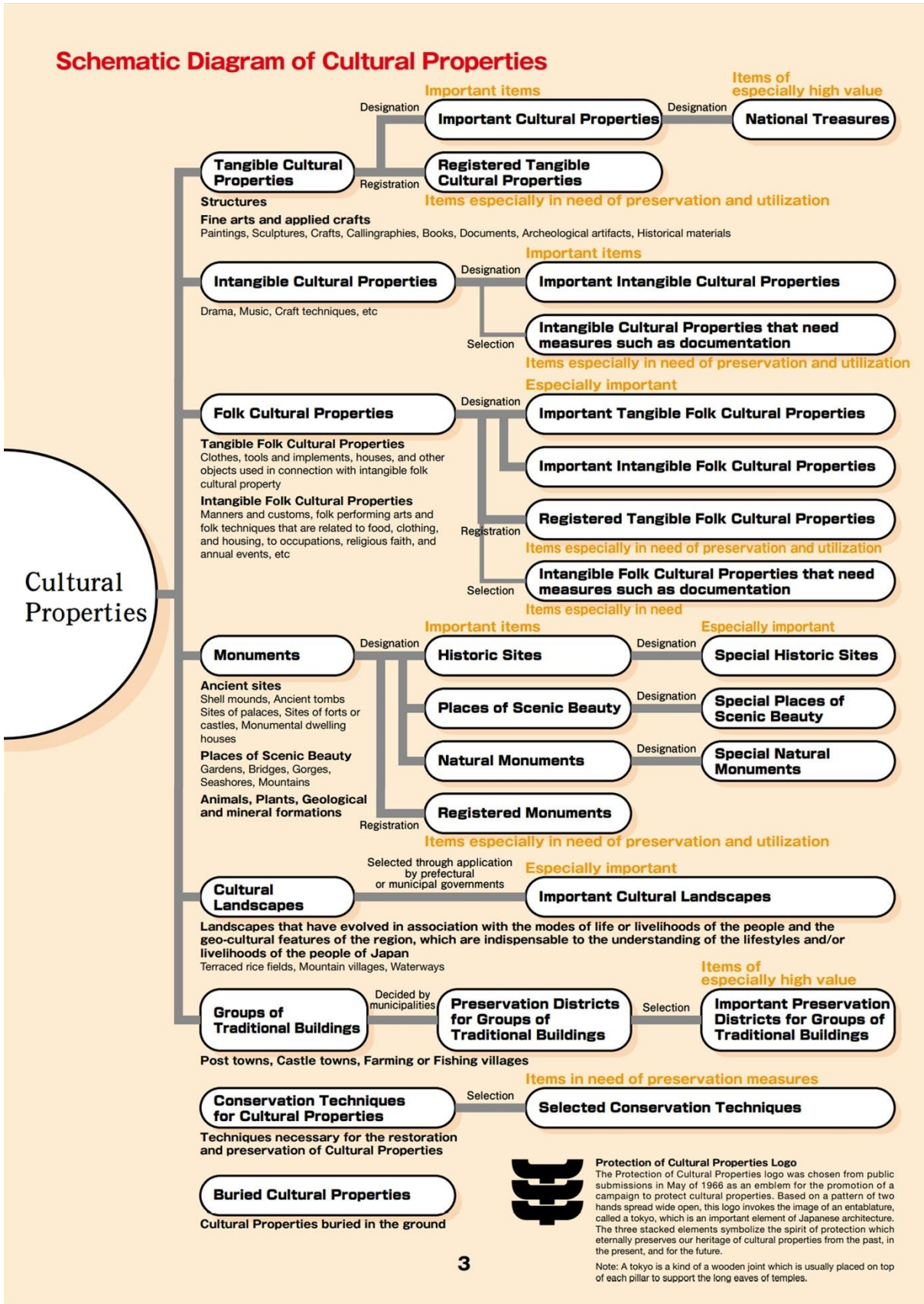


Figure 4-32: The Cultural Property system in Japan.

(Extracted from Agency for Cultural Affairs, 2020)

Most of the Registered Cultural Properties such as sericulture farmhouse *omoya* and kindergarten in Sakai Shimamura are still inhabited, Tajima Kameo Residence *sanshitsu* is repaired and currently used as a storage. However, the owner had requested strongly for the utilization of the *sanshitsu* for the promotion and regional revitalization of Sakai Shimamura. Utilization of the *sanshitsu* and Sakai Shimamura regional revitalization project is discussed in the next sub-chapters. With more and more heritage buildings in Sakai Shimamura registered as a Cultural Property, this increases the possibility of the groups of cultural properties to be inscribed as a Preservation District for Groups of Traditional Buildings. The plan of registering a small group of preservation district will encourage and invoke reconsideration of owners in the preservation of their farmhouses and heritage buildings in the site. In the future, the area of the preservation district may be expanded as more former farmhouses are being registered into the national system.

4.2 Student Proposals in Enriching of Local Activities for Regional Revitalization

Students of Yokohama National University Architecture Theory Studio (YNU AT Studio) were engaged in the project since 2018 after urgency for the maintenance of the Tajima Kameo Residence *sanshitsu*. Students of 2018 toured the village, studied the site and suggested ideas for the utilization of the *sanshitsu* of Tajima Kameo Residence and students of 2020 were tasked to identify local issues and propose methods for regional revitalization. These proposals were presented to residents as a way to intrigue them to reconsider the values and charms of local features and utilize them to promote regional revitalization. This sub-chapter will show students' ideas on preservation, utilization and regional revitalization proposed in 2018 and 2020.

4.2.1 City Development – Utilization of Buildings

As part of the utilization and regional revitalization project proposals of 2018, a ‘*sanshitsu* factory’ was suggested as one usage for the *sanshitsu* of Tajima Kameo Residence. The proposed factory acts mainly as a space for interaction of residents and visitors, a resting spot for tourists and a food processing space of local produce to be sold on site (see Figure 4-33). The ground floor is designed with an indoor resting space and to sell local produce such as vegetables and pickles (see Figure 4-34). An outdoor resting space, bicycle parking spot and stalls is designed located outside the building. The second floor is equipped with more resting spaces and a food processing space for the drying of local produce harvested from local fields (see Figure 4-35). The design was developed from the idea of processing fresh produce from local fields to be sold on site as souvenirs and as a resting spot for visitors touring the village in addition to the Sakai Shimamura Hospitality Plaza which is located next to the information centre.

The ‘real *kaiko taiken*’ is another idea proposed for the utilization of the *sanshitsu* of Tajima Kameo Residence. Developed from the idea of the life cycle of a silk moth, visitors may experience the life cycle which consists of egg, larvae, cocoon and imago (see Figure 4-36). This proposal suggests touring the village (see Figure 4-37) and utilizing the *sanshitsu* as an accommodation (see Figure 4-38). In the ‘egg’ and ‘larvae’ stage, visitors may tour the village while tasting local snacks and mulberry tea. Visitors will camp in the *sanshitsu* which represents the cocoon stage of the cycle. Well rested visitors will ‘break free’ from the cocoon and ‘grow’ into an imago representing the metamorphosis of the cycle.

The *sanshitsu* is also designed into a sports shop (see Figure 4-39) to accommodate new sports activities suggested. Accommodating to the new activity, the sports shop will provide shoes and bicycle rentals and will be equipped with changing rooms. Suggested along with the

setting up of an agriculture school and food festival, the building is designed as a location to celebrate the proposed Shimamura harvest festival (see Figure 4-40).

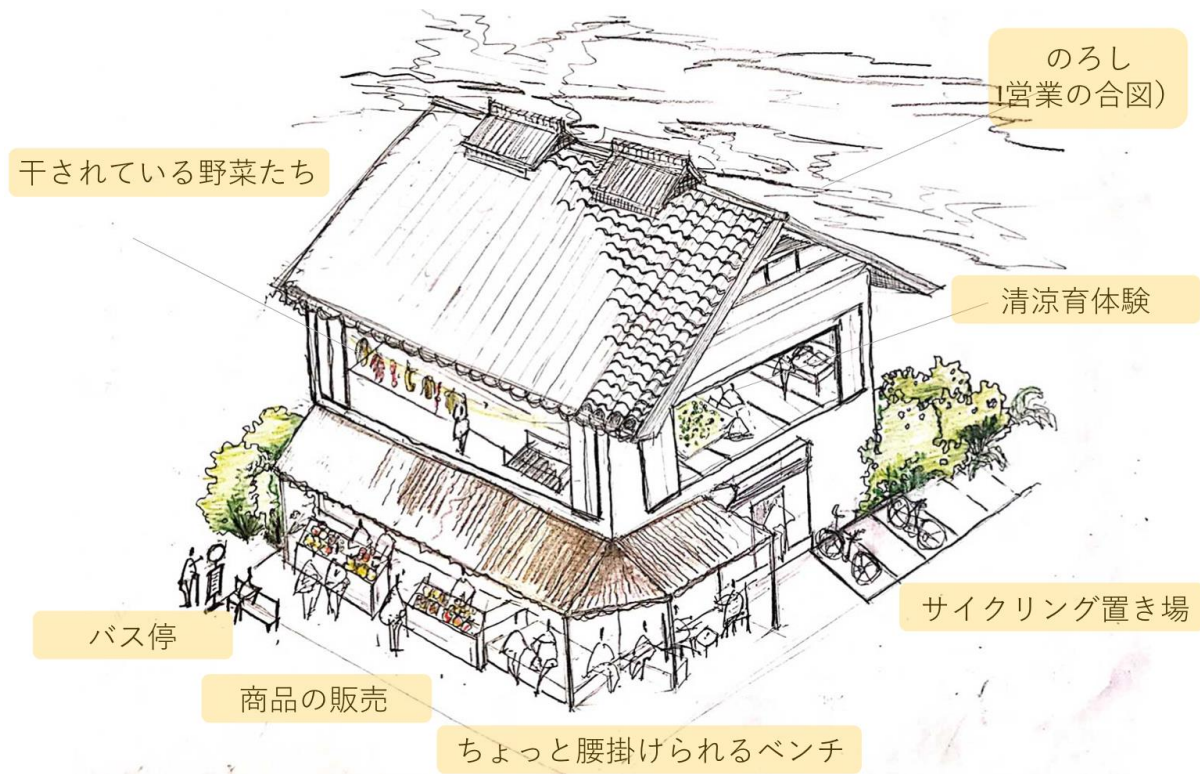


Figure 4-33: Sketch of 'sanshitsu factory'. (Source: YNU AT Studio, 2018)

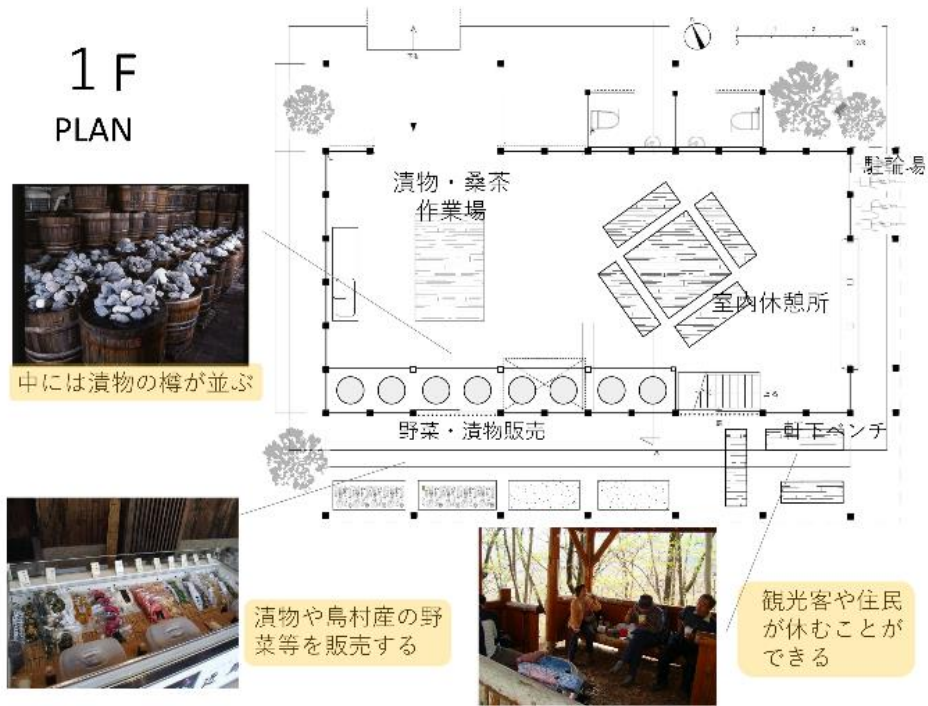


Figure 4-34: Proposed ground floor plan of 'sanshitsu factory'.

(Source: YNU AT Studio, 2018)

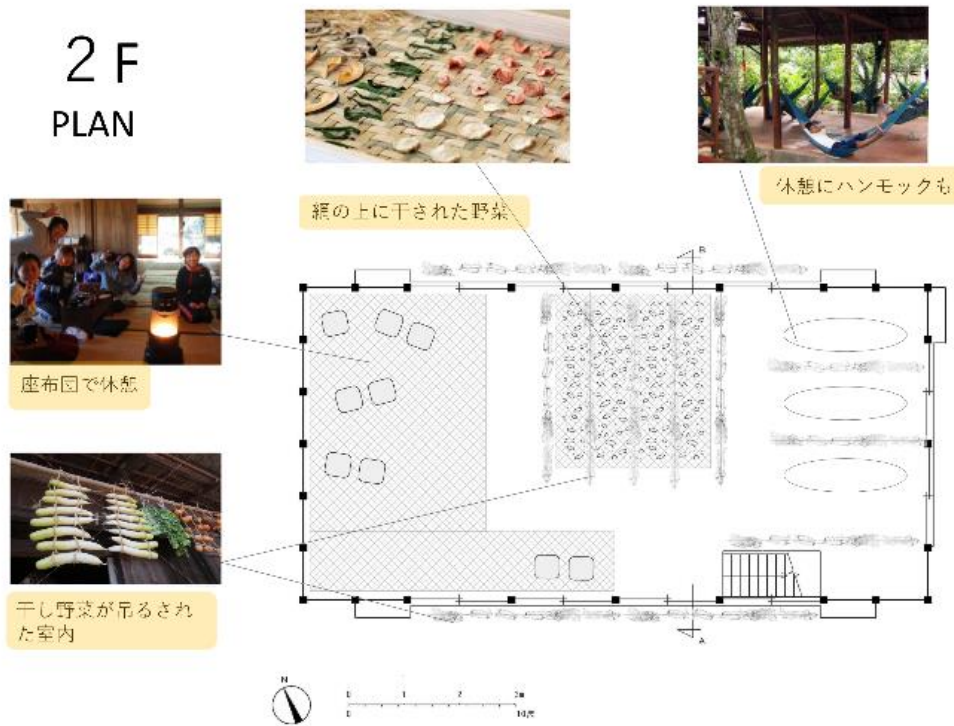


Figure 4-35: Proposed second floor plan of 'sanshitsu factory'.

(Source: YNU AT Studio, 2018)

ツアー概要

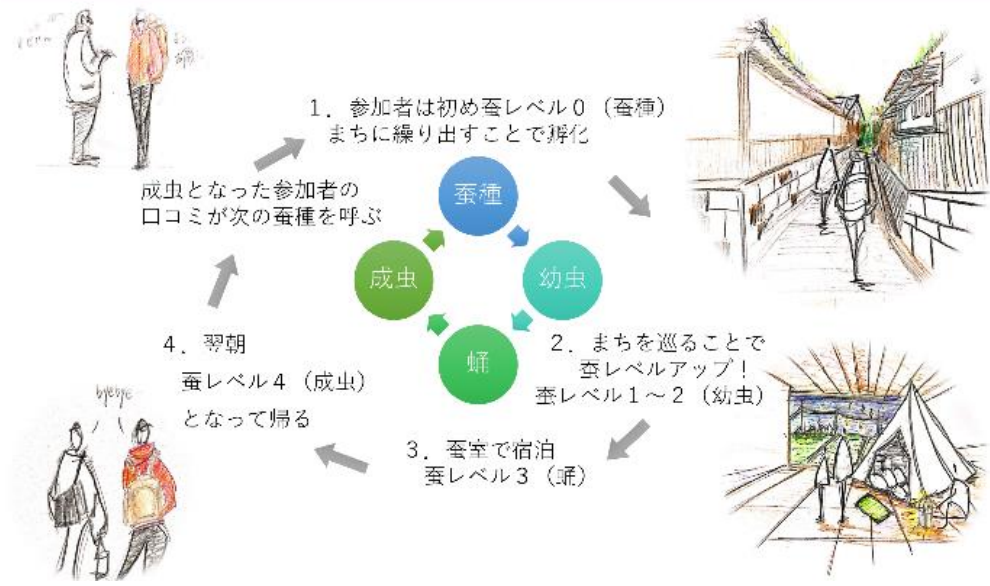


Figure 4-36: Diagram of life cycle of silk moth in comparison to suggested tour.

(Source: YNU AT Studio, 2018)



Figure 4-37: Proposed tour route in the village. (Source: YNU AT Studio, 2018)

蛹期→成虫期 レベル3→4
蚕室Camp

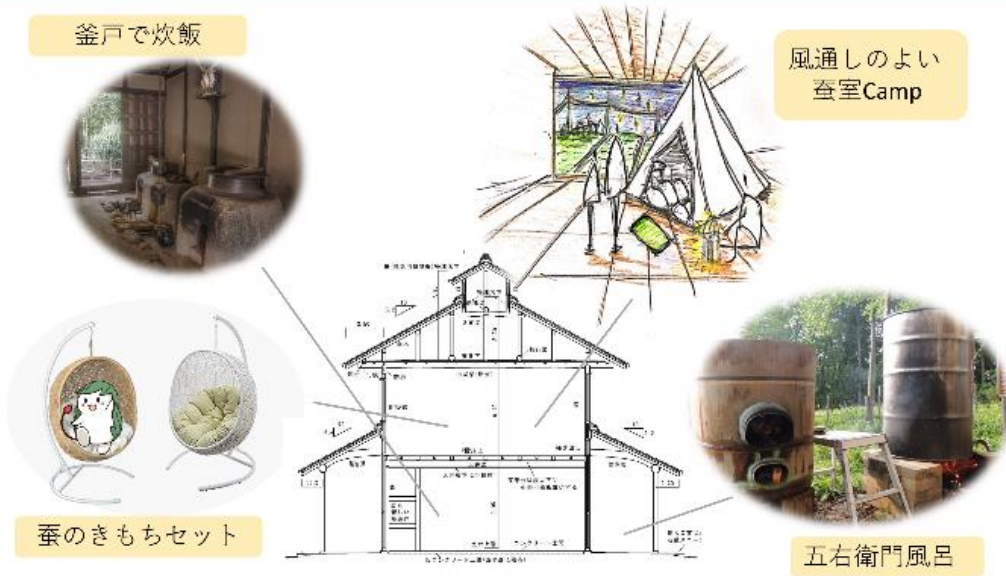


Figure 4-38: Proposed 'sanshitsu camp'. (Source: YNU AT Studio, 2018)

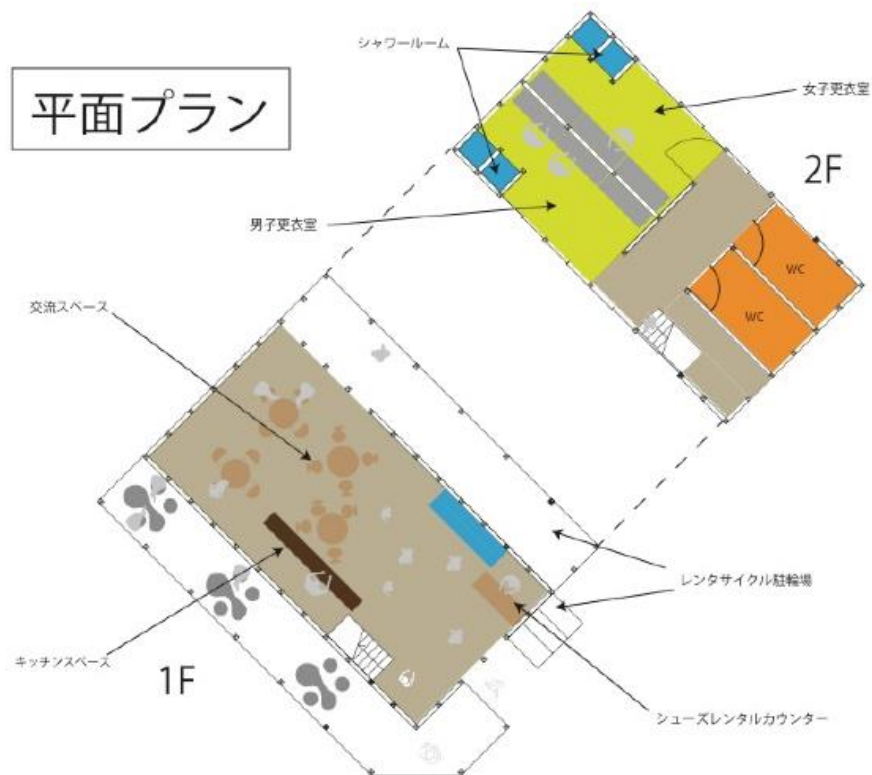


Figure 4-39: Proposed floor plan of sports shop. (Source: YNU AT Studio, 2018)

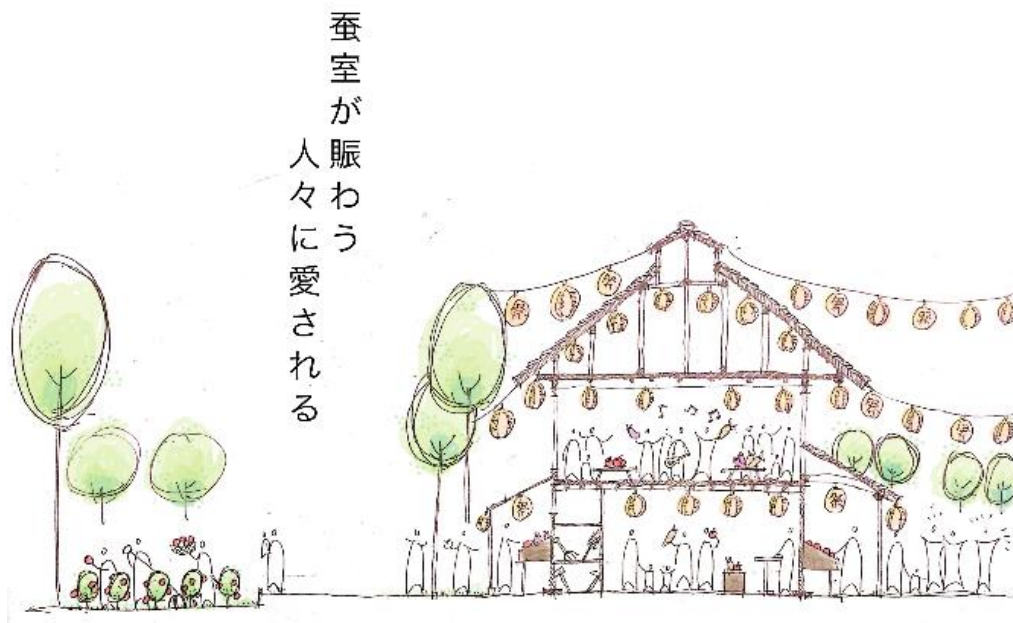


Figure 4-40: Sketch of the sericulture building decorated for the Shimamura Harvest Festival.

(Source: YNU AT Studio, 2018)

4.2.2 City Development – Transportation and Tourism

Considering the beautiful scenery and the availability of bus services to certain locations in the village as a potential of the site, students of 2018 suggested a park-and-ride service to be set up in the site. A bicycle rental store and bicycle parking spots is designed to be set on certain locations in the village for visitors to tour and enjoy the sceneries of the village. This will allow travelling time in the village to be shortened and provide more time for visitors to experience each location. Visitors may also cruise on the Tone-gawa river cycling route along the banks. This suggestion may also ease the transportation of locals with the setting up of facilities for the park-and-ride such as bus stops and bicycle parking spots. A bus stop is suggested to be set up in front of the *sanshitsu* of Tajima Kameo Residence accessible from Okabe station and Honjō station and to increase the number of busses to and from these locations. Visitors will be able to start their park-and-ride tour after alighting from the bus at

the *sanshitsu* bus stop and rent from the park-and-ride as there will be bicycle parking spots connecting the southern and northern bank of Tone-gawa river. Students also suggested setting up a Silk Bus sightseeing vehicle which acts as a museum and tour bus for visitors and locals (see Figure 4-41).

In December 2018, the *shima chari* bicycle rental was set up at the information centre providing free rentals of ten bicycles. Students of 2020 proposed an expansion for the rental of an additional forty bicycles utilizing the Gunma No Bunka grant to connect residents and tourist and to promote wide area sightseeing inside and outside the village. Additional rental locations are designed to utilize dormant houses at Maegawara area, Nishijima area, Sakaimachi Station, Shibusawa Eiichi Memorial Hall, Fukaya Station, and Okabe Station in Isesaki and Fukaya city (see Figure 4-42 & 4-43) operated by local silver residents. In addition to the stamp rally organized by the Shimamura Kaiko No Furusato Kai, a quiz rally designed for multiple age range is suggested to allow visitors, especially students of nearby schools to learn simple facts of the village and buildings. The stamp and quiz rally could be operated by the Shimamura Kaiko No Furusato Kai with the help from university students.

A *sanshitsu* running club is suggested as a new activity in the village. Runners can utilize the *sanshitsu* of Tajima Kameo Residence as a base for the sports club. The club may sell sports-related goods and house gatherings to connect runners and local residents. The newfound sport is aimed to liven up the village as young runners from nearby schools, universities and residents could exercise while enjoying the sceneries of the village. With reference to the Kōkyo running event where running activities take place surrounding the Imperial Palace in Tokyo, a seasonal marathon could also be organized with routes connecting cultural properties in Sakai Shimamura and other silk heritage in the city. Short, mid and long marathon runs can be organized throughout the year in different seasons. Routes proposed include the Sakai Redbrick Warehouse and Sakai Ontake Hill Natural Forest Park for short

distance marathons lesser than 10 kilometres and Kezōji Temple Garden and Koizumi Inari Jinja Shrine are designed into mid and long-distance routes of more than 10 kilometres (see Figure 4-44). The Isesaki fireworks and illumination event is also designed into the summer and winter marathon route.

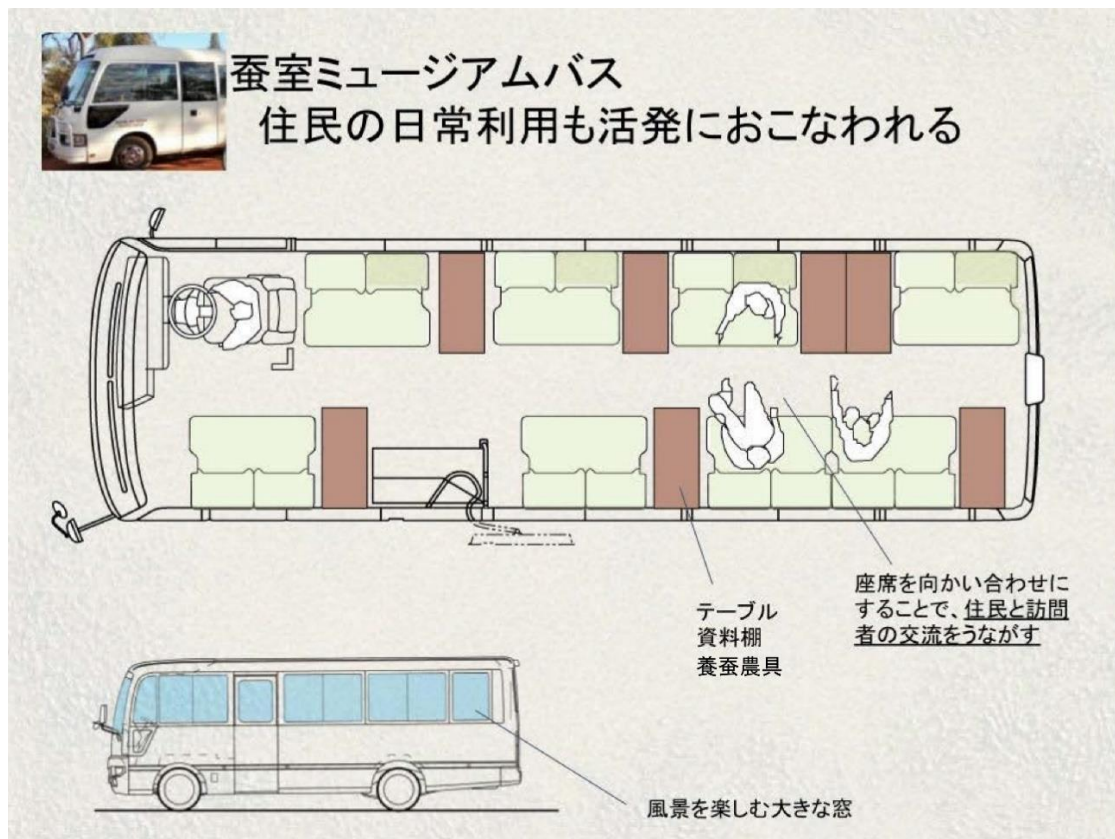
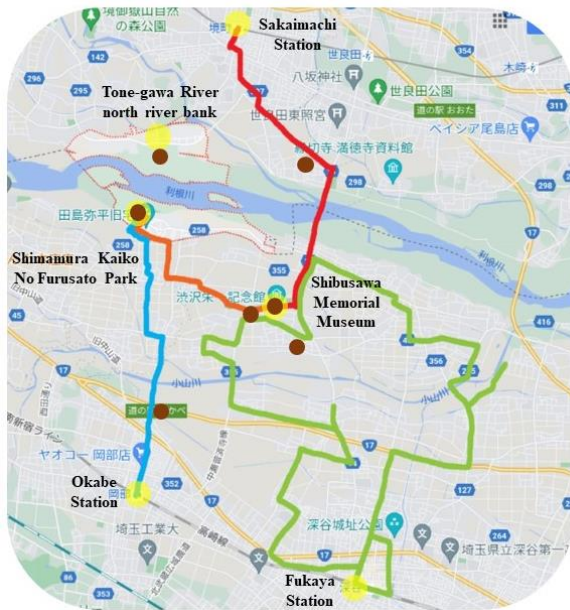


Figure 4-41: Proposed design of Silk Bus.

(Source: YNU AT Studio, 2018)

Shima Chari Tone-gawa Route



Sightseeing Spots



Figure 4-42: Proposed *shima chari* Tone-gawa tour route.

(Source: YNU AT Studio, 2020. Translated by author.)

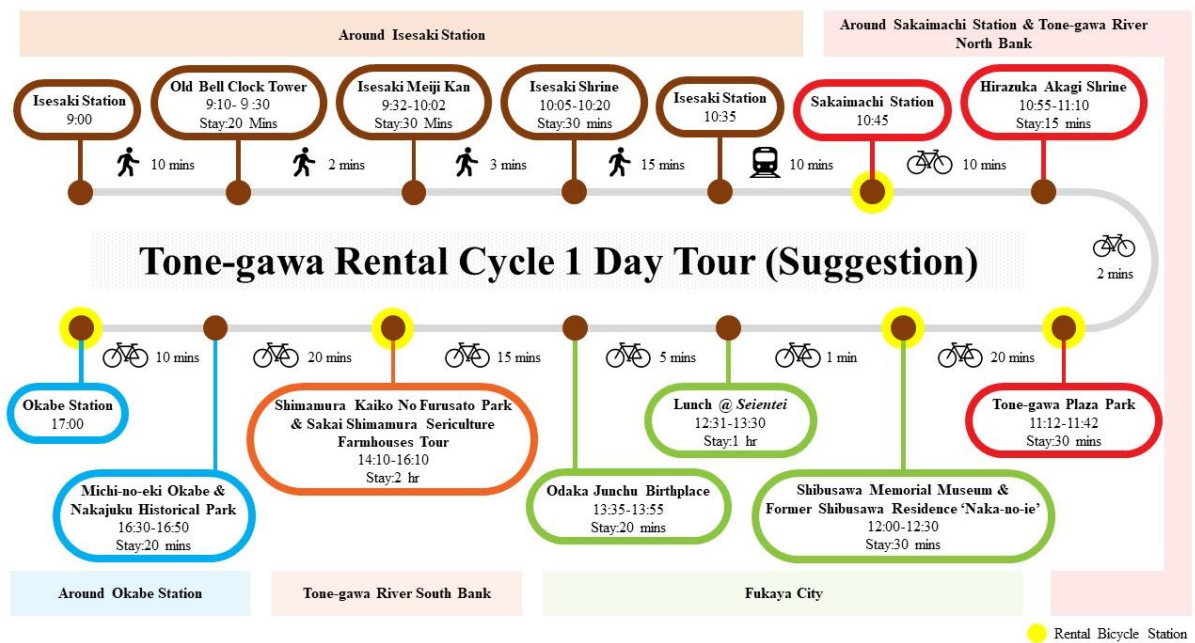


Figure 4-43: Proposed *shima chari* Tone-gawa one day tour.

(Source: YNU AT Studio, 2020. Translated by author.)

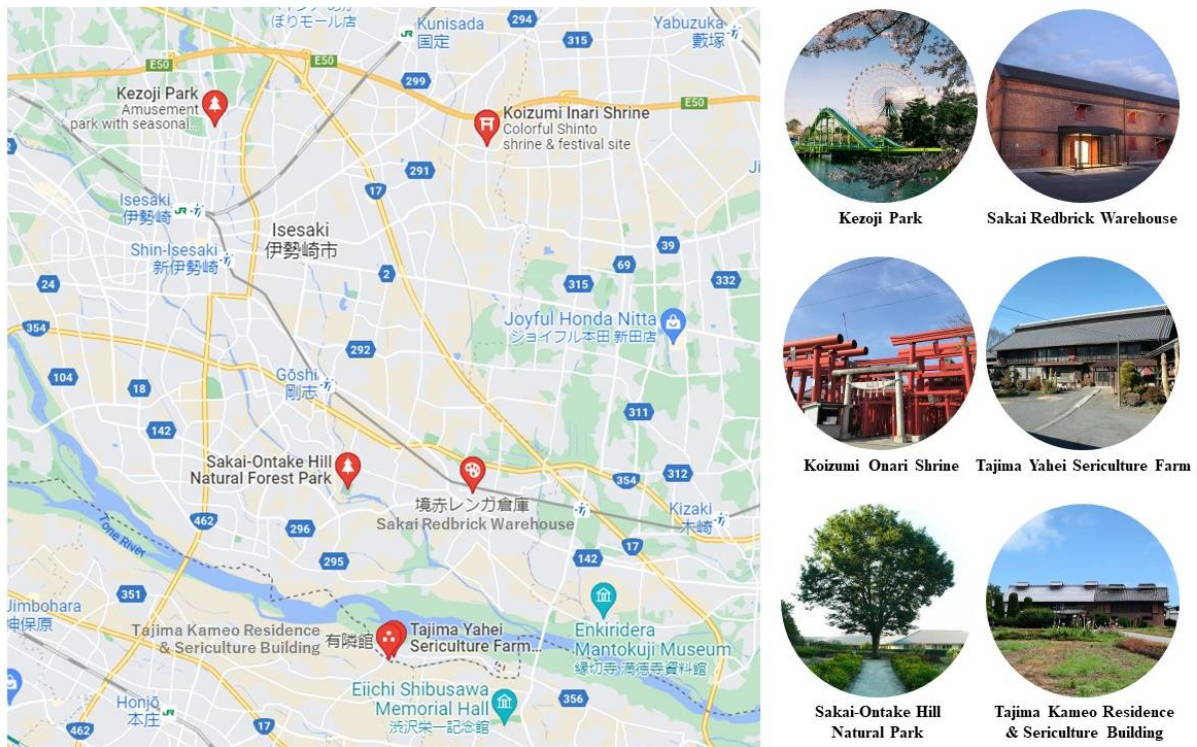


Figure 4-44: Pin-point of locations nearby Sakai Shimamura for proposed marathon.

(Source: YNU AT Studio, 2020. Translated by author.)

4.2.3 Culture – Creating New Activities

In 2018, students were invited for an agricultural experience of corn picking in the field of Mr. Toshishige Kurihara (see Figure 4-45). Considering the presence of large agriculture fields in the village, students suggested the creation of an agriculture school and a harvest festival to celebrate the bestowment of land rich in crops. In hopes to relive the scenes of sericulture school in the village, the setting up of a weekend agriculture school is designed to provide lessons on home gardening. Designed to be held twice a month for ten to fifteen people, lessons follow the yearly seasons which includes soil preparation in spring, seed raising in summer, harvest in autumn and soil improvement in winter (see Figure 4-46). A yearly schedule of Isesaki city’s agriculture harvest is planned out to map the types of produce may be harvested in each season. In the case of Isesaki city, the Mirei strawberries, Julia tomatoes

and Sayuki parsley are harvested in Spring (see Figure 4-47). Kyoka summer burdocks, Silky No.19 corns, Hataori-komachi edamame beans and Yoihazuki sweet eggplant are best harvested in the summer (see Figure 4-48) and Milky Cherie rice is best harvested in Autumn (see Figure 4-49). As celebration on the abundance of harvest, a Shimamura Harvest Festival is suggested to be carried out once a year as a way to promote the village (see Figure 4-50) through the promotion of local produce.

As part of a proposal in 2020 aimed to raise local's awareness through food and experience, students suggested providing local food and snacks such as the *tsumikko*⁴⁴ and *okkirikomi*⁴⁵ at the information centre. This allow residents and visitors to enjoy local food in response to the lack of restaurants in the village. A *yakimanju matsuri* festival is also suggested to be celebrated along with Isesaki Shrine on November 11 every year. The home economics room in the farm's information centre is suggested as the location to host the *yakimanju* making activity.

⁴⁴ Soup with daikon radish, carrots, taro, etc.

⁴⁵ Wide noodles in soy sauce or miso-based soup.



Figure 4-45: Students (top) and the author (below) experiencing corn picking in Mr. Kurihara's field. (Top: taken by author. Below: taken by Daiki Inuma on June 25, 2018)



Figure 4-46: Lessons of the agriculture school according to the season.

(Source: YNU AT Studio, 2018)

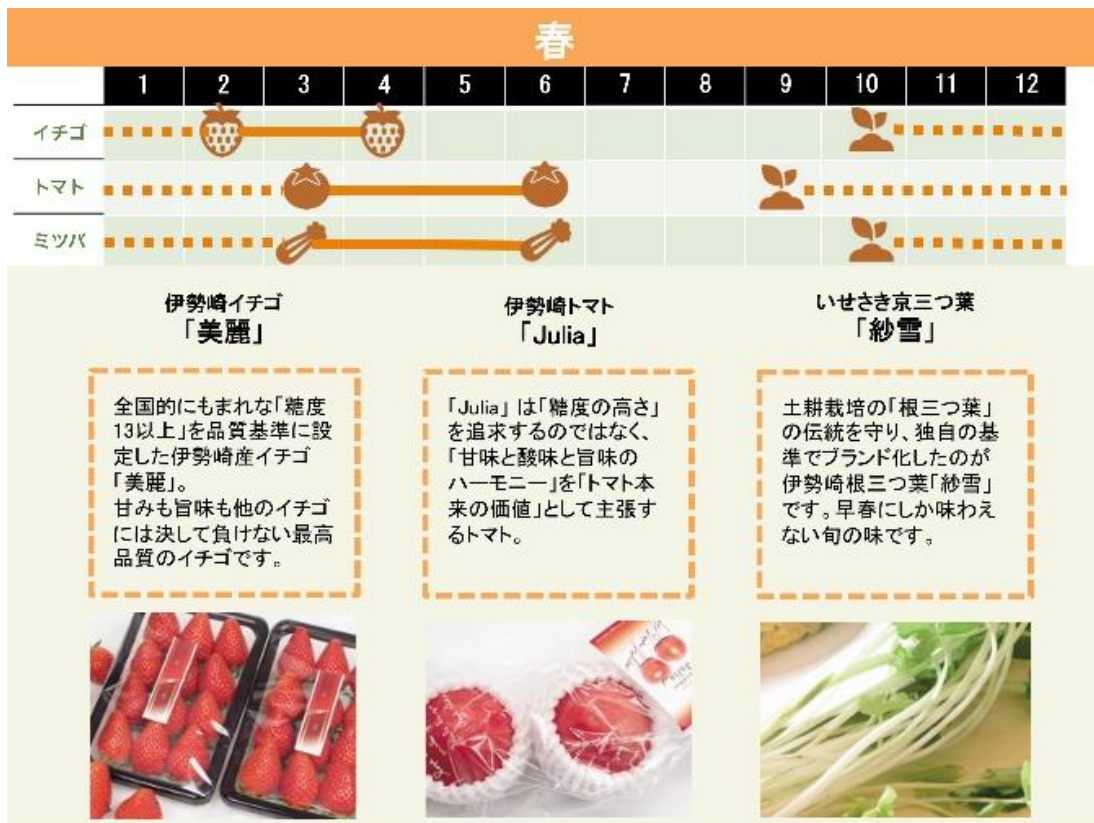


Figure 4-47: Harvest for spring. (Source: YNU AT Studio, 2018)



Figure 4-48: Harvest for summer. (Source: YNU AT Studio, 2018)



Figure 4-49: Harvest for autumn. (Source: YNU AT Studio, 2018)



Figure 4-50: Image of the sericulture building of Kameo Tajima utilized for the Shimamura Harvest Festival. (Source: YNU AT Studio, 2018)

4.2.4 Funding

In 2020, students of YNU looked into the availability of national, prefectural and private grants to be utilized for regional revitalization activities. It was identified that as opposed to individual applications, only corporations are allowed to apply for available grants (see Table 4-6). Current local organizations such as the Gunma Shimamura Sanshu No Kai and Shimamura Kaiko Furusato No Kai are not an incorporated organization which disqualifies them from applying for such grants. Therefore, it is suggested that these local organizations should collaborate with the Isesaki city government in establishing an incorporated organization specifically for the promotion and regional revitalization of the village which will qualify them for the application of grants.

その他の支援制度

	制度	助成金額	問題点
国	歴まち法による助成	(他制度の補助)	直接的な資金面の補助はない
	農山漁村振興交付金	4億円/計画	個人の申請×
県	「群馬の文化」支援事業補助金	上限100万円	市町村が団体の構成員である必要
民間	朝日新聞文化財団 文化財保護活動助成	10万～数100万円/年	個人の申請×
	日本芸術文化振興会 芸術文化振興基金助成金	助成対象経費の1/2以内	個人の申請×
	大成建設自然・歴史環境基金	約50万円/件	個人の申請×
	日本ナショナルトラスト	(半永久的サポート)	対象になる難しさ、 団体の法人化が必要
	ぐんま食と歴史文化財団の助成活動	総額609万円	金額が少ない

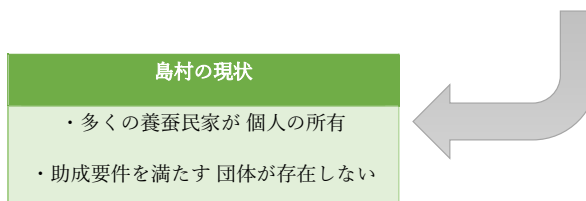


Table 4-6: Types of grants available and condition of Sakai Shimamura suggested by students. (Source: YNU AT Studio, 2020)

In current years, fundraising or crowdfunding has becoming more and more popularized in funding for small projects and start-up business. It is a faster way to raise finances and a great way to test the market for the items to be marketed. This is a relatively new and safe way to collect funds for any project with the presence of a crowdfunding council in Japan (READYFOR, n.d). There are many successful cases on the local crowdfunding platforms in funding for repairs, maintenance of historical buildings, refurbishment and utilization of heritage buildings. A crowdfunding of 2 million yen for the repairs of Suwa Shrine in Nagano prefecture due to the aftermath of an earthquake in Fukushima prefecture was successfully funded with 2.5 million yen in 2021 (READYFOR, 2021). The fund was used for the repairs of the torii, four stone lanterns, main shrine and other shrine structures, stone monuments, ground fissures and fallen trees. As a token of appreciation, the shrine gifted good luck charms as a return for the generosity of donors. Local businesses also showed support by

gifting local goods such as locally harvested apple juice, local-made sake and locally grown rice as part of the returns depending on the amount donated. A crowdfunding of 2 million yen for the reopening of an old hot spring facility and accommodation in Gose city of Nara prefecture was successfully met after 3 months (READYFOR, 2022). The 2.3 million yen funded is used for the reopening of a closed down hot spring facility and the refurbishment of an old bicycle shop, an old stationary shop and an old tobacco shop into a hotel and restaurants. The project organizer hopes to utilize these dormant heritage buildings to revitalize the region and promote tourism in the city.

Projects that solve regional issues and provide services are more likely to be successful as compared to solely improving urban environment and conservation purposes (Oya et al., 2019). Oya et al. (2019) concluded that in addition of raising funds, crowdfunding is a mean for advertising projects and organizations, and establishing new relationships and collaboration as merits of crowdfunding. The formation of communities and changes in awareness (Nakamura, 2020) and possibility of human and money flow into depopulated areas (Kondo, 2017) are considered as merits of crowdfunding. A research (Oda et al., 2019) found that planners of one or more agriculture-related crowdfunding projects agreed on the effective advertising as a benefit not found in conventional funding projects. ‘Projects with low target amounts’, ‘having a large group of supporters’, ‘available options to give large contributions’, and ‘constant report of project activity’ are factors of a successful crowdfunding project. Another research (Okada & Ohe, 2022) also concluded that while a ‘high target amount’ negatively impacts the effectiveness of agriculture-related crowdfunding projects, ‘locality of the proposal’, ‘utilization for new business’, ‘constant report of project activity’, and ‘having a large group of supporters’ positively impacts the effectiveness of agriculture-related crowdfunding projects. Okada and Ohe (2022) stressed that ‘local love’ is important for agriculture-related crowdfunding projects to succeed. Kondo (2017) suggested the possibility

of human and money flow into depopulated areas through the crowdfunding. In an awareness survey, the participation in crowdfunding projects solely aimed to provide support was most agreed by patrons of crowdfunding projects (Nakata, 2017).

Other than looking into available grants, crowdfunding may be another method for local organizations to fund new local activities, repairs and maintenance of heritage buildings, refurbishment and utilization of heritage buildings. The utilization of Tajima Kameo Residence *sanshitsu* to provide services such as a café or restaurant selling local delicacies or accommodation for weekend guests would more likely turn out successful. In addition to raising funds, promoting local tourism and businesses, the project can also expect the establishment of new relationships, collaboration of various communities and stakeholders, and increasing the awareness of residents and non-residents in issues faced by Sakai Shimamura. It is important to promote the utilization project to create a large group of supporters and provide constant update on the project progress to increase the effectiveness of achieving the aims of a crowdfunding project by emphasizing on the effects of the utilization project on regional revitalization.

4.2.5 Study Groups and Sharing Sessions

Student ideas from 2018 were presented to about thirty residents in a study group organized by the Southern Tone-gawa River Environmental Improvement and Promotion Council⁴⁶ on 11 November 2018 at the local welfare centre. Unfortunately, student ideas from 2020 were not presented that year as the sharing session was cancelled due to the coronavirus pandemic. However, the author was able to represent the students of 2020 in presenting their ideas in the Research of Sakai Shimamura Traditional Buildings sharing session organized on

⁴⁶ 「利根川南部環境整備促進協議会」 in Japanese.

8 October 2022 (see Figure 4-51). The sharing session was attended by 100 residents and ten governmental representatives from Gunma prefecture, Isesaki city, Fukaya city and Honjō city. The first half session was a 40-minute presentation by Professor Ono and the latter half was a 15-minute students' idea presentation met with 25-minute responses from attendees which expressed their opinions (see Figure 4-52 & Appendix H) and expanded the ideas proposed by students.

Study groups and sharing sessions are important as it allows interaction between stakeholders. The sharing session in 2022 allowed students to communicate their ideas through interaction with local residents and stimulate them to reconsider the values and charms of the Sakai Shimamura and to incorporate them into new regional revitalization ideas.



Figure 4-51: The author presenting student ideas from the year 2020.



Figure 4-52: A resident expressing his opinion on student ideas.

4.3 Establishment of a Collaborative Organization

After the successful inscription of the farm as a World Heritage component, plans to establish the village as a Preservation District for Groups of Traditional Buildings has slowly gotten back on track. The Sakai Shimamura Registered Tangible Cultural Property Utilization

Promotion Council⁴⁷ was formed mainly by members of the Gunma Shimamura Sanshu No Kai with the assistance of research institutes such as Nippon Institute of Technology and YNU to invoke pride, raise the awareness of residents and promote the utilization of Registered Tangible Cultural Properties in Sakai Shimamura. As part of promotional activities, the council chaired by Mr. Tatsuyuki Tajima prints newsletters (see Figure 4-53) every quarter year to disseminate information regarding Registered Tangible Cultural Properties in the village (Sakai Shimamura Registered, 2021, 2022). First printed in April 2021, there are currently seven issues as of November 2022. Announcement on the successful inscription of the five sericulture farmhouses (see Figure 54), a mascot design competition for the council organized in a local primary school (see Figure 55), results of historical and culture research by Gunma Shimamura Sanshu No Kai (see Figure 55 to 57), and comments of attendees of the sharing session in October 2022 (see Figure 58) were published in the council newsletters.

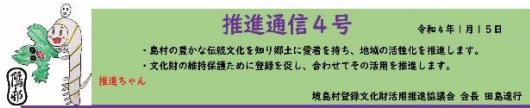


Figure 4-53: First volume newsletter introducing Registered Tangible Cultural Properties in Sakai Shimamura.



Figure 4-54: Third volume newsletter announcing the successful inscription of the five sericulture farmhouses.

⁴⁷ 境島村登録文化財活用推進協議会 in Japanese.



マスコット決まる



迎春のお慶び申し上げます
 昨年の通信2号で会のマスコットを募集しましたら58通もの応募がありました。嬉しい限りです。選考会を開き、境小3年弘中繪葉さんを最優秀作品に選びました。名前は【推進ちゃん】とします。作品のコメントには『頭の上にはまゆがのっていること、かいこぐわの葉食べようとしてくわの葉はそれとびっくりしているところがとくちゅう。』が添えられていました。作者の思いがよく表現されていました。2等1名、3等2名を入賞とさせて頂きました。境小では英年、当会の金井拓美さんがカイコ学習に取り組んでいました。その経緯と積み重ねが作品に響くように思いました。また作品のデジタル化は田島一愛さんが担当しました。感謝です。

カイコ学習（深谷市八基小）

一緒に聴いたことのある校長先生の依頼を受けて小学校で授業をさせていただきました。よく覚えられた教室に入り、興味津々とした視線に迎えられる授業に臨みました。題材は【カイコの食性と変態】です。カイコは食えない超肉食を切り口に昆虫は【単食性と広食性がある】事を話しました。また、変態回数や変態期【の質問にはほぼ全員が正解でした。思った以上に理解が深いようです。近隣の小学校でもカイコ学習が広がっています。当会でも学習のお手伝いを推進しています。



お宅拝見（新井進さん）



西島河原の土手の近くに路傍の大きな家が二軒並んで見られます。西に位置するのが新井進さん宅です。元々なちまにあつたのですが手ができたに当たって現在の場所に転移させようとして、築年はわからないようですが、明治の初めの頃とはのことです。養蚕業や蔵から庭玉の糞も出てきたことから藍の製造も行ったそうです。利根の風景によくなじんでいました。

島村南部屋号調べ (戦前から使われていた屋号)

田島弥平宅の屋号『遠山近水村舎』前で低学年の小学生にガイドをする時、『屋号』とはなんですかと質問をしますと『トンボの子供ヤゴ』など可愛い答えが返ってきます。現在は屋号などほぼ使われませんが、島村も面積だけではないでなく沢山の集積が構成されていました。養蚕業以外の屋号を調べ記録する事が島村の文化歴史を知る上で大切な事と思います。下の表は佐藤豊治さん達が作成した【島村南部地域家サブネーム】を基にして新地は田島元隆氏、新野新地は葉原賀一氏、立作は田村友久氏に再調査と確認お願いして作成したものです。口入れ業は現在島村にはありませんが養蚕業にとっては欠かせない業種だった河津平地です。平地での養蚕は川に船を浮かべ糸車を動かしていた説があります。河原は江戸から利根川を行き来していた河津間蔵だったようです。北郡郡屋号は調査中です。

屋号名	住家の内容	時期	造り手	地区
石井	種葉屋と敷屋	明治～	石井 正明	新地
上原屋	菓子製造販売	明治7～平成	川上 慎一	新地
タマガヤ	學生産販売	明治	田島 啓彦	新地
マキヤ	漬物屋も、どのような業種かわからない	明治	町田 豊一	新地
吉田屋	口入れ業 人材派遣業	明治	吉田 久美子	新地
こんにやく屋	こんにやく製造販売	明治	長谷川 洋	新地
馬んち	島村町の郵便局	明治	田島 新一	新地
コーヤ	友禅漆 先祖が京都で修行	明治	田島 晋	新地
足置屋（たびや）	足置産物製造販売 長谷川牧場に至	明治	長谷川 晋夫	新地
シラザカヤ（新酒屋）	酒類販売	明治～平成初期	大沢 正	新地
石や	家の基礎石の施工	明治	田島 治彦	新地
石や	家の基礎石の施工 小暮建屋に至	明治	小暮 芳彦	新地
藍や	養蚕関係の竹製品	明治	小暮 新一	新地
センベヤ	製餅製造販売	昭和	新井 新一	新地
田島医者	医院（宗家田島弥平に次ぐ家）	明治～昭和	田島 誠也	新地
葉崎医者	医院（田島弥平が島村に招へい）	明治～昭和	葉崎 孝	新地
油屋	油製造販売	江戸～明治	田島 新一	新地
ヤナギヤ（漬入）	川魚料理屋	江戸～明治	田島 新一	新地
西原屋	給物の物理を扱う、目薬も製造	明治	藤原 賢一	新野新地
油や	油製造販売（菜種油）ランプ用	明治	藤原 研二	新野新地
漆や	漆塗業（烏塗 手塗）	明治	藤原 一夫	新野新地
漆や	製粉業（水車）	明治	関口 宗	新野新地
カゴ屋	竹製品製造	明治	葉原 宗治	新野新地
タバコ屋	タバコ製造	明治	関口 新一	新野新地
酒屋	酒類販売 和菓子製造	明治～昭和	藤原 新一	新野新地
間蔵（ハヤ）	人材派遣業（新地買が住む跡あり）	明治	関口 保司	新野新地
タマガヤ	學生産販売	明治	石井 公平	新野新地
アマコヤ	菓子製造販売、煮付材（つけま）を製造販売	明治～昭和初期	藤原 新一	新野新地
キーヤンチ	木材関係	明治	鎌田 伸一	新野新地
木屋	木材関係	明治	田島 貞治	新野新地
コウヤ	染物業 不動産業	明治	堀地 松元	新野新地
藍や	竹製品製造	明治	田村 友久 立作	新野新地
漆や	染物業	明治	田島 雅男 立作	新野新地
製粉所	製粉業 現在田島商店に至	明治	田島 敏一 立作	新野新地

Figure 4-55: Forth volume newsletter announcing the winning mascot design (left) and reporting on research of yagō of buildings in Sakai Shimamura (right).



田島新一宅 国登録文化財申請



文久元年（1861）建築 瓦葺・櫓付き 2階築地家では島村最古である。
 ・田島新一家は田島医院の分家にて島村の明治期の特定郵便局であり、通称（局んち）とも呼ばれ親しまれています。
 ・当主の田島新一さんは、申請理由を以下のように話していました。
 精神管理には個人力だけでは限界あり、制度上の登録に載せて支援を頂き、また島村住民の興味や関心の一期にできればとのことでした。😊

島村渡船 終わる (セピア色の懐かしい思い出)

たくさんの思い出を載せて、南北の交流の島村渡船が令和4年に廃止になりました。中学校が南中と合併する前は島村の南郡と島中島が（北郡に分校）があり、中学生になると、北郡の生徒は利根川を渡し舟で毎日登校していました。男の生徒が女子乗務員のように梅を渡ると「コウラ」と船頭の方やんの船声が届ぶことがよくあったそうです。岸でばきばきと船の音も聞かれました。（写真提供は横濱川原氏の娘、野中茂枝さんです。）感謝します。



島村から鶴岡へ 松ヶ岡間蔵を訪ね 田島弥平新蚕室蘇る



田島弥平の新蚕室を模した巨大な蚕室が山形県鶴岡市に5棟そびえています。これらは庄内藩（酒井家・徳川四天王筆頭17万石）が旗本置業により種を失った武士に藩が新たな産業を興し職につかせるため、家臣17人を明治7年田島弥平家に派遣し養蚕・養蠶を学ばせました。翌明治8年に松ヶ岡間蔵所には力を継いだサムライたちが10種やぐらを取った蚕室を作り養蚕による産業を興事に作り上げ繁栄の礎を築きました。ここに居るとふと、島村にいる様な錯覚になります。（撮影日5月20日）

疑問 1
 なぜ、庄内藩の藩主は田島弥平を知り、家臣派遣を考えたのでしょうか？
 西郷隆盛
 金井之祐

戊辰戦争で庄内藩は幕府につき一度も負けなく戦い、会津藩が敗れたのちに新政府軍に降伏しました。最後まで抵抗したことにより多大な被害を覚悟していましたが、実際に降伏したのも寛大なもので、それは新政府軍の総大将西郷隆盛が意図したものでした。その義に感謝した藩主（酒井忠房）は西郷隆盛に数多くの家臣を保護に派遣し救いを乞いました。西郷は戦後、武士の職を失い路頭に迷うことを予想していたので何か産業を興し、職を与えようと考えたといわれています。その当時輸出は絹糸が大半でした。養蚕を奨励させ武士に職を与え新しい国作りを必要とする藩主にも、養蚕・養蠶の先進地島村の田島弥平宅へ家臣を派遣するように勧めたといわれています。
疑問 2
 なぜ、西郷隆盛は田島弥平を知ったのでしょうか？
 明治5年田島弥平が養蚕新論を出版した折、西郷隆盛が序文に祝辞を書きました。子供の田島英雄氏によると、その当時の中央政府では島村とゆかりの深い2人が活躍していたそうです。一人が金井之祐（大久保利通秘書官、後に副横濱義経）です。もう一人が田島武平家の親戚になる浪沢一平です。この二人は弥平とも親しい関係で中央政府では華々しく活躍していました。おそらく前述して、この二人のどちらかが弥平の事を西郷隆盛に知らせたのではなからうかと話してくれました。

Figure 4-56: Fifth volume newsletter publishing old photographs of students crossing Tone-gawa river in a boat as a mean for travelling to school.

Figure 4-57: Sixth volume newsletter publishing findings on famous samurai whom have learnt sericulture in Sakai Shimamura.



Figure 4-58: Seventh volume newsletter publishing comments of attendees of the sharing session in October 2022.

The latest newsletter shown in figure 4-58 gives an insightful view on the effectiveness of sharing session. Through the sharing session by Professor Ono on the charms of traditional houses in Sakai Shimamura, the owners of sericulture farmhouses were made aware that their houses are not imitations of one another but were built exclusively with unique and creative features. The history and value of local historical assets in Sakai Shimamura were made known to those whom did not know and allow those whom have already known to re-perceive the topic. This was reassured by Mr. Yohei Okada that he did not felt the historical value of buildings in the area although he has been living in Sakai Shimamura since he was child, but had felt strongly that these buildings should be preserved for future generations after attending this sharing session. In addition to students' idea on utilizing dormant houses and selling local

delicacies, Mr. Toyo Hashimoto, a sericulture farmhouse owner proposed multifaceted sustainable ideas such as starting a restaurant which also sells local produce aimed at repeating customers, an accommodation facility providing hands-on farming experiences, and a home vegetable garden for rent with technical guidance from locals. Mr. Kenta Sekiguchi, a resident had also acknowledged that he was able to learn about the future of Sakai Shimamura through ideas on regional revitalization proposed in this sharing session. Residents' concerns were also discussed in the sharing session as Mr. Hashimoto suggested the requirement for an effective financial support idea due to the aging of population and high maintenance cost of heritage buildings. Mr. Okada also pointed out that it is important to discuss the utilization of sericulture farmhouses in addition to the preservation of these historical assets.

The sharing session in October 2022 is considered a successful attempt and vital step to resume original plans of heritage buildings and the village to be inscribed into the national system, especially after a setback due to the coronavirus pandemic. The sharing session attended by over a hundred residents, governmental officials and research institutes allowed effective idea exchanges between stakeholders as third-party stakeholders are able to inspire and educate residents on the charms and importance of preserving the shared heritage.

4.4 Analysis of Outcomes

As discussed in Chapter 2, Isesaki city government halted original plans to inscribe the village as a Preservation District. The shifting of focus onto the farm has led to setbacks in the research of other sericulture-related heritage buildings in the village. After the successful inscription of the farm as a World Heritage component, research of heritage buildings remaining in the village is vital to push forward original plans. Essentially equipped with building recording skills, members of research institutes such as universities and building

research laboratories are able to carry out basic building survey which allows a basic understanding on the spaces and structures of a building. In performing building surveys, buildings are measured and recorded on paper, photographs and digital form. For preservation of a building, drawings, sketches and 3D models can be analysed to identify characteristics and to understand the historical, cultural and social values of the buildings. This especially important for sericulture farmhouses and sericulture-related buildings in Sakai Shimamura to be studied and inscribed into the national system for protection and recognition. For restoration of a building, drawings and sketches can be studied to reform physical attributes of the building in order to identify the historical, cultural and social values it had. This is significant as these values may have contributed to a certain event in the past or formed the current society as it is. From the restoration of the Former Tajima Yahei Residence *shin-sanshitsu*, it is understood that the construction of a building specifically for sericulture activities was to accommodate to the rising need for silkworm eggs locally, nationally and globally throughout the peak and decline of modern sericulture in the nation. The *shin-sanshitsu* possessed innovative and revolutionary architecture style not found in other sericulture farmhouses or sericulture buildings remaining in the prefecture or the nation. Although demolished, the historical, cultural and social values of the *shin-sanshitsu* which contributed to the history and industry of Sakai Shimamura and beyond the village will need to be discovered.

While the inscription of the farm as a World Heritage component grants global recognition, the farm inscribed in the national protection system also receives technical support and financial assistance from the federal government. On the contrary, heritage buildings in Sakai Shimamura, regardless located inside or outside the buffer zone are not secured with any form of assistance by any governmental bodies. Therefore, the availability to submit preservation requests is important for owners of historical assets to gather opinions and support from external parties to create an opportunity to negotiate on the preservation of the asset. In

the case of historical assets in Sakai Shimamura, Tajima Kameo Residence's *sanshitsu* was originally faced with the fate of demolition due to the aftermath of a typhoon but has been repaired and ready for utilization. The preservation request letter was attached with technical floor plans, section plans and photographs which are required to present physical characteristics of the building. However, although no help was provided by any parties, the effort of submitting the request letter had encouraged the owner to reconsider the importance of physically preserving his heritage building as part of the historical assets of Sakai Shimamura. Nevertheless, this is a first and vital step in preserving a historical asset or heritage site by raising the awareness of the owners. Fundamentally, building surveys and preservation requests are important actions necessary in paving the path of heritage sites to be registered as cultural properties.

As efforts to acknowledge and protect historical assets and sites in the country, the national system was established in accordance to the Law for the Protection of Cultural Properties and Cultural Properties are provided with financial and technical assistance on the maintenance of the assets. Therefore, in order to secure any form of assistance from governmental bodies, it is necessary to register heritage buildings or the site into the national system, and technical research on heritage buildings to produce drawings, documents and reports will require the skills of professional technicians. Subsequently, the successful registration of the five sericulture farmhouses and one sericulture building in Sakai Shimamura as Registered Tangible Cultural Properties are acknowledged to be a crucial part in the history of Sakai Shimamura, its sericulture industry and the architecture style of modern sericulture farmhouses in Japan. The registering of heritage buildings as Cultural Properties will also allow flexibility in renovations for its utilization. As more and more former sericulture farmhouses are registered into the national system, the recognition of these properties will raise the awareness of surrounding residents. As all stakeholders are focused on a unified aim, this will

encourage the smooth progression on the inscription of the village as a Preservation District for Groups of Traditional Buildings, allowing the group of historical assets in Sakai Shimamura to be preserved altogether.

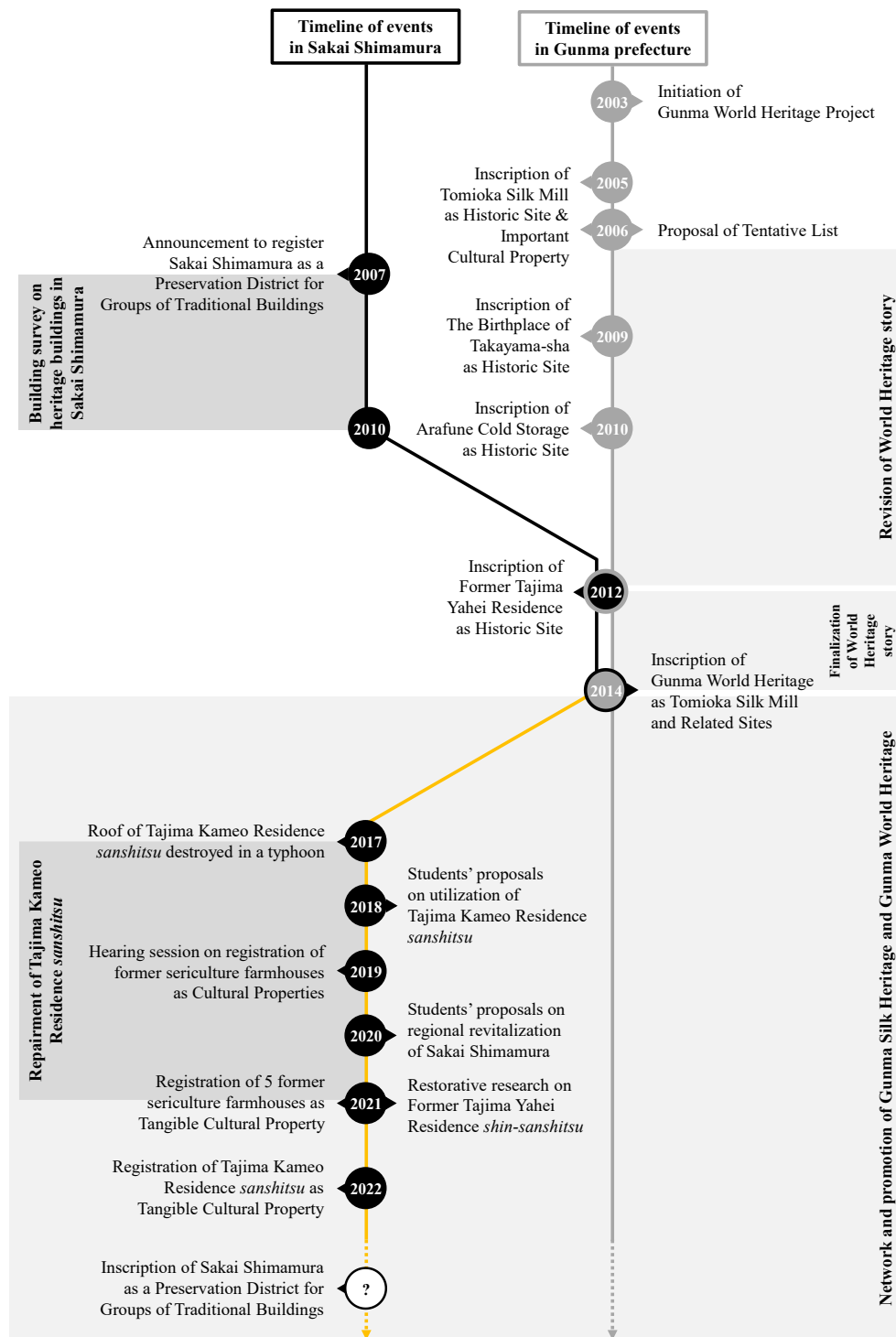


Figure 4-59: Event timeline in Gunma prefecture and Sakai Shimamura.

As discussed in Chapter 2, topography of the site and ownership of heritage buildings are also challenges to overcome. The peri-urban countryside topography of Sakai Shimamura is affecting the habitation and physical preservation of buildings as the village is facing aging and outward movement of population. Buildings in the village are left abandoned and are prone to the effects of natural hazards. Therefore, it is necessary that heritage buildings are maintained and utilized for the revitalization of the area. As researchers in the architecture field, we may guide local stakeholders such as residents and the local government on a possible direction of city development or regional revitalization through the preservation of historical assets or sites. In response to the aging of population, students are creative resources whom can interpret charms and values of a heritage site from an external view which may encourage local residents and communities to reinterpret and appreciate the shared heritage. In presenting students' ideas on utilization and regional revitalization of Sakai Shimamura in a sharing session with local stakeholders, this further encourages the participation of a wider group of residents by educating them on the possibilities and potential of their home as a heritage site.

The private ownership of cultural properties under various governing bodies affecting the ease of implementation of preservation measures. It is difficult for government-proposed measures to be directly implemented on privately-owned sericulture farmhouses in Isesaki city. Likewise, it is even more difficult for privately-owned sericulture farmhouses located in neighbouring cities in Saitama prefecture to propose and implement measures for the Gunma World Heritage component and its buffer zone due to the difference in awareness level. It is also believed that inscription of only the farm as a World Heritage component had also discouraged other sericulture farmhouse owners on the importance of preserving their heritage buildings and its cultural values. However, through sharing sessions, exchange of ideas and concerns between stakeholders in preserving local historical assets is one way to diversify perspectives and create a mutual understanding between all stakeholders. Brainstorm and

revision of ideas through discussions can progressively form concrete and feasible ideas to be implemented on site. Corresponding to the presence of a ‘Check’ phase to evaluate the effectiveness of measures proposed in comprehensive plans, this should also be applied to the monitoring of a heritage site. Other than sharing sessions, questionnaires and interviews periodically carried out are also ways to monitor the progress of preservation and revitalization of a historical asset and heritage site. Therefore, it is vital to form a stable and inclusive communication system carried out periodically for reporting of research results and reviewing of preservation ideas to progress plans for a heritage site, form a strong relationship and mutual understanding between all stakeholders on the awareness of preserving a shared heritage.

While governmental bodies and research institutes are only able to guide and propose measures on preserving a heritage asset or site, local residents and communities are the main stakeholders in implementing the ideas and measures. Today, including the newly established Sakai Shimamura Registered Tangible Cultural Property Utilization Promotion Council, there are three main local organizations actively coordinate events and projects in various fields to research and disseminate information on all-things related to Sakai Shimamura. In the field of heritage research, the Gunma Shimamura Sanshu No Kai, made up of descendants of former sericulture farmers is advancing the documentation of local history. The ‘Sakai Shimamura Related Documents’ booklets published by the organization which includes history of local sericulture industry, the stories of local sericulture farmers working as imperial sericulturists in the imperial palace, the achievements of their ancestors in advancing the sericulture industry, diaries of local sericulture farmers, the *yagō* (house name) of their sericulture farmhouses and others. In the field of heritage promotion, Shimamura Kaiko No Furusato Kai, made up of residents of the village to provide hospitality to visitors in promoting regional revitalization and development. The organization accommodates to guided tours around sericulture farmhouses in the village, coordinate exhibitions and workshops, manage the information

centre and rest stops in the village by trained members of the organization. However, with about 1200 residents residing in the village, it is also important for non-members and members of local organizations to be equipped with updated information on the condition of the preservation and regional revitalization of their village. This overlooked matter is resolved through the efforts of the Sakai Shimamura Registered Tangible Cultural Property Utilization Promotion Council supported by research institutes to report the progress of the preservation and regional revitalization of their village in the form of newsletters, in hopes to evoke the sense of interest and awareness of all local residents.

The role and relationship between local communities, governmental organizations and research institutes in Sakai Shimamura are summarized in a diagram shown in figure 4-60. Generally, local residents and communities are the main stakeholders of a heritage site to interpret the charms of the historical assets or site for preservation, utilization and regional revitalization ideas to be implemented. On the other hand, governmental organizations are next in line in the hierarchy of stakeholders and act as support by positioning the role of the historical site in the city's development, support and propose measures corresponding to residents' needs, and ensure a stable and inclusive communication system for the exchange and revision of measures and ideas. Research institutes also act as support by providing technical guidance on research of historical assets, encourage residents to reinterpret and rediscover new charms of their heritage, provide guidance on the future direction of historical assets by suggesting preservation, utilization and regional revitalization related creative and practical ideas. These three stakeholders currently present and involved in Sakai Shimamura form a basic and sustainable system in progressing research, promotion and report of Sakai Shimamura as a heritage site for groups of sericulture farmhouses, sericulture-related buildings and significant regional landscapes.

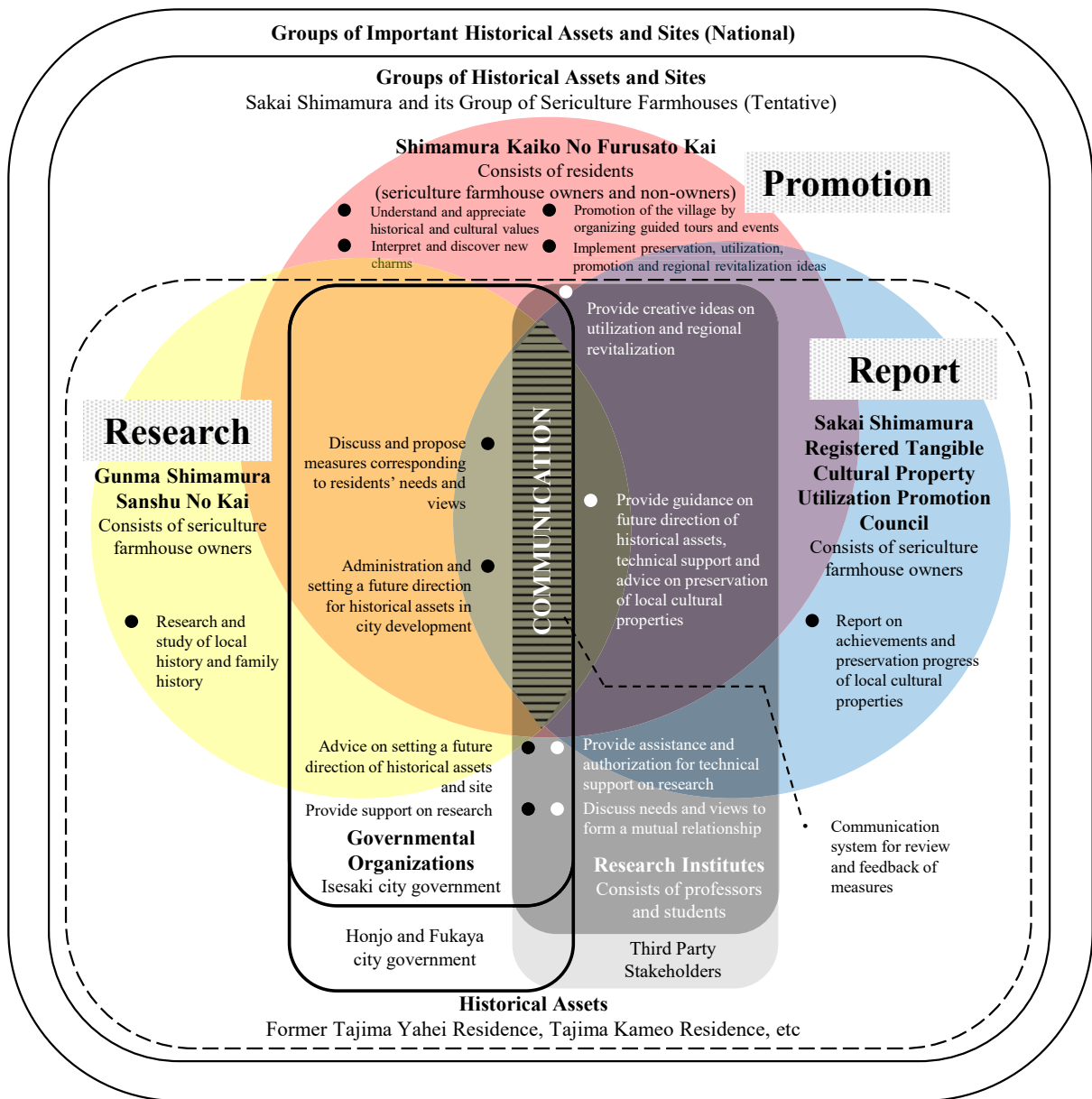


Figure 4-60: Role and relationship between local communities, local government and research institutes to form a system for sustainable preservation and regional revitalization of heritage sites.

4.5 Chapter Conclusion

This chapter concludes hard and soft approach methods by the author as a postgraduate student of Yokohama National University executed between 2015 and 2022 in Sakai Shimamura to resolve the three main challenges faced by the city government and the village in collaboration with local communities to preserve and revitalize local historical assets and heritage sites. The outcomes are analysed to study the effectiveness of the methods, the role and relationship between stakeholders in Sakai Shimamura are discussed, and elements to form a sustainable monitoring system are concluded.

Iseaki city government halted original plans to inscribe the village as a Preservation District and led to setbacks in the research of other sericulture-related heritage buildings in the village. After the successful inscription of the farm as a World Heritage component, it is important that original plans get back on track by continue surveying on other sericulture-related heritage buildings in the village. For preservation of a building, drawings, sketches and 3D models are analysed to identify characteristics and to understand the historical, cultural and social values of the buildings. This is especially important for sericulture farmhouses and sericulture-related buildings in Sakai Shimamura to be studied and inscribed into the national system for protection and recognition. For restoration of a building, drawings and sketches are studied to reform physical attributes of the building in order to identify the historical, cultural and social values it had. This is significant as these values may have contributed to a certain event in the past or formed the current society as it is. Starting from the restorative research of the Former Tajima Yahei Residence *shin-sanshitsu*, other significant demolished buildings should also be progressively restored.

The inscription of the farm in the national and global system grants recognition, technical support and financial assistance, heritage buildings in Sakai Shimamura, regardless

located inside or outside the buffer zone are not secured with any form of assistance by any governmental bodies. Therefore, the availability to submit preservation requests is important for owners of historical assets to gather opinions and support from external parties to create an opportunity to negotiate on the preservation of the asset. Although no help was provided by any parties, the effort of submitting the request letter had encouraged the owner to reconsider the importance of physically preserving his heritage building as part of the historical assets of Sakai Shimamura. Nevertheless, this is a first and vital step in preserving a historical asset or heritage site by raising the awareness of the owners. Fundamentally, building surveys and preservation request submissions which can be performed by members of research institutes are important actions necessary in paving the path of heritage sites to be registered as cultural properties.

To secure any form of assistance from governmental bodies, it is necessary to register heritage buildings or the site into the national system, and technical research on heritage buildings to produce drawings, documents and reports will require skills of a professional technician. Subsequently, the successful registration of the five sericulture farmhouses and one sericulture building in Sakai Shimamura as Registered Tangible Cultural Properties are acknowledged as a crucial part in the history, industry and sericulture architecture of Sakai Shimamura. The registering of heritage buildings as Cultural Properties will also allow flexibility in renovations for its utilization. As more former sericulture farmhouses are registered into the national system, the recognition of these properties will raise the awareness of surrounding residents, and stakeholders focused on a unified aim will encourage the smooth progression on the inscription of the village as a Preservation District for Groups of Traditional Buildings, allowing the group of historical assets in Sakai Shimamura to be preserved altogether.

It is necessary that heritage buildings are maintained and utilized for the revitalization of the area as a method to resolve issues caused by abandoned buildings and to overcome aging and outward movement of population of the site. Researchers in the architecture field may guide local stakeholders on a possible direction of city development or regional revitalization through the preservation of historical assets or sites, and students are creative resources whom are able to interpret charms and values of a heritage site from an external view which may encourage local residents and communities to reinterpret and appreciate the shared heritage. Organizing sharing session with local stakeholders will further encourage the participation of a wider group of residents and educate them on the possibilities and potential of their home as a heritage site.

It is difficult for government-proposed measures to be directly implemented on privately-owned sericulture farmhouses in Isesaki city and even more difficult for privately-owned sericulture farmhouses located in neighbouring cities in Saitama prefecture to propose and implement measures for the Gunma World Heritage component and its buffer zone due to ownership under various governing bodies and difference in awareness levels. However, through sharing sessions, exchange of ideas and concerns, brainstorm and revision of ideas in preserving local historical assets is one method to form concrete and feasible ideas to be implemented on site, diversify perspectives, and create a mutual understanding between all stakeholders. Other than that, questionnaires and interviews carried out periodically are also methods to monitor the progress of preservation and revitalization of a historical asset and heritage site. Therefore, it is vital to form a stable and inclusive communication system carried out periodically for reporting of research results and reviewing of preservation ideas to progress plans for a heritage site, form a strong relationship and mutual understanding between all stakeholders on the awareness of preserving a shared heritage.

Today, there are three main local organizations actively coordinate events and projects in various fields to research and disseminate information on all-things related to Sakai Shimamura. In the field of heritage research, the Gunma Shimamura Sanshu No Kai is advancing the documentation of local history where a series of booklets are published on the history of local sericulture industry, the stories of local sericulture farmers working as imperial sericulturists in the imperial palace, the achievements of their ancestors in advancing the sericulture industry, diaries of local sericulture farmers, the *yagō* (house name) of their sericulture farmhouses and others. In the field of heritage promotion, Shimamura Kaiko No Furusato Kai provides hospitality to visitors in promoting regional revitalization and development by accommodating guided tours around the village, coordinate exhibitions and workshops, manage the information centre and rest stops in the village. With about 1200 residents residing in the village, all residents need to be updated on the condition of the preservation and regional revitalization of their village. This overlooked matter is resolved through the efforts of the Sakai Shimamura Registered Tangible Cultural Property Utilization Promotion Council supported by research institutes to report the progress of the preservation and regional revitalization of their village in the form of newsletters, in hopes to evoke the sense of interest and awareness of all local residents.

Generally, in Sakai Shimamura, local residents and communities are the main stakeholders in implementing the ideas and measures on preserving a heritage asset or site. On the other hand, governmental organizations act as support by positioning the role of the historical site in the city's development, propose measures corresponding to residents' needs, and ensure a stable and inclusive communication system for the exchange and revision of measures and ideas. Research institutes also act as support by providing technical guidance on research of historical assets, encourage residents to reinterpret and rediscover new charms of their heritage, provide guidance on the future direction of historical assets by suggesting

preservation, utilization and regional revitalization-related creative and practical ideas. These three stakeholders form a basic and sustainable system in progressing research, promotion and report of Sakai Shimamura as a heritage site for groups of sericulture farmhouses, sericulture-related buildings and significant regional landscapes.

CHAPTER 5

CONCLUSION & FUTURE PROSPECT

5.1 Conclusion

Since the announcement of the Gunma World Heritage Project in 2003, each municipal government has been designating their cultural properties into the national system, allowing them a chance to be considered for nomination into the World Heritage Project. The original World Heritage story to link sericulture, silk and textiles-related cultural properties in the prefecture was revised during the selection period and the inclusion of the Former Tajima Yahei Residence in the Tentative List finalized the World Heritage story on the process of silk production in Japan, under the title Tomioka Silk Mill and Related Sites in 2014. The inclusion of Tajima Yahei Sericulture Farm into the Tentative List had resulted in three main challenges faced by Isesaki city government and Sakai Shimamura. Firstly, halting of original plans to inscribe the village as a Preservation District and shift focus onto the farm to inscribed only the farm into the national system for the global system. Secondly, the peri-urban countryside topography of Sakai Shimamura affecting the habitation and physical preservation of buildings as the village is facing aging and outward movement of population. Thirdly, the private ownership of cultural properties under various governing bodies affecting the ease of implementation of preservation measures. Today, almost a decade after the inscription of the farm as a World Heritage component, the buffer zone and the rest of the village is not legally protected by national laws as it has not been designated in the national system and cultural properties in the buffer zone does not receive active financial and maintenance support from governmental bodies. At the same time, building research is slow and residents' awareness is low. Especially for privately-owned cultural properties, it is even more important for residents to have equal understanding on the importance of preserving the shared heritage and inheriting it to future generations.

Each ancestor sericulturist in Sakai Shimamura had contributed equally to the development of the sericulture industry and are innovative 'architects' on the design and

renovation of their sericulture farmhouses. Sakai Shimamura now portrays a village scape of sericulture farmhouses with various roof ventilation systems telling a story on the past of innovative sericulture farmers and the diverse sericulture techniques practiced, the ingenious design of perimeter stone walls, detachable doors and riverbank as flood prevention mechanisms against the yearly floods, the eye-pleasing scenery of tall fencing trees to control indoor conditions of sericulture spaces, and historically and culturally-rich building structures, stone monuments and croplands are significant features of Sakai Shimamura. Similar to most of the sericulture villages of Important Preservation District for Groups of Traditional Buildings which fulfilled criteria (3) Preservation districts for groups of historic buildings and the environs which noticeably show local characteristics, Sakai Shimamura has also remained its group of sericulture farmhouses and significant regional landscapes from the olden days. However, as the village is lacking in building research and guidance on preservation of heritage buildings, it is important to invite other interested parties as supportive stakeholders to assist the main stakeholders in preserving their heritage.

After the successful inscription of the farm as a World Heritage component, it is important that original plans get back on track by continue surveying on other sericulture-related heritage buildings in the village. For preservation of a building, drawings, sketches and 3D models are analysed to identify characteristics and to understand the historical, cultural and social values of the buildings. For restoration of a building, drawings and sketches are studied to reform physical attributes of the building in order to identify the historical, cultural and social values it had. These values may have contributed to a certain event in the past or formed the current society as it is and is especially important for sericulture farmhouses and sericulture-related buildings in Sakai Shimamura to be studied and inscribed into the national system for protection and recognition. The availability to submit preservation requests is important for owners of historical assets to gather opinions and support from external parties to create an

opportunity to negotiate on the preservation of the asset as heritage buildings in Sakai Shimamura are not secured with any form of assistance by any governmental bodies. Although effectiveness is low, the effort of submitting the request letter had encouraged the owner to reconsider the importance of physically preserving his heritage building as part of the historical assets of Sakai Shimamura. Nevertheless, this is a first and vital step in preserving a historical asset or heritage site by raising the awareness of the owners. Fundamentally, building surveys and preservation request submissions which can be performed by members of research institutes are important actions necessary in paving the path of heritage sites to be registered as cultural properties.

To secure any form of assistance from governmental bodies, it is necessary to register heritage buildings or the site into the national system, and technical research on heritage buildings to produce drawings, documents and reports will require skills of a professional technician. Subsequently, the successful registration of heritage buildings in Sakai Shimamura as Registered Tangible Cultural Properties are acknowledged as a crucial part in the history, industry and sericulture architecture of Sakai Shimamura. The registering of heritage buildings as Cultural Properties will also allow flexibility in renovations for its utilization. As more former sericulture farmhouses are registered into the national system, the recognition of these properties will raise the awareness of surrounding residents, and stakeholders focused on a unified aim will encourage the smooth progression on the inscription of the village as a Preservation District for Groups of Traditional Buildings, allowing the group of historical assets in Sakai Shimamura to be preserved altogether.

It is also necessary that heritage buildings are maintained and utilized for the revitalization of the area as a method to resolve issues caused by abandoned buildings and to overcome aging and outward movement of population of the site. Researchers in the architecture field may guide local stakeholders on a possible direction of city development or

regional revitalization through the preservation of historical assets or sites, and students are creative resources whom are able to interpret charms and values of a heritage site from an external view which may encourage local residents and communities to reinterpret and appreciate the shared heritage. Organizing sharing session with local stakeholders will further encourage the participation of a wider group of residents and educate them on the possibilities and potential of their home as a heritage site.

It is vital to form a stable and inclusive communication system carried out periodically for reporting of research results and reviewing of preservation ideas to progress plans for a heritage site, form a strong relationship and mutual understanding between all stakeholders on the awareness of preserving a shared heritage. As it is difficult for government-proposed measures to be directly implemented on privately-owned sericulture farmhouses in Isesaki city and even more difficult for privately-owned sericulture farmhouses located in neighbouring cities in Saitama prefecture to propose and implement measures for the Gunma World Heritage component and its buffer zone due to ownership under various governing bodies and difference in awareness levels, sharing sessions, exchange of ideas and concerns, brainstorm and revision of ideas in preserving local historical assets is one method to form concrete and feasible ideas to be implemented on site, diversify perspectives, and create a mutual understanding between all stakeholders. Other than that, questionnaires and interviews carried out periodically are also methods to monitor the progress of preservation and revitalization of a historical asset and heritage site.

Today, there are three main local organizations actively coordinate events and projects in various fields to research and disseminate information on all-things related to Sakai Shimamura. In the field of heritage research, the Gunma Shimamura Sanshu No Kai is advancing the documentation of local history. In the field of heritage promotion, Shimamura Kaiko No Furusato Kai provides hospitality to visitors in promoting regional revitalization and

development. In progress reporting of the above fields, Sakai Shimamura Registered Tangible Cultural Property Utilization Promotion Council is supported by research institutes to update all residents on the condition of the preservation and regional revitalization of Sakai Shimamura. Clear aims set by each organization allows cultural activities in various themes to progress together as organization activities are carried out separately. Generally, in Sakai Shimamura, local residents and communities are the main stakeholders in implementing the ideas and measures on preserving a heritage asset or site. On the other hand, governmental organizations act as support by positioning the role of the historical site in the city's development, propose measures corresponding to residents' needs, and ensure a stable and inclusive communication system for the exchange and revision of measures and ideas. Research institutes also act as support by providing technical guidance on research of historical assets, encourage residents to reinterpret and rediscover new charms of their heritage, provide guidance on the future direction of historical assets by suggesting preservation, utilization and regional revitalization-related creative and practical ideas. These three stakeholders form a basic and sustainable system in progressing research, promotion and report of Sakai Shimamura as a heritage site for groups of sericulture farmhouses, sericulture-related buildings and significant regional landscapes.

5.2 Future Prospects

With more and more local communities getting involved in the preservation of their own heritage, in some outstanding examples, local communities are the ones who lead the preservation of their heritage with support from governmental and third-party organizations. Local residents of Sakai Shimamura had shown great efforts in the preservation and promotion of the cultural values of the village and are still in the midst of exploring their potential in

leading by initiative through organization activities. While many past researches in recent years had also stressed the importance on the participation of residents in the preservation of a heritage, it is also agreed that there are limitations in the implementation of specialized techniques. Past researches had suggested the collaboration of third-party organizations as secondary support to residents in the preservation of a historical asset and site, even stating local universities as an example. However, it is unclear how research institutes can support local residents in this endeavour.

Therefore, examples of hard and soft approach methods of which expertise can be provided by members of research institutes as shown. The author hopes that the technical research of heritage building and regional revitalization idea suggestions would inspire local residents of Sakai Shimamura to create new cultural activities for the regional revitalization of the village, and periodic arrangement of sharing sessions would smoothen implementation progress, strengthen relationships and create a mutual understanding between all stakeholders. Looking forward to positive results for Sakai Shimamura in the coming years, the author urges the inclusion of regional revitalization projects to be incorporated into local school and university curriculum to secure the continuous involvement of young generation. Including hard approach examples discussed, the author hopes that historical assets and sites can be preserved through traditional and creative ways to strengthen the genius loci of the historical site. By explaining clear roles of research institutes and stressing the importance of research institutes as a supportive stakeholder in the preservation of historical assets and sites, the author also hopes this collaborative relationship shown in the case study of Tajima Yahei Sericulture Farm and Sakai Shimamura will become a reference for other heritage sites and the inclusion of research institutes can be popularized as an essential partner in contributing to the preservation of historical assets and sites to form a sustainable preservation and monitoring system for the preservation and regional revitalization of historical assets and sites.

LIST OF PUBLISHED PAPERS

Journals (Peer-reviewed)

- Cheng, S.Y.; Ono, S. (2020). Preservation and management of a World Heritage site Tajima Yahei Sericulture Farm and its buffer zone. *Built Heritage*, 4(13).
<https://doi.org/10.1186/s43238-020-00013-7>
- Cheng, S.Y. (2022). Shimamura as a Modern Sericulture Village and its State of Conservation. *Journal of Engineering Science and Technology, Special Issue on STAAUH(5)*, 104-119.
<https://jestec.taylors.edu.my/Special%20Issue%20THINK%20SPACE/STAAUH%2008.pdf>
- CHENG Sweet Yee, 大野 敏 (2022). 「田島弥平旧宅新蚕室の平面と構造に関する復元考察」 日本建築学会技術報告集 第28巻 第70号 1551-1556
2022年10月 <https://doi.org/10.3130/aijt.28.1551>

Journal (No Peer-Review)

- Cheng, S.Y.; Ono, S.; Morita, M.; Sugeno, Y. (2020). Evaluation of Management Plans Related to World Heritage Tomioka Silk Mill and The Silk Industry Heritage Group. *FY2019 (90th) Japan Architectural Institute Kanto Branch Research Report II*, 527-530.

Conference Papers

- Cheng, S.Y.; Ono, S. (2019). Preservation and Revitalization of Sericulture-related Heritage Buildings in Gunma – In the case of Tajima Yahei Sericulture Farm and Takayama-sha Sericulture School. *Proceedings of The Second International Conference on Built Heritage Studies: Built Heritage Conservation in Rural Vitalization*. Shanghai, China, 409-424.
- Cheng, S.Y.; Ono, S. (2019). Value of Cultural Inheritance of World Heritage Site Tajima Yahei Sericulture Farm. *Proceedings of the ICOMOS-CIAV 2019 Joint Annual Meeting & International Conference on Vernacular & Earthen Architecture towards Local Development*. Pingyao, China, 76-83.

REFERENCES

- Agency for Cultural Affairs. (n.d.a). Bunkazai shitei-tō no kensū [Number of cultural property designations, etc.]. Retrieved from <https://www.bunka.go.jp/seisaku/bunkazai/shokai/shitei.html>
- Agency for Cultural Affairs. (n.d.b). *Kuni shitei bunkazai nado de-ta be-su* [Database of nationally designated cultural properties]. Agency for Cultural Affairs. Retrieved on April 13, 2020, from <https://kunishitei.bunka.go.jp/bsys/index>
- Agency for Cultural Affairs. (2011). Bunkazai bunka-kai sekai bunka isan tokubetsu iinkai dai 22-kai shiryō 7-3 [The 22nd meeting of the World Cultural Heritage Special Committee of the Cultural Properties Subcommittee document 7-3]. Retrieved December 12, 2021, from https://www.bunka.go.jp/seisaku/bunkashingikai/bunkazai/sekaitokubetsu/22/pdf/shiryō_7.pdf
- Agency for Cultural Affairs (2013). Tomioka Silk Mill and Related Sites: World Heritage nomination. Retrieved May 27, 2020, from <http://whc.unesco.org/en/list/1449/documents/>
- Agency for Cultural Affairs. (2015). List of Important Preservation Districts for Groups of Traditional Buildings. Agency for Cultural Affairs, Government of Japan. Retrieved January 31, 2023, from https://www.bunka.go.jp/english/policy/cultural_properties/introduction/historic_buildings/list.html

- Agency for Cultural Affairs. (2020). Tōroku yūkei bunkazai kenzōbutsu seido no go-annai [Information on the registered tangible cultural property building system]. Retrieved from https://www.bunka.go.jp/tokei_hakusho_shuppan/shuppanbutsu/bunkazai_pamphlet/pdf/pamphlet_ja_06_ver02.pdf
- AIJ. (n.d.). Yōbō-sho [Written request]. *Architectural Institute of Japan*. Accessed January 31, 2023, from <https://www.aij.or.jp/request-form.html>
- Arafune Fūketsu Tomo No Kai. (2018). Arafune fūketsu tomonokai kara no oshirase [Notice from Arafune Cold Storage Tomo No Kai]. *Kōhō Shimonita*, 7(747), 3. Retrieved from <https://www.town.shimonita.lg.jp/chocho/m01/m07/m08/2018.7.pdf>
- Arai, N. (2006). Kindaikaisan o katsuyō shita kankō shinkō to machi-dzukuri: Tomioka seishijō sekaiisan purojekuto no tenkai to kadai [The use of tourism promotion and city planning in modern heritage: Tomioka Silk Mill development and problem of World Heritage Project]. *Studies of Regional Policy*, 8(3), 201-218. Retrieved from <https://warp.da.ndl.go.jp/info:ndljp/pid/508850/www1.tcue.ac.jp/home1/c-gakkai/kikanshi/ronbun8-3/arai.pdf>.
- Asano, R.; Okamura, Y. (2020). Effects on World Heritage activities of local community involvement in a World Heritage guidance center – as a case of Wakamikotei, located in Honederamura Shoen Iseki: A tentative property of the World Heritage Site Hiraizumi –. *Reports of the City Planning Institute of Japan*, 19(3), 297-304. https://doi.org/10.11361/reportscpij.19.3_297
- Cheng, S.Y. (2018). *Evaluation of management plans related to World Heritage Tomioka Silk Mill and the Silk Industry Heritage Group* [Unpublished master's thesis]. Yokohama National University.

Chōgorō ō-ra no igyō tōshi kyōdo ai ikusei – Takayama-sha kenshō-kai kaichō Arai Haruo-san Gunma [Fostering local love through the great achievements of Chōgoro and others - Mr. Haruo Arai, chairman of the Takayama Kenshō-kai, Gunma]. (2015, October 5). *The Sankei News*. Retrieved from <https://www.sankei.com/article/20151005-6GQ5TTMUNZI5BKDVP57BYZAWBY/>

Denkenkyō. (n.d.). Introduction to Japan’s Preservation Districts. Zenkoku dentōteki kenzōbutsugun hozonchiku kyōgi-kai. Retrieved April 28, 2022, from <https://www.denken.gr.jp/english/index.html> [English translation]

Fujimura Seishi. (n.d.). ‘Kindaikasangyōisan’ ‘tōroku yūkei bunkazai’ no shōkai [Introduction of ‘Industrial Modernization Heritage’ and ‘Registered Tangible Cultural Properties’]. *Fujimura seishi annai [Fujimura Silk Co., Ltd.]*. Retrieved September 4, 2022, from http://www.ca.pikara.ne.jp/fujimura/Fujimura_Guide/Fujimura_Guide.html?msclkid=9ca8ff6ac21511ec8467f429a3102986#section1

Fujioka City Board of Education. (2009). Takayamasha ato gaiyō chōsa hōkoku-sho [Takayama-sha ruins general survey report]. Fujioka City Board of Education.

Gunma Prefectural World Heritage Centre. (n.d.). Sekaiisan tōroku made no puroseshu [Process leading up to World Heritage registration]. Tomioka seishijō to kinu sangyō isan-gun [Tomioka Silk Mill and Silk Industry Heritage Sites]. Retrieved September 5, 2022, from <https://worldheritage.pref.gunma.jp/tomikinu/index.php/gunma-prefecture-initiatives/>

Gunma Prefectural World Heritage Centre. (2006). *Seikaiisan zantei ichiranpyō kisai shisan kōho ni kakaru teian-sho: Tomioka seishijō to kinu sangyō isan-gun - Nihon sangyō kakumei no genten* - [Proposal on the properties nominated for the World Heritage tentative list: The Tomioka Silk Mill and Silk Industrial Heritage - The starting point of the Japanese industrial revolution -]. Retrieved September 1, 2022, from <https://worldheritage.pref.gunma.jp/whc/wp-content/downloads/teiansyozenbun.pdf>

Gunma Prefecture. (n.d.a). *Gunma kinu isan de-ta be-su [Gunma Silk Heritage database]*. Gunma prefecture. Retrieved on September 10, 2022, from <https://worldheritage.pref.gunma.jp/kinuisan/db-src-rs.php>

Gunma Prefecture. (n.d.b). *Gunma kinu isan to wa? [What is Gunma Silk Heritage?]*. Gunma prefecture. Retrieved on September 10, 2022, from <https://worldheritage.pref.gunma.jp/kinuisan/about.php>

Gunma Prefecture. (n.d.c). *Sutōrī o kōsei suru bunkazai [Cultural properties that make up the story]*. Gunma prefecture. Retrieved on September 10, 2022, from <https://worldheritage.pref.gunma.jp/JH/sbt/>

Gunma Prefecture. (n.d.d). *Kinumeguri: Navigating Gunma's silk heritage sites*. Gunma prefecture. Retrieved on September 10, 2022, from <https://worldheritage.pref.gunma.jp/kinuisan/app-en.html> [English translation]

Gunma Prefecture. (n.d.e). *Kinutabi [Silk journey]*. Gunma prefecture. Retrieved on September 10, 2022, from <https://worldheritage.pref.gunma.jp/kinutabi/>

Gunma Prefecture. (2018). Kuni shitei jūyō bunkazai kyū - Usuitōge tetsudō shisetsu [National Important Cultural Property: Former Usui Pass Railway Facility]. *[[Shirīzu] bunkazai raiburaryi sono 11 [[Series] Cultural Property Library Part 11]*. Retrieved September 4, 2022, from <https://www.pref.gunma.jp/03/x0100543.html>

- Gunma Prefecture Planning Department World Heritage Division. (2014). *'Heisei-26-nendo Tomioka seishijō to kinu sangyō isan-gun' nenpō* ['FY2014 Tomioka Silk Mill and Related Sites' annual report]. Retrieved May 27, 2020, from <https://worldheritage.pref.gunma.jp/whc/wp-content/downloads/2014-nenpou.pdf>.
- Gunma Prefecture Planning Department World Heritage Division. (2015). *'Heisei-27-nendo Tomioka seishijō to kinu sangyō isan-gun' nenpō* ['FY2015 Tomioka Silk Mill and Related Sites' annual report]. Retrieved May 27, 2020, from <https://worldheritage.pref.gunma.jp/whc/wp-content/downloads/2015-nenpou.pdf>.
- Gunma Prefecture Planning Department World Heritage Division. (2016). *'Heisei-28-nendo Tomioka seishijō to kinu sangyō isan-gun' nenpō* ['FY2016 Tomioka Silk Mill and Related Sites' annual report]. Retrieved May 27, 2020, from <https://worldheritage.pref.gunma.jp/whc/wp-content/downloads/6f10d4097fa7117560f155a6ae76bc3d.pdf>.
- Gunma Prefecture Planning Department World Heritage Division. (2017). *'Heisei-29-nendo Tomioka seishijō to kinu sangyō isan-gun' nenpō* ['FY2017 Tomioka Silk Mill and Related Sites' annual report]. Retrieved May 27, 2020, from <https://worldheritage.pref.gunma.jp/whc/wp-content/downloads/74919878440102bb02c9b1a88f05b7f6.pdf>.
- Gunma Prefecture Planning Department World Heritage Division. (2018). *'Heisei-30-nendo Tomioka seishijō to kinu sangyō isan-gun' nenpō* [FY2018 Tomioka Silk Mill and Related Sites annual report]. Retrieved May 27, 2020, from <https://worldheritage.pref.gunma.jp/whc/wp-content/downloads/2d7159acdadf4519eed5a10fe3da7c64.pdf>.

Gunma Prefecture Planning Department World Heritage Division. (2019). *'Reiwa-1-nendo Tomioka seishijō to kinu sangyō isan-gun' nenpō* [FY2019 Tomioka Silk Mill and Related Sites annual report]. Retrieved May 27, 2020, from <https://worldheritage.pref.gunma.jp/whc/wp-content/uploads/pdf/R01%E3%80%8C%E5%AF%8C%E5%B2%A1%E8%A3%BD%E7%B3%B8%E5%A0%B4%E3%81%A8%E7%B5%B9%E8%9A%95%E6%A5%AD%E9%81%BA%E7%94%A3%E7%BE%A4%E3%80%8D%E5%B9%B4%E5%A0%B1.pdf>

Gunma Prefecture Planning Department World Heritage Division. (2020). *'Reiwa-2-nendo Tomioka seishijō to kinu sangyō isan-gun' nenpō* [FY2020 Tomioka Silk Mill and Related Sites annual report]. Retrieved September 1, 2022, from <https://worldheritage.pref.gunma.jp/whc/wp-content/uploads/2022/03/54143a20bc9dcb0ab5fdb0e2b114c45.pdf>

Gunma Shimamura Sanshu No Kai. (2012). *Shimamura no sanshugyō to Tajima ichizoku* [Shimamura's sericulture industry and Tajima family]. Gunma: Gunma Shimamura sanshu no kai.

Gunma Shimamura Sanshu No Kai. (2013). *Shimamura sanshu to Tajima Yahei* [Shimamura's sericulture and Tajima Yahei]. Gunma: Gunma Shimamura sanshu no kai.

Hasegawa, N. (2017). Consideration of effect by the community participation in urban renewal development – A case of Haguro, Inuyama city –. *AIJ Journal of Technology and Design*, 23(55), 1025-1029. <https://doi.org/10.3130/aijt.23.1025>

- Honjō City. (n.d.). Yōsan kairyō takayamasha to kyōshinsha [Sericulture improvement Takayama-sha and Kyōshin-sha]. *Honjō city*. Retrieved September 4, 2022, from <https://www.city.honjo.lg.jp/material/files/group/28/10.pdf>
- Isesaki City Board of Education. (2012a). *Tajima Yahei kyūtaku chōsa hōkoku-sho [Tajima Yahei Sericulture Farm survey report]*. Gunma: Isesaki City Board of Education.
- Isesaki City Board of Education. (2012b). *Shiseki Tajima Yahei kyūtaku hozon kanri keikaku [Historic Site Former Tajima Yahei Residence preservation management plan]*. Gunma: Isesaki City Board of Education.
- Isesaki City Board of Education. (2016). *Shiseki Tajima Yahei kyūtaku seibi kihon keikaku [Historical Site Former Tajima Yahei Residence maintenance basic plan]*. Gunma: Isesaki City Board of Education. Retrieved from <https://www.city.isesaki.lg.jp/material/files/group/96/tazimayaheikyutakukeikaku.pdf>
- Isesaki Machizukuri. (n.d.). Jōshū Shimamura Shinchi Yagibushi Aikō-kai. *Katsudō dantai no go annai* [Organization information]. Retrieved September 1, 2022, from <https://www.imap.ne.jp/mt/group/985/main>
- Ishii, N. (2010). “Kindai ni okeru yōsan gijutsu to yōsan nōka keishiki: Sakai Shimamura to Kanagawa-ken Tsukui-gun de no chōsa jirei o chūshin to shite [Modern Sericulture techniques and form of sericulture farmhouses: Examples from Sakai Shimamura and Tsukui-county of Kanagawa Prefecture].” *Sakai Shimamura yōsan nōka-gun chōsa chūkan hōkoku-sho [Sakai Shimamura Sericulture Farmhouses Interim Report]*, 13-19. Isesaki: Isesaki City Board of Education.

- Ishimoto, M.; Koshino, T.; Kado, Y. (2000). Study on the actual condition of citizen's activities based on historical properties in Hokkaido. *AIJ Journal of Technology and Design*, 6(11), 29-264. <https://doi.org/10.3130/aijt.6.259>
- ‘Jūdenken’ mezashi chōsa. (2007, August 7). Survey aiming at “Important Preservation Districts for Groups of Traditional Buildings”. *Jōmō Shimbun*.
- Kajino, T. (2018). *Shimamura sanshu seizō minka no kenkyū: Tatetsukuri chiku o chūshin to shite [A study on houses for farmers who produced silkworm eggs in Shimamura: with a central focus Ryusaku area]*. [Unpublished master's thesis]. Yokohama National University.
- Katakurakan. (n.d.). Katakura-kan ni tsuite [About Katakurakan]. [*Kuni shitei jūyō bunkazai zaidanhōjin Katakura-kan [[Nationally designated Important Cultural Property] Katakurakan Foundation]*]. Retrieved September 4, 2022, from http://www.katakurakan.or.jp/about_us/
- Kikuchi, S.; Miyazaki, T.; Kurotsu, T.; Ono, S.; Takahashi, M.; Sekiguchi, M.; Nakamura, T.; Toriumi, S.; Waku, M.; Isesaki City Board of Education (2011). *Shimamura no tatemono: Sakai Shimamura yōzan nōka-gun chōsa hōkokusho* [Buildings of Shimamura: Report of research on Sakai Shimamura sericulture farmhouses].
- Kondo, N. (2017). Crowdfunding for starting flows of people and money to depopulated rural communities: Startups of an immigrant in Mukatsuku peninsula. *Journal of Group Dynamics*, 34, 321-376. <https://doi.org/10.11245/jgd.34.321>
- Koshū City. (2020). *Koshū-shi Shioyama Shimo-odawara Kamijō (Yamanashi-ken)*. Retrieved August 31, 2022, from https://www.bunka.go.jp/seisaku/bunkazai/shokai/hozonchiku/pdf/93738601_34.pdf

- Kracie Holdings, Ltd. (n.d.). Kyū shinmachi bōsekijo - Shinmachi kōjō [Former Shinmachi Spinning Mill: Shinmachi factory]. Kracie. Retrieved September 3, 2022, from <https://www.kracie.co.jp/company/info/history/shinmachi.html>
- Lee, S.M.; Kuroda, N. (2022). Issues of the buffer zone in the cultural heritage from the discussion of the World Heritage Committee. *Landscape Research*, 85(5), 607-612. <https://doi.org/10.5632/jila.85.607>
- Matsui, D.; Kubota, A.; Nishimura, Y. (2012). Advantages and problems of public-private partnership on the process of Registered Tangible Cultural Properties - A case study of Kagurazaka area. *Journal of the City Planning Institute of Japan*, 47(3), 613-618. <https://doi.org/10.11361/journalcpj.47.613>
- Matsuura, T. (2006). *Sairai gijutsu kairyō no sasaeta kindai-ka: Tomioka seishijō no paradokkusu o koete [Modernization supported by conventional technology improvement: Beyond the paradox of Tomioka Silk Mill]*. Tokyo: Iwata Shoin.
- METI. (n.d.). Kindaikasangyōisan [Industrial Heritage]. *Keizaisangōshō [Ministry of Economy, Trade and Industry]*. Retrieved September 1, 2022, from https://www.meti.go.jp/policy/mono_info_service/mono/creative/kindaikasangyoisan/index.html
- METI. (2007). *Heisei 19-nendo 'kindaikasangyōisan-gun 33' [FY2007 33 Heritage Constellation of Industrial Modernization]*. Retrieved September 1, 2022, from https://www.meti.go.jp/policy/mono_info_service/mono/creative/kindaikasangyoisan/pdf/isangun.pdf

- METI. (2008). *Heisei 20-nendo 'kindaikasangyōisan-gun zoku 33' [FY2007 33 Heritage Constellation of Industrial Modernization vol.2]*. Retrieved September 1, 2022, from https://www.meti.go.jp/policy/mono_info_service/mono/creative/kindaikasangyoisan/pdf/isangun_zoku.pdf
- Miura, S; Morinaga, R. (2021). Citizen participation and citizen activities at the planning stage of river and city development project in municipalities. *AIJ Journal of Technology and Design*, 27(65), 469-474. <https://doi.org/10.3130/aijt.27.469>
- Mizuno, T. (2017). *Chiiki no rekishi-teki shisan ni taisuru jūmin ishiki no kiso-teki kenkyū: Gunmaken isesakishi sakaishimamura chiku o taishō to shite [A basic study on residents' awareness about regional historic property]*. (Unpublished master's thesis). Yokohama National University.
- Morikawa, M. (2002). A study on nonprofit organization's participation and its problems in revitalization of central town – in case of Otsu-city, Shiga prefecture –. *Journal of the City Planning Institute of Japan*, 37, 865-870. <https://doi.org/10.11361/journalcpij.37.865>
- Morishima, T. (2014). Comparing policy responses for the conservation and utilization of the heritage of industrial modernization. *E-journal GEO*, 9(2), 102-117. <https://doi.org/10.4157/ejgeo.9.102>
- Muneta, Y. (2006). The destination of the world cultural heritage: Discussions in ICOMOS, International Committee of Monuments and Sites. *Journal of Environmental Sociology*, 12, 5-22. https://doi.org/10.24779/jpkankyo.12.0_5
- Murakami, J. (1997). On Registered Tangible Cultural Properties. *Journal of the Agricultural Engineering Society*, 65(11), 1063-1067. https://doi.org/10.11408/jjsidre1965.65.11_1063

- Naito, K. (2007, December). Kongetsu no kīwādo sangyō isan [Today's keyword Industrial Heritage]. *Mizuho Research*, 12(69), 13. Retrieved August 31, 2020, from <https://dl.ndl.go.jp/info:ndljp/pid/3509562>
- Nakamura, M. (2020). Classification of Crowdfunding Supporters Based on the Crowdfunding Usage. *Journal of the Japan Society for Management Information*, 29(3), 179-198. https://doi.org/10.11497/jjasmin.29.3_179
- Nakanojō-machi. (2022). *Nakanojō-machi kuni Akaiwa (Gunma-ken)*. Retrieved August 31, 2022, from https://www.bunka.go.jp/seisaku/bunkazai/shokai/hozonchiku/pdf/93738601_14.pdf
- Nakata, Y. (2017). *Why did you participate in crowdfunding? Awareness survey of proposers and investors to crowdfunding* [Paper presentation]. Annual Conference of Japan Society for Management Information 2017 Autumn, Japan. https://doi.org/10.11497/jasmin.2017f.0_293
- Nippon Silk Center. (n.d.). *Gunma no yōzan nōka no iroiro [Facts regarding sericulture farmhouses in Gunma]*. Takasaki: Nippon Silk Center.
- Oda, K.; Nibe, A.; Park, S.Y. (2019). Crowdfunding in the Japanese Agricultural Sector. *AIJ Journal of Technology and Design*, 28(2), 86-96. <https://doi.org/10.3173/air.28.86>
- Okada, M.; Ohe, Y. (2022). Key factors of crowdfunding of Agriculture, Forestry and Fisheries. *Japanese Journal of Farm Management*, 59(4), 45-50. https://doi.org/10.11300/fmsj.59.4_45
- Okaikonogakko Takayamasya. (2016). *About*. Retrieved September 11, 2022, from <https://www.facebook.com/okaikonogakko.takayamasya/>

Okaya Silk Museum. (n.d.). Minorikawa-shiki ta-jō sōshiki [Minorikawa-style reeling machine]. Okaya Silk Museum. Retrieved September 4, 2022, from <https://silkfact.jp/collection/folkcultural/%E5%BE%A1%E6%B3%95%E5%B7%9D%E5%BC%8F%E5%A4%9A%E6%9D%A1%E7%B9%B0%E7%B3%B8%E6%A9%9F/>

Ono, S. (2010). Kakō ni okeru yōsan nōka kindai-ka no imēji: Sakai Shimamura to Kanagawa-ken kyū Fujioka-chō de no chōsa jirei kara [Image of modernization of sericulture farmhouses through its structure: Examples from Sakai Shimamura and Fujioka town in Kanagawa prefecture]. *Sakai shimamura yōsan nōka gun chōsa chūkan hōkoku-sho*, 3-11. Isesaki: Isesaki City Board of Education.

Ono, S.; Kurotsu, T.; Takahashi, M.; Ishii, N. (2016). Evolution of ventilation window on second floor of sericulture farmhouses built in the late 19th century in Gunma prefecture Shimamura. *AIJ Journal of Technology and Design*, 22(51), 777-782. <https://doi.org/10.3130/aijt.22.777>

Osako, T. (1994). *Nihon no yōsan-mura: sono suii to genjō [Sericulture villages in Japan: The transition and current conditions]*. Tokyo: Kokon Shoin.

Oya, N.; Ubaura, M.; Kariya, T.; Kochizawa, M. (2019). A study on actual condition of project to develop physical infrastructure by crowdfunding about community planning. *Journal of the City Planning Institute of Japan*, 54(3), 449-456. <https://doi.org/10.11361/journalcpij.54.449>

READYFOR. (n.d.). *Crowdfunding – READYFOR*. <https://readyfor.jp/>

READYFOR. (2021, March). *Please help us rebuild the Suwa Shrine, which was damaged by the Fukushima Prefecture Offshore Earthquake*. https://readyfor.jp/projects/fukuda_suwa

READYFOR. (2022, July). *Gose City, Nara | I want to bring back the lost public bath culture and everyone's treasure!* <https://readyfor.jp/projects/GOSESENTOHOTEL>

Sakai Shimamura Registered Tangible Cultural Property Utilization Promotion Council.
(2021, April). *Suishin Tsūshin* [Promotion Communications].

Sakai Shimamura Registered Tangible Cultural Property Utilization Promotion Council.
(2021, July). *Suishin Tsūshin* [Promotion Communications].

Sakai Shimamura Registered Tangible Cultural Property Utilization Promotion Council.
(2021, October). *Suishin Tsūshin* [Promotion Communications].

Sakai Shimamura Registered Tangible Cultural Property Utilization Promotion Council.
(2022, January). *Suishin Tsūshin* [Promotion Communications].

Sakai Shimamura Registered Tangible Cultural Property Utilization Promotion Council.
(2022, May). *Suishin Tsūshin* [Promotion Communications].

Sakai Shimamura Registered Tangible Cultural Property Utilization Promotion Council.
(2022, August). *Suishin Tsūshin* [Promotion Communications].

Sakai Shimamura Registered Tangible Cultural Property Utilization Promotion Council.
(2022, November). *Suishin Tsūshin* [Promotion Communications].

Sataki, Y. (2007). *Nihon no shirukurōdo - Tomioka seishijō to kinu sangyō isan-gun [Japan's Silk Road: Tomioka Silk Mill and Silk Industry Heritage Sites]*. Chūō kōron shinsha.

Shimonita Town. (2015, April 2). 'Arafune fūketsu tomonokai' setsuritsu sōkai kaisai [The Inaugural General Meeting of the Arafune Cold Storage Tomo No Kai]. Retrieved on September 11, 2022 from <https://www.town.shimonita.lg.jp/fuketsu/m01/m08/04.html>

Shinshū Shirukurōdo Renkei Kyōgi-kai Jimukyoku. (n.d.). Shinshū to shiruku [Shinshū and silk]. *Shinshū shirukurōdo [Shinshū silk road]*. Retrieved September 4, 2022, from <https://shinshu-silkroad.jp/shinshu-silk/>

Shirayama City. (2022). *Shirayama-shi Shiramine (Ishikawa-ken)*. Retrieved August 31, 2022, from https://www.bunka.go.jp/seisaku/bunkazai/shokai/hozonchiku/pdf/93738601_30.pdf

Shōwa shoki no sekai kyōkō wa kiito no kakaku bōraku o maneki... [The Great Depression in the early Showa era brought about a crash in the price of raw silk...] (2018, April 8). *Mainichi Shimbun*. Retrieved from <https://mainichi.jp/articles/20180408/ddm/001/070/136000c>

Suzaka City. (n.d.). Seishi kessha ‘tōkōsha’ no kessei [Formation of the silk reeling association ‘Tōkōsha’]. *Suzaka no seishi-gyō - sono han'ei to suitai [Suzaka's silk industry: Its prosperity and decline]*. Retrieved September 4, 2022, from <https://www.city.suzaka.nagano.jp/contents/item.php?id=594b26ca5ffd9>

Tajima, Y. (1872). *Yōsan shinron [New theory of sericulture]*. Tokyo: Izumoji Manjirō.

Tajima, Y. (1879). *Tsuzuke yōsan shinron [New theory of sericulture sequel]*. Tokyo: Izumoji Manjirō.

TICCIH. (2003). The Nizhny Tagil charter for the industrial heritage. Retrieved September 1, 2022, from <https://ticcih.org/wp-content/uploads/2013/04/NTagilCharter.pdf>

Tōmi City. (2022). *Tōmi-shi Unno-juku (Nagano-ken)*. Retrieved August 31, 2022, from https://www.bunka.go.jp/seisaku/bunkazai/shokai/hozonchiku/pdf/93738601_40.pdf

Titin Fatimah; Kanki, K. (2009). A study on citizens' organizations relationship for cultural landscape conservation initiatives in Borobudur sub-district level, Indonesia. *Journal of the City Planning Institute of Japan*, 23(55), 1025-1029.

<https://doi.org/10.11361/journalcpj.44.3.205>

Kracie Holdings. (2010). Tomioka seishijō no oyatoigaikokujin ni kansuru chōsa hōkoku: Tokuni shuchō pōru buryuna no jiseki ni shiten o atete: Chūkan hōkoku [Investigation report on employed foreigners at Tomioka Silk Mill: Focusing on the achievements of chief Paul Brunat: Interim report]. *Tomioka seishijō sōgō kenkyū sentā hōkoku-sho [Tomioka Silk Mill General Research Center Report]*. Tomioka City: Tomioka City Board of Education.

Tomioka Seishijō O Aisuru Kai. (n.d.a). *Tomioka seishijō o seikaiisan ni! [Tomioka Silk Mill as a World Heritage Site!]*. Retrieved on September 10, 2022, from <http://www.silkey.e-arc.jp/>

Tomioka Seishijō O Aisuru Kai. (n.d.b). *Tomioka seishijō o aisuru kai no katsudō [Activities of Tomioka Seishijō O Aisuru Kai]*. Retrieved on September 10, 2022, from <http://www.silkey.e-arc.jp/active6.htm>

Tomioka Silk Mill World Heritage Evangelists Association. (n.d.). 'Tomioka seishijō seikaiisan dendō-shi kyōkai seikaiisan jōhō' kiji ichiran ['Tomioka Silk Mill World Heritage Evangelists Association World Heritage Information' list of articles]. *Tomioka seishijō seikaiisan dendō-shi kyōkai seikaiisan jōhō [Tomioka Silk Mill World Heritage Evangelist Association World Heritage Information]*. Retrieved on September 10, 2022, from <https://blog.goo.ne.jp/whtomioka/arcv>.

Toyoshima, M.; Fujiya, Y. (2006). *A study of the survival rate and the save situation of a building by the save demand book which Architectural Institute of Japan submitted* [Paper presentation]. Briefing papers of 2nd International Symposium of Technological Innovations in Japan - Collecting experiences and establishing knowledge foundations -, Japan.
https://sts.kahaku.go.jp/tokutei/pdfs/D3_toyoshima.pdf

T&J Silk Mulberry. (n.d.). Usui-sha (kyū Usui-sha honsha jimusho) [Usui-sha (Former Usui-sha Head Office)]. *Gunma kinu sangyō isan [Gunma Silk Industry Heritage]*. Retrieved September 4, 2022, from http://www.silk-mulberry.com/gunmakinuisan_usuisha.html.

Ueda City. (2018). Ōya-eki [Ōya Station]. *Shinshū Ueda shirukurōdoākaibu [Shinshu Ueda Silk Road Archive]*. Retrieved September 4, 2022, from <http://www.mmdb.net/silknet/archive/ueda/>

UNESCO World Heritage Centre. (n.d.a). Japan. *UNESCO World Heritage Convention*. Retrieved September 1, 2022, from <https://whc.unesco.org/en/statesparties/jp>

UNESCO World Heritage Centre. (n.d.b). World Heritage List. *UNESCO World Heritage Convention*. Retrieved September 3, 2022, from <https://whc.unesco.org/en/list/?search=silk&order=country>

UNITAR. (n.d.). Workshop announcement: World Heritage serial nominations and the vital role of comparative analysis. Retrieved September 3, 2022, from <https://www.unitar.org/about/news-stories/news/workshop-announcement-world-heritage-serial-nominations-and-vital-role-comparative-analysis>

Usui seishi ga kabushikigaisha-ka 58-nen no rekishi ‘kinu sangyō no hatten o’ Gunma [Usui

Silk Co., Ltd. 58 Years of History ‘Development of Silk Industry’ Gunma]. (2017,

May 18). *The Sankei News*. Retrieved from

<https://www.sankei.com/article/20170518-IHTAVIYUORODJDES5UQ75HINPI/>

Waku, M.; Aoki, H.; Sekiguchi, M.; Kikuchi, S.; Miyazaki, T.; Nishikawa, T.; Ono, S.;

Kurotsu, T.; Mitamura, T.; Sakatsume, H. (2012). *Tajima Yahei kyūtaku chōsa*

hōkoku-sho [Report of research on Tajima Yahei Sericulture Farm]. Isesaki City:

Isesaki City Board of Education.

Watanabe, M.; Mitsunashi, N.; Satoh, E.; Honjo, H. (2015). Citizen participation in green

space conservation activity and citizen consciousness – Comparative analysis between

Maioka and Niiharu, Yokohama city –. *AIJ Journal of Architecture and Planning*,

80(717), 2545-2555. <https://doi.org/10.3130/aija.80.2545>

World Heritage Centre (2013). Managing cultural World Heritage. Retrieved December 12,

2021, from <https://whc.unesco.org/en/guidelines/>

World Heritage Centre (2021). The operational guidelines for the implementation of the

World Heritage Convention. Retrieved December 12, 2021, from

<https://whc.unesco.org/en/guidelines/>

World Heritage Centre SEKAITO [@gunma_kinutabi]. (n.d.). Profile [Instagram profile].

Instagram. Retrieved September 10, 2022, from

https://www.instagram.com/gunma_kinutabi/

Yabu City. (2022). *Yabu-shi Ōya-machi Ōsugi (Hyogo-ken)*. Retrieved August 31, 2022,

from

https://www.bunka.go.jp/seisaku/bunkazai/shokai/hozonchiku/pdf/93738601_69.pdf

Yamashita, Y. (2020). “Former Katakura Industries Kumagaya factory/Katakura Silk Memorial Hall” Survey and consideration of the outline of modern architectures related to the history of silk industry and silk reeling in the Kumagaya area, Saitama prefecture. *Kindai-ka isan chōsa hōkokusho 1*.
<https://doi.org/10.24484/sitereports.86555>

Yamazaki, M. (2009). *Gunma sangyō isan no shosō: Shimin no shien to sangyō isan no kakawari [Various aspects of Gunma industrial heritage: Citizen support and Industrial Heritage]*. Nihon keizai hyōronsha.

Yoshida, H. (2010). Tomioka seishijō ga imi suru mono: Sekaiisan to nettowāku keisei ① [The Meaning of the Tomioka Silk Mill]. *The International University of Kagoshima Institute for Regional Studies*, 38(1), 37-48. Retrieved from https://iuk-repo.repo.nii.ac.jp/?action=pages_view_main&active_action=repository_view_main_item_detail&item_id=1047&item_no=1&page_id=13&block_id=21.

APPENDIX A

令和2年度「市民満足度調査」 集計結果報告書

令和3年4月

富 岡 市

◆東富岡、黒岩、丹生地区は「消防体制」、それ以外は「水道事業」が最も高く、居住地区による差は「下水道・浄化槽整備」で大きい

『満足度』を居住地区別に見ると、東富岡地区、黒岩地区、丹生地区の3地区を除き「5 水道事業の充実」が最も高く、上記3地区は「4 消防体制の充実」が最も高くなっています。

居住地区による差は「6 下水道・浄化槽の整備推進」で大きく、最も高い七日市・黒川地区（3.73点）と最も低い丹生地区（3.00点）では0.73点の差が見られます。

	地区 七日市・黒川	富岡地区	東富岡地区	黒岩地区	一ノ宮地区	高瀬地区	額部地区	小野地区	吉田地区	丹生地区	高田地区	妙義地区
n	143	72	102	37	161	173	70	83	75	52	35	65
5 水道事業の充実	4.01	3.87	3.62	3.77	4.00	3.84	3.91	3.88	3.95	3.78	3.79	3.70
4 消防体制の充実	3.99	3.70	3.75	4.09	3.85	3.72	3.79	3.86	3.92	3.80	3.62	3.59
2 安心して暮らせる環境の整備	3.64	3.54	3.56	3.37	3.49	3.52	3.39	3.42	3.64	3.39	3.18	3.36
3 防災・防犯・安全確保体制の充実	3.56	3.42	3.36	3.43	3.44	3.52	3.31	3.49	3.46	3.35	3.21	3.33
6 下水道・浄化槽の整備推進	3.73	3.61	3.09	3.11	3.24	3.51	3.63	3.32	3.61	3.00	3.03	3.38
20 歴史・伝統・文化資源の保存と活用	3.35	3.28	3.41	3.37	3.39	3.28	3.12	3.36	3.47	3.24	3.35	3.33
1 低炭素・循環型社会の構築	3.36	3.28	3.24	3.32	3.39	3.41	3.14	3.23	3.26	3.24	3.29	3.24
25 保健・医療・救急体制の充実	3.33	3.19	3.26	3.41	3.34	3.32	3.23	3.38	3.47	3.24	3.32	3.16
17 生涯学習活動の充実	3.43	3.20	3.19	3.41	3.41	3.36	3.28	3.19	3.28	3.14	3.24	3.28
19 富岡製糸場の保存と活用	3.43	3.30	3.30	3.26	3.20	3.17	3.16	3.38	3.48	3.24	3.15	3.31
26 持続可能な医療保険制度の構築	3.32	3.16	3.16	3.57	3.33	3.31	3.16	3.26	3.38	3.24	3.24	3.19
16 青少年の健全育成	3.30	3.22	3.23	3.26	3.31	3.27	3.10	3.20	3.42	3.18	3.15	3.22
14 学校教育の充実	3.24	3.19	3.31	2.94	3.30	3.39	3.13	3.22	3.40	3.23	3.09	3.09
18 スポーツ・レクリエーションの充実	3.38	3.12	3.14	3.49	3.28	3.24	3.25	3.27	3.37	3.22	3.21	3.06
21 文化活動の充実	3.21	3.16	3.23	3.17	3.27	3.33	3.07	3.28	3.29	3.17	3.24	3.25
24 子育て支援の充実	3.31	3.22	3.14	3.31	3.16	3.29	3.31	3.17	3.23	3.18	3.03	3.11
15 学校教育施設の充実	3.14	3.22	3.29	3.00	3.15	3.27	3.13	3.33	3.44	3.06	3.00	3.17
23 地域福祉の充実	3.21	3.10	3.10	3.26	3.19	3.20	3.13	3.31	3.47	2.91	3.12	3.22
28 人権尊重社会の実現	3.17	3.10	3.17	3.12	3.22	3.24	3.15	3.19	3.27	3.04	3.24	3.14
22 高齢者支援の充実	3.30	3.07	3.05	3.17	3.20	3.19	2.99	3.28	3.43	2.88	2.91	3.28
8 快適で美しい都市環境の整備	3.25	3.04	3.07	3.09	3.24	3.11	2.88	3.09	3.26	3.13	2.91	3.20
9 豊かな住環境の形成	3.15	3.11	3.06	2.85	3.13	3.24	3.13	3.04	3.22	2.98	2.97	3.00
27 市民協働の推進	3.15	3.14	3.04	3.17	3.13	3.12	3.02	3.09	3.17	2.91	3.06	3.06
32 持続可能な行政経営	3.04	2.90	3.08	2.97	3.11	3.13	2.99	2.98	3.24	2.81	2.82	3.05
7 安全で利便性の高い都市基盤の整備	3.25	2.96	3.08	2.76	3.09	3.05	2.85	2.88	3.16	2.90	2.82	2.88
31 質の高い市民サービスの提供	3.07	2.87	2.90	3.06	3.06	3.07	2.96	3.04	3.11	2.78	2.76	2.89
13 観光振興の推進	3.06	2.92	2.99	2.89	2.96	3.07	2.82	3.00	3.13	2.85	2.79	3.02
30 富岡ブランドの推進(マイタウン)	3.04	2.93	2.95	2.97	2.92	3.01	2.87	2.96	3.13	2.98	2.76	2.94
29 移住定住対策の推進	2.99	2.98	2.95	2.94	2.97	3.02	3.00	2.95	3.10	2.77	2.79	2.73
12 農林業振興の推進	3.04	2.95	2.91	2.89	3.01	3.02	2.75	2.86	2.96	2.85	2.56	2.70
11 商工業の振興と雇用対策の推進	2.83	2.76	2.79	2.89	2.97	2.88	2.93	2.88	3.01	2.90	2.94	2.73
10 公共交通の確保と利便性の向上	2.75	2.56	2.66	2.66	2.66	2.76	2.55	2.52	2.92	2.31	2.64	2.47

※青色は各属性で上位3項目の値、その中で濃色は最も高い値を示す

◆額部、小野地区は「防災・防犯・安全確保体制」、吉田、妙義地区は「消防体制」、それ以外は「保健・医療・救急体制」が最も高い

『重要度』を居住地区別に見ると、額部地区、小野地区、吉田地区、妙義地区の4地区を除き「25 保健・医療・救急体制の充実」が最も高く、額部地区、小野地区は「3 防災・防犯・安全確保体制の充実」、吉田地区、妙義地区は「4 消防体制の充実」がそれぞれ最も高くなっています（吉田地区は「26 持続可能な医療保険制度の構築」と45.9点で同値）。

居住地区による差が特に大きい項目は見られませんが、「19 富岡製糸場の保存と活用」では、最も高い七日市・黒川地区（3.97点）と最も低い妙義地区（3.40点）で0.57点の差が見られます。

	地区 七日市 黒川	富岡地区	東富岡地区	黒石地区	一ノ宮地区	高瀬地区	額部地区	小野地区	吉田地区	丹生地区	高田地区	妙義地区
n	143	72	102	37	161	173	70	83	75	52	35	65
25 保健・医療・救急体制の充実	4.58	4.56	4.54	4.68	4.64	4.67	4.68	4.58	4.56	4.51	4.71	4.47
3 防災・防犯・安全確保体制の充実	4.56	4.54	4.52	4.53	4.59	4.63	4.74	4.61	4.54	4.42	4.63	4.54
4 消防体制の充実	4.54	4.56	4.52	4.67	4.52	4.54	4.71	4.58	4.59	4.42	4.66	4.58
5 水道事業の充実	4.53	4.52	4.45	4.47	4.56	4.50	4.71	4.52	4.54	4.42	4.67	4.45
26 持続可能な医療保険制度の構築	4.46	4.43	4.41	4.55	4.49	4.56	4.58	4.38	4.59	4.42	4.61	4.43
2 安心して暮らせる環境の整備	4.51	4.34	4.37	4.58	4.37	4.45	4.46	4.45	4.46	4.42	4.53	4.32
14 学校教育の充実	4.52	4.35	4.34	4.30	4.40	4.45	4.49	4.49	4.50	4.34	4.53	4.25
6 下水道・浄化槽の整備推進	4.43	4.41	4.46	4.26	4.51	4.38	4.42	4.47	4.36	4.30	4.50	4.26
24 子育て支援の充実	4.40	4.31	4.38	4.38	4.44	4.50	4.34	4.51	4.52	4.26	4.29	4.24
22 高齢者支援の充実	4.35	4.28	4.27	4.41	4.27	4.38	4.45	4.22	4.48	4.36	4.58	4.32
15 学校教育施設の充実	4.33	4.22	4.29	4.24	4.31	4.28	4.26	4.30	4.31	4.29	4.42	4.23
10 公共交通の確保と利便性の向上	4.26	4.28	4.11	4.00	4.25	4.28	4.34	4.20	4.25	4.19	4.23	4.16
1 低炭素・循環型社会の構築	4.31	4.20	4.19	4.29	4.19	4.25	4.19	4.32	4.25	4.04	4.26	3.95
23 地域福祉の充実	4.20	4.17	4.24	4.29	4.11	4.21	4.12	4.18	4.36	4.11	4.23	4.08
16 青少年の健全育成	4.17	4.15	4.08	4.12	4.19	4.23	4.16	4.13	4.19	4.11	4.39	4.05
11 商工業の振興と雇用対策の推進	4.28	4.12	4.06	4.00	4.19	4.19	4.18	4.10	4.30	4.12	4.16	4.03
32 持続可能な行政経営	4.17	4.12	4.16	4.24	4.14	4.15	4.06	4.08	4.29	4.12	4.26	4.07
7 安全で利便性の高い都市基盤の整備	4.18	4.04	3.92	3.97	4.07	3.99	4.11	4.18	4.06	3.95	3.93	4.00
31 質の高い市民サービスの提供	4.11	3.92	4.05	3.84	3.99	4.05	4.02	4.00	4.06	4.11	4.00	3.97
9 豊かな住環境の形成	4.11	4.01	3.93	4.03	4.02	4.04	4.06	3.97	3.91	3.87	4.03	3.98
12 農林業振興の推進	4.03	3.84	3.80	3.82	3.91	3.85	4.14	4.08	4.09	4.07	4.29	4.00
8 快適で美しい都市環境の整備	4.14	3.81	3.90	3.85	4.03	4.02	4.00	4.00	3.81	3.62	4.03	3.76
13 観光振興の推進	4.02	3.78	3.67	3.76	3.89	3.89	3.95	3.96	3.91	4.04	4.06	3.75
28 人権尊重社会の実現	4.01	3.77	3.66	4.03	3.93	3.78	3.88	3.99	3.92	3.64	3.90	3.77
17 生涯学習活動の充実	3.99	3.76	3.68	3.88	3.82	3.78	3.78	3.88	3.93	3.83	4.03	3.70
20 歴史・伝統文化資源の保存と活用	3.97	3.79	3.68	3.88	3.86	3.74	3.74	3.90	3.83	3.74	3.84	3.64
19 富岡製糸場の保存と活用	3.97	3.80	3.57	3.71	3.89	3.78	3.71	3.90	3.86	3.80	3.87	3.40
29 移住定住対策の推進	3.89	3.71	3.72	3.65	3.77	3.63	3.71	3.95	3.91	3.77	3.94	3.62
27 市民協働の推進	3.82	3.64	3.46	3.56	3.64	3.53	3.65	3.84	3.74	3.60	3.77	3.73
30 富岡ブランドの推進(ティオロジー)	3.83	3.52	3.67	3.41	3.63	3.66	3.58	3.79	3.67	3.61	3.65	3.48
18 スポーツ・レクリエーションの充実	3.77	3.56	3.57	3.62	3.56	3.59	3.59	3.77	3.64	3.58	3.74	3.37
21 文化活動の充実	3.73	3.54	3.49	3.59	3.54	3.57	3.48	3.79	3.69	3.59	3.55	3.48

※青色は各属性で上位3項目の値、その中で濃色は最も高い値を示す

③『満足度』『重要度』のポジショニングマップ

◆「消防体制」「水道事業」は評価が高く、さらなる充実が求められている

◆一方、「公共交通の確保と利便性」は早急な取組が求められている

全32項目について、『満足度』『重要度』の関係をポジショニングマップで見ると、概ね以下の4つの特徴を持つゾーンに分けることができます。

【A 安定・拡大ゾーン】

- ・『満足度』『重要度』ともに高く、市民ニーズに応じたサービスが提供されていると考えられるゾーン。
- ・現在のサービス水準の維持だけでなく、さらなる拡大が求められていると考えられます。
- ・特に特徴的な項目として「4 消防体制の充実」「5 水道事業の充実」などがこれに該当します。
- ・「3 防災・防犯・安全確保体制の充実」「25 保健・医療・救急体制の充実」などは特徴的な2項目ほど満足度は高くありませんが、重要度は同程度に高くなっています。

【B 早期見直しゾーン】

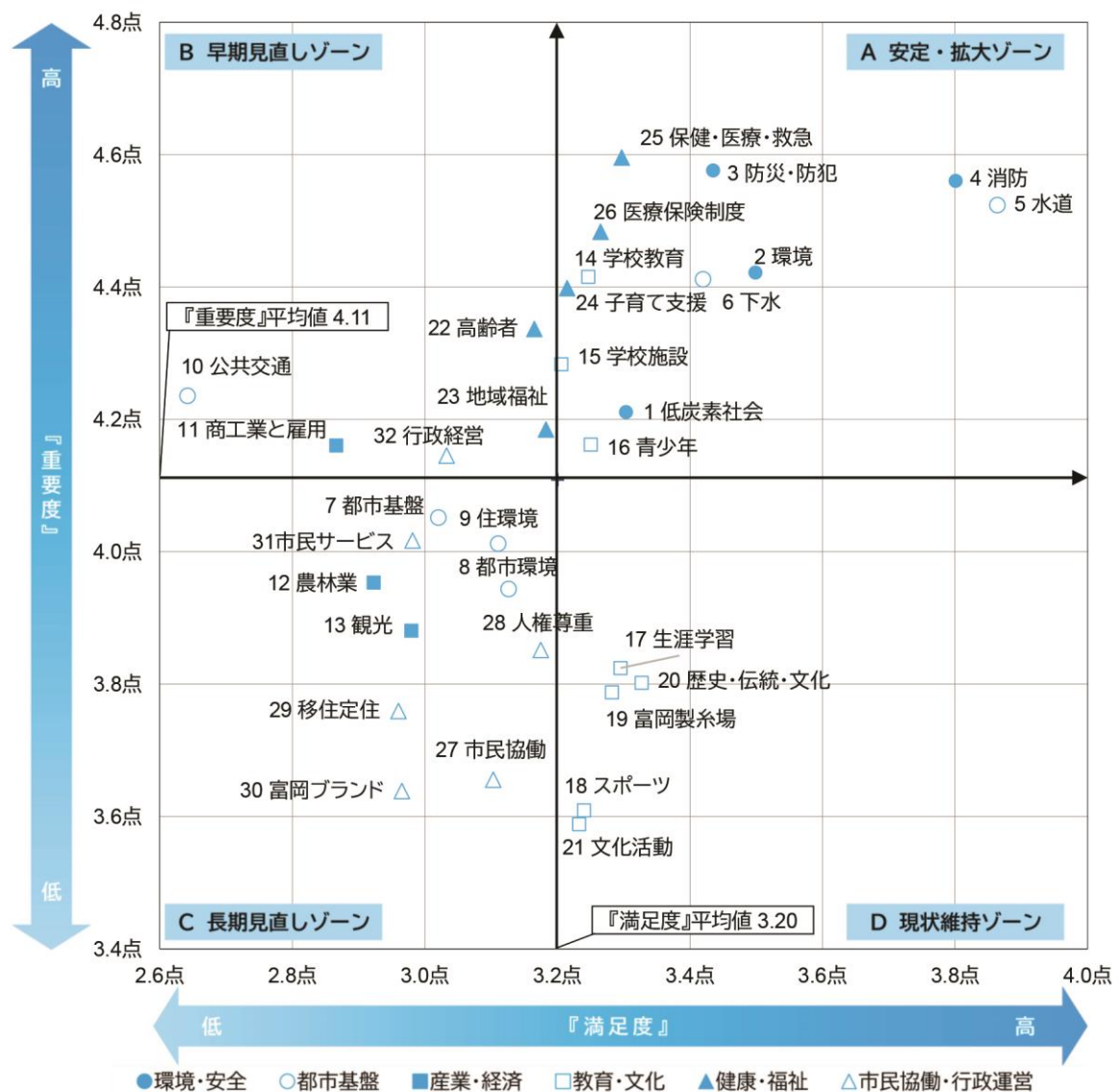
- ・『満足度』が低い一方、『重要度』が高いことから、市民ニーズに応じたサービスが十分提供されていないと考えられるゾーン。
- ・他のゾーンの施策に優先した早急な取組とそれを成果につなげることが求められていると考えられます。
- ・この中で「10 公共交通の確保と利便性の向上」は特に満足度が低く、早急な取組が求められています。また、「11 商工業の振興と雇用対策の推進」の満足度も低くなっています。

【C 長期見直しゾーン】

- ・『満足度』『重要度』ともに低く、身近で喫緊な課題としてはあまり認識されていないと考えられるゾーン。
 - ・市民の関心、必要性の認知度が低く、廃止や縮小を含めた長期的視点による大胆な見直しや、広報活動等による必要性の周知、ニーズの掘り起こしなどが求められていると考えられます。
 - ・特に特徴的な項目として「27 市民協働の推進」「29 移住定住対策の推進」「30 富岡ブランドの推進（シティプロモーション）」などがこれに該当します。
-

【D 現状維持ゾーン】

- ・『満足度』が高く、『重要度』が低いことから、すでに一定の成果が得られ、サービスが市民に定着していると考えられるゾーン。
- ・現在のサービス水準を維持しつつ、必要性や方向性のさらなる周知と今後の事業展開の見直しが求められていると考えられます。
- ・この中で「18 スポーツ・レクリエーションの充実」「21 文化活動の充実」は特に重要度が低くなっています。



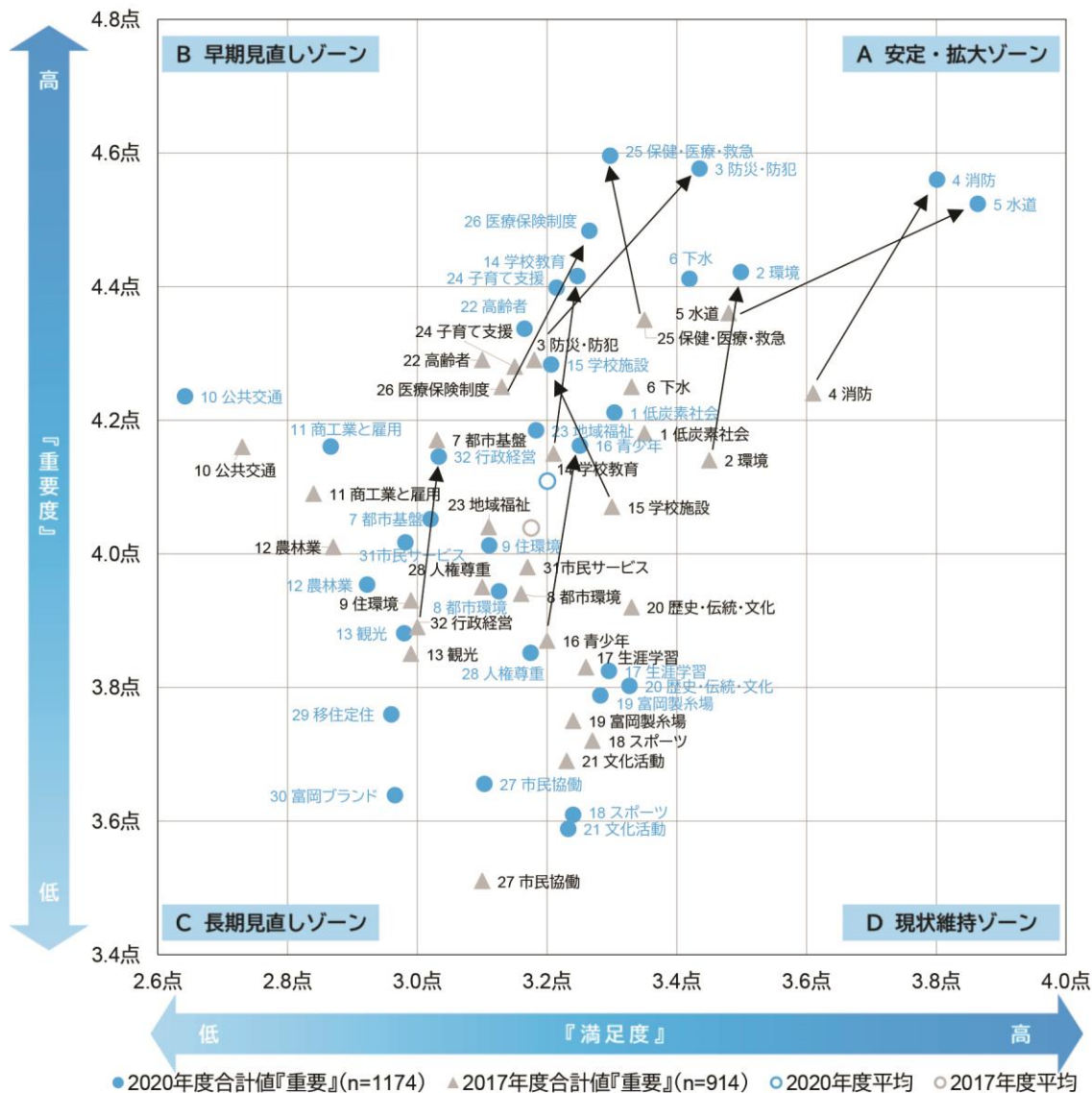
※図中の各項目名は表現を省略して表示

※6種類の凡例は、第2次富岡市総合計画 中期基本計画における施策体系に基づき32項目を分類したものの

	2020年度				2017年度				2020年度－ 2017年度変動	
	満足度 (点数)	重要度 (点数)	満足度 順位	重要度 順位	満足度 (点数)	重要度 (点数)	満足度 順位	重要度 順位	満足度	重要度
1 低炭素・循環型社会の構築	3.30	4.21	7位	13位	3.35	4.18	4位	9位	▲0.05	0.03
2 安心して暮らせる環境の整備	3.50	4.42	3位	6位	3.45	4.14	3位	13位	0.05	0.28
3 防災・防犯・安全確保体制の充実	3.44	4.58	4位	2位	3.18	4.29	15位	3位	0.26	0.29
4 消防体制の充実	3.80	4.56	2位	3位	3.61	4.24	1位	8位	0.19	0.32
5 水道事業の充実	3.86	4.52	1位	4位	3.48	4.36	2位	1位	0.38	0.16
6 下水道・浄化槽の整備推進	3.42	4.41	5位	8位	3.33	4.25	6位	6位	0.09	0.16
7 安全で利便性の高い都市基盤の整備	3.02	4.05	25位	18位	3.03	4.17	24位	10位	▲0.01	▲0.12
8 快適で美しい都市環境の整備	3.13	3.94	21位	22位	3.16	3.94	17位	20位	▲0.03	0.00
9 豊かな住環境の形成	3.11	4.01	22位	20位	2.99	3.93	26位	21位	0.12	0.08
10 公共交通の確保と利便性の向上	2.64	4.24	32位	12位	2.73	4.16	30位	11位	▲0.09	0.08
11 商工業の振興と雇用対策の推進	2.87	4.16	31位	16位	2.84	4.09	29位	14位	0.03	0.07
12 農林業振興の推進	2.92	3.95	30位	21位	2.87	4.01	28位	17位	0.05	▲0.06
13 観光振興の推進	2.98	3.88	27位	23位	2.99	3.85	26位	25位	▲0.01	0.03
14 学校教育の充実	3.25	4.42	13位	7位	3.21	4.15	13位	12位	0.04	0.27
15 学校教育施設の充実	3.21	4.28	17位	11位	3.30	4.07	8位	15位	▲0.09	0.21
16 青少年の健全育成	3.25	4.16	12位	15位	3.20	3.87	14位	24位	0.05	0.29
17 生涯学習活動の充実	3.30	3.82	9位	25位	3.26	3.83	10位	26位	0.04	▲0.01
18 スポーツ・レクリエーションの充実	3.24	3.61	14位	31位	3.27	3.72	9位	28位	▲0.03	▲0.11
19 富岡製糸場の保存と活用	3.28	3.79	10位	27位	3.24	3.75	11位	27位	0.04	0.04
20 歴史・伝統文化資源の保存と活用	3.33	3.80	6位	26位	3.33	3.92	6位	22位	▲0.00	▲0.12
21 文化活動の充実	3.23	3.59	15位	32位	3.23	3.69	12位	29位	0.00	▲0.10
22 高齢者支援の充実	3.17	4.34	20位	10位	3.10	4.29	21位	3位	0.07	0.05
23 地域福祉の充実	3.18	4.18	18位	14位	3.11	4.04	20位	16位	0.07	0.14
24 子育て支援の充実	3.21	4.40	16位	9位	3.15	4.28	18位	5位	0.06	0.12
25 保健・医療・救急体制の充実	3.30	4.60	8位	1位	3.35	4.35	4位	2位	▲0.05	0.25
26 持続可能な医療保険制度の構築	3.26	4.48	11位	5位	3.13	4.25	19位	6位	0.13	0.23
27 市民協働の推進	3.10	3.66	23位	29位	3.10	3.51	21位	30位	0.00	0.15
28 人権尊重社会の実現	3.17	3.85	19位	24位	3.10	3.95	21位	19位	0.07	▲0.10
29 移住定住対策の推進	2.96	3.76	29位	28位	-	-	-	-	-	-
30 富岡ブランドの推進(イノベーション)	2.97	3.64	28位	30位	-	-	-	-	-	-
31 質の高い市民サービスの提供	2.98	4.02	26位	19位	3.17	3.98	16位	18位	▲0.19	0.04
32 持続可能な行政経営	3.03	4.15	24位	17位	3.00	3.89	25位	23位	0.03	0.26
平均値	3.20	3.18			4.11	4.04				

※▲は2017年度比で減少したもの。青色は2017年度比で0.1点以上増加または減少したもの。その中で濃い色は0.2点以上増加または減少したもの(0.2点以上減少は該当なし)

『満足度』『重要度』の推移をポジショニングマップで見ると、「4 消防体制の充実」「5 水道事業の充実」など、『満足度』や『重要度』が0.2点以上高くなった項目が見られる一方、0.2点以上低くなった項目は見られません。



※図中の各項目名は表現を省略して表示

※矢印で示した項目は、2017年度比で『満足度』『重要度』いずれかが0.2点以上増加または減少したもの

APPENDIX B

令和3年度

市民意識調査報告書



令和3年10月

伊勢崎市

①調査年度別の満足度・重要度順位

年度別満足度順位

R3 順位	R1 順位	H30 順位	H29 順位	施策体系	施策名	R3 満足度	R1 満足度	H30 満足度	H29 満足度	差 (R3-R1)
1	1	1	1	2-1-6	安定した水道水の供給	3.16	3.22	3.20	3.18	△ 0.07
2	3	6	4	3-2-3	水と緑の空間の形成	2.83	2.90	2.78	2.83	△ 0.06
3	4	3	2	3-1-4	消防・救急体制の充実	2.83	2.88	2.87	2.85	△ 0.05
4	9	7	6	4-2-1	生涯学習の振興	2.83	2.80	2.78	2.81	+ 0.03
5	2	2	3	1-1-1	健康づくりと疾病予防の推進	2.81	2.91	2.93	2.83	△ 0.10
6	5	8	8	3-2-2	ごみの減量と再資源化の推進	2.80	2.87	2.77	2.81	△ 0.07
7	16	5	10	4-2-3	文化財の保存活用と伝統文化の継承	2.79	2.76	2.78	2.77	+ 0.03
8	7	4	7	2-1-7	良好な居住環境の形成	2.79	2.83	2.82	2.81	△ 0.04
9	6	11	12	3-2-1	良好な地域環境の保全	2.76	2.83	2.74	2.75	△ 0.07
10	12	9	19	4-2-5	スポーツの推進	2.76	2.78	2.76	2.68	△ 0.03
11	8	17	20	4-1-3	中等教育学校教育の充実	2.75	2.80	2.71	2.68	△ 0.06
12	13	14	16	4-1-1	幼児・学校教育の充実	2.75	2.78	2.73	2.70	△ 0.03
13	11	10	11	4-1-2	児童・生徒の健全な心身の育成	2.73	2.79	2.74	2.76	△ 0.06
14	20	19	18	1-1-2	地域医療体制の充実	2.71	2.71	2.70	2.69	+ 0.01
15	10	12	5	5-1-2	人権の尊重	2.70	2.80	2.74	2.82	△ 0.10
16	17	16	21	4-2-4	教育施設の充実	2.69	2.73	2.71	2.66	△ 0.04
17	14	13	9	5-1-1	市民との協働によるまちづくり	2.69	2.77	2.74	2.78	△ 0.08
18	19	15	15	5-1-3	男女共同参画社会の確立	2.68	2.71	2.71	2.72	△ 0.03
19	15	18	13	4-2-2	青少年の健全育成	2.68	2.76	2.71	2.73	△ 0.08
20	21	21	14	1-2-1	子ども・子育て支援の充実	2.66	2.69	2.63	2.72	△ 0.02
21	29	31	29	1-1-3	医療・年金制度の円滑な運営	2.66	2.60	2.57	2.59	+ 0.06
22	27	23	17	5-1-4	国際交流・国内交流の推進	2.62	2.62	2.61	2.70	+ 0.00
23	22	28	34	3-1-1	危機管理体制の充実	2.62	2.66	2.57	2.53	△ 0.04
24	23	22	25	2-1-5	適切な生活排水処理の推進	2.60	2.66	2.62	2.64	△ 0.05
25	35	33	31	2-2-1	持続可能な農業の振興	2.60	2.55	2.53	2.56	+ 0.05
26	33	30	32	2-2-3	企業誘致の推進と雇用の促進	2.60	2.57	2.57	2.55	+ 0.03
27	18	20	23	5-2-1	効率的で効果的な行政運営の推進	2.59	2.73	2.68	2.65	△ 0.13
28	24	26	22	1-2-2	地域福祉社会の構築	2.58	2.65	2.59	2.66	△ 0.07
29	34	34	28	3-1-6	消費者保護対策の充実	2.56	2.56	2.53	2.60	+ 0.00
30	31	27	24	1-2-3	高齢者福祉の充実	2.56	2.59	2.58	2.64	△ 0.03
31	26	25	30	3-1-5	交通安全対策の推進	2.55	2.63	2.60	2.57	△ 0.07
32	28	35	39	2-2-4	魅力ある観光の振興	2.53	2.61	2.50	2.36	△ 0.09
33	25	24	33	3-1-2	災害に強いまちづくり	2.53	2.63	2.61	2.55	△ 0.11
34	32	29	26	2-1-4	道路の整備と管理	2.51	2.57	2.57	2.63	△ 0.06
35	38	37	37	2-2-2	活力ある商工業の振興	2.51	2.49	2.47	2.45	+ 0.02
36	36	38	35	3-1-3	防犯対策の強化	2.47	2.52	2.46	2.50	△ 0.06
37	37	32	27	1-2-4	障害者福祉の充実	2.46	2.52	2.56	2.61	△ 0.06
38	30	36	36	5-2-2	安定的な財政運営の推進	2.45	2.60	2.50	2.49	△ 0.14
39	39	39	38	2-1-1	適正な土地利用と良好な景観形成	2.35	2.42	2.43	2.39	△ 0.07
40	40	40	41	2-1-2	魅力ある市街地の整備	2.30	2.33	2.37	2.31	△ 0.02
41	41	41	40	2-1-3	公共交通ネットワークの確立	2.09	2.17	2.31	2.34	△ 0.07

※四捨五入により誤差が生じる場合があります

年度別重要度順位

R3 順位	R1 順位	H30 順位	H29 順位	施策体系	施策名	R3 重要度	R1 重要度	H30 重要度	H29 重要度	差 (R3-R1)
1	5	5	3	3-1-2	災害に強いまちづくり	3.64	3.61	3.60	3.64	+ 0.03
2	2	1	1	1-1-2	地域医療体制の充実	3.64	3.65	3.64	3.68	△ 0.01
3	1	2	5	2-1-6	安定した水道水の供給	3.63	3.72	3.63	3.63	△ 0.09
4	3	4	2	3-1-3	防犯対策の強化	3.62	3.64	3.61	3.67	△ 0.03
5	4	3	4	1-1-3	医療・年金制度の円滑な運営	3.60	3.61	3.61	3.64	△ 0.01
6	7	8	8	5-2-2	安定的な財政運営の推進	3.60	3.59	3.57	3.60	+ 0.01
7	11	6	7	4-1-2	児童・生徒の健全な心身の育成	3.59	3.56	3.58	3.60	+ 0.03
8	6	9	6	3-1-4	消防・救急体制の充実	3.57	3.61	3.56	3.62	△ 0.04
9	10	12	10	3-1-1	危機管理体制の充実	3.56	3.56	3.50	3.56	△ 0.00
10	9	10	12	3-1-5	交通安全対策の推進	3.54	3.57	3.53	3.55	△ 0.03
11	12	11	11	4-1-1	幼児・学校教育の充実	3.51	3.54	3.52	3.55	△ 0.03
12	8	7	9	1-2-1	子ども・子育て支援の充実	3.49	3.57	3.58	3.58	△ 0.09
13	17	18	17	5-2-1	効率的で効果的な行政運営の推進	3.47	3.46	3.46	3.47	+ 0.01
14	18	20	18	3-2-2	ごみの減量と再資源化の推進	3.46	3.46	3.43	3.46	△ 0.00
15	19	16	20	2-1-4	道路の整備と管理	3.46	3.46	3.47	3.42	△ 0.00
16	14	13	13	1-2-3	高齢者福祉の充実	3.44	3.52	3.48	3.53	△ 0.08
17	15	14	16	2-1-5	適切な生活排水処理の推進	3.44	3.50	3.48	3.47	△ 0.06
18	13	17	14	1-1-1	健康づくりと疾病予防の推進	3.42	3.52	3.47	3.50	△ 0.10
19	16	19	15	1-2-4	障害者福祉の充実	3.42	3.48	3.43	3.48	△ 0.06
20	23	22	21	4-2-4	教育施設の充実	3.37	3.37	3.37	3.38	+ 0.00
21	20	23	22	3-1-6	消費者保護対策の充実	3.37	3.41	3.36	3.37	△ 0.05
22	22	21	26	2-1-7	良好な居住環境の形成	3.34	3.38	3.40	3.35	△ 0.04
23	24	24	23	3-2-1	良好な地域環境の保全	3.29	3.36	3.35	3.36	△ 0.07
24	21	15	19	2-1-3	公共交通ネットワークの確立	3.28	3.38	3.47	3.45	△ 0.11
25	25	25	25	1-2-2	地域福祉社会の構築	3.25	3.36	3.34	3.35	△ 0.11
26	29	29	24	3-2-3	水と緑の空間の形成	3.25	3.30	3.29	3.36	△ 0.05
27	31	30	30	2-1-2	魅力ある市街地の整備	3.24	3.28	3.26	3.30	△ 0.04
28	28	31	34	2-2-1	持続可能な農業の振興	3.24	3.31	3.25	3.23	△ 0.08
29	27	26	28	4-2-2	青少年の健全育成	3.23	3.32	3.32	3.34	△ 0.08
30	32	27	31	2-2-2	活力ある商工業の振興	3.23	3.27	3.30	3.27	△ 0.04
31	26	28	29	2-2-3	企業誘致の推進と雇用の促進	3.23	3.34	3.30	3.30	△ 0.11
32	30	32	27	4-1-3	中等教育学校教育の充実	3.20	3.29	3.21	3.35	△ 0.09
33	35	36	35	5-1-3	男女共同参画社会の確立	3.16	3.16	3.11	3.21	+ 0.01
34	33	34	33	5-1-2	人権の尊重	3.15	3.18	3.18	3.24	△ 0.03
35	38	35	37	5-1-1	市民との協働によるまちづくり	3.10	3.10	3.11	3.15	+ 0.00
36	34	33	32	2-1-1	適正な土地利用と良好な景観形成	3.10	3.17	3.19	3.24	△ 0.07
37	37	38	36	4-2-5	スポーツの推進	3.07	3.12	3.10	3.16	△ 0.05
38	36	39	38	4-2-1	生涯学習の振興	3.03	3.12	3.07	3.15	△ 0.09
39	39	37	39	2-2-4	魅力ある観光の振興	3.02	3.08	3.10	3.10	△ 0.07
40	40	40	40	5-1-4	国際交流・国内交流の推進	2.98	3.07	3.03	3.09	△ 0.09
41	41	41	41	4-2-3	文化財の保存活用と伝統文化の継承	2.93	3.02	2.92	3.03	△ 0.09

※四捨五入により誤差が生じる場合があります

③地区別の満足度・重要度

【各地区別順位の

は上位3位を、

は下位3位をそれぞれ表示しています】

施策体系	施策名	全体			伊勢崎地区			赤堀地区			東地区			境地区							
		満足度	重要度	順位	満足度	重要度	順位	満足度	重要度	順位	満足度	重要度	順位	満足度	重要度	順位					
1-1-1	健康づくりと疾病予防の推進	2.81	5	3.42	18	2.83	7	3.41	18	2.79	3	3.37	17	2.81	3	3.38	20	2.72	9	3.49	12
1-1-2	地域医療体制の充実	2.71	14	3.64	2	2.75	14	3.65	3	2.55	21	3.60	3	2.69	9	3.63	2	2.63	19	3.63	1
1-1-3	医療・年金制度の円滑な運営	2.66	21	3.60	5	2.68	23	3.61	6	2.56	17	3.59	5	2.66	13	3.56	8	2.60	21	3.60	2
1-2-1	子ども・子育て支援の充実	2.66	20	3.49	12	2.71	18	3.48	12	2.55	20	3.52	11	2.65	14	3.55	10	2.55	23	3.43	16
1-2-2	地域福祉社会の構築	2.58	28	3.25	25	2.63	28	3.26	29	2.44	30	3.21	22	2.44	32	3.24	30	2.55	24	3.25	26
1-2-3	高齢者福祉の充実	2.56	30	3.44	16	2.61	29	3.44	17	2.48	27	3.34	19	2.40	35	3.46	18	2.55	26	3.49	11
1-2-4	障害者福祉の充実	2.46	37	3.42	19	2.51	37	3.40	20	2.41	33	3.35	18	2.33	39	3.50	14	2.44	34	3.47	13
2-1-1	適正な土地利用と良好な景観形成	2.35	39	3.10	36	2.40	39	3.14	35	2.33	38	2.84	39	2.36	37	3.01	37	2.21	39	3.12	33
2-1-2	魅力ある市街地の整備	2.30	40	3.24	27	2.37	40	3.28	27	2.34	37	3.12	25	2.24	40	3.24	28	2.16	40	3.11	34
2-1-3	公共交通ネットワークの確立	2.09	41	3.28	24	2.18	41	3.29	26	1.92	41	3.23	21	2.10	41	3.26	26	1.86	41	3.27	24
2-1-4	道路の整備と管理	2.51	34	3.46	15	2.59	32	3.47	14	2.14	40	3.53	10	2.46	30	3.48	17	2.47	31	3.36	18
2-1-5	適切な生活排水処理の推進	2.60	24	3.44	17	2.71	20	3.45	15	2.34	36	3.37	16	2.38	36	3.50	14	2.56	22	3.34	20
2-1-6	安定した水道水の供給	3.16	1	3.63	3	3.19	1	3.66	2	3.09	1	3.54	8	3.14	1	3.61	5	3.09	1	3.55	7
2-1-7	良好な居住環境の形成	2.79	8	3.34	22	2.84	6	3.36	22	2.63	10	3.08	28	2.59	16	3.40	19	2.78	5	3.34	20
2-2-1	持続可能な農業の振興	2.60	25	3.24	28	2.66	27	3.24	30	2.48	27	3.10	26	2.50	27	3.25	27	2.55	25	3.26	25
2-2-2	活力ある商工業の振興	2.51	35	3.23	30	2.55	34	3.29	25	2.50	26	2.98	34	2.57	20	3.14	32	2.35	38	3.13	32
2-2-3	企業誘致の推進と雇用の促進	2.60	26	3.23	31	2.67	24	3.30	24	2.42	32	3.03	31	2.56	22	3.01	36	2.44	33	3.14	31
2-2-4	魅力ある観光の振興	2.53	32	3.02	39	2.54	35	3.07	38	2.46	29	2.87	37	2.68	12	2.91	40	2.43	36	2.92	40
3-1-1	危機管理体制の充実	2.62	23	3.56	9	2.66	25	3.57	9	2.57	15	3.58	6	2.57	18	3.50	14	2.52	28	3.55	7
3-1-2	災害に強いまちづくり	2.53	33	3.64	1	2.57	33	3.67	1	2.51	25	3.57	7	2.49	29	3.63	3	2.41	37	3.58	4
3-1-3	防犯対策の強化	2.47	36	3.62	4	2.51	36	3.62	4	2.28	39	3.64	2	2.40	34	3.60	7	2.47	30	3.59	3
3-1-4	消防・救急体制の充実	2.83	3	3.57	8	2.87	3	3.61	5	2.77	4	3.54	9	2.77	5	3.54	11	2.76	6	3.45	14
3-1-5	交通安全対策の推進	2.55	31	3.54	10	2.59	31	3.56	10	2.53	23	3.47	12	2.54	25	3.51	13	2.48	29	3.51	10
3-1-6	消費者保護対策の充実	2.56	29	3.37	21	2.60	30	3.41	19	2.55	19	3.16	24	2.44	31	3.33	23	2.53	27	3.33	22
3-2-1	良好な地域環境の保全	2.76	9	3.29	23	2.82	8	3.33	23	2.71	7	3.09	27	2.57	19	3.29	24	2.75	7	3.27	23
3-2-2	ごみの減量と再資源化の推進	2.80	6	3.46	14	2.85	5	3.47	13	2.75	5	3.38	15	2.52	26	3.56	9	2.85	2	3.39	17
3-2-3	水と緑の空間の形成	2.83	2	3.25	26	2.89	2	3.27	28	2.52	24	3.03	32	2.77	4	3.35	22	2.81	4	3.15	30
4-1-1	幼児・学校教育の充実	2.75	12	3.51	11	2.80	10	3.51	11	2.62	11	3.47	13	2.71	8	3.53	12	2.63	18	3.53	9
4-1-2	児童・生徒の健全な心身の育成	2.73	13	3.59	7	2.80	11	3.58	7	2.55	18	3.60	4	2.59	16	3.61	6	2.67	13	3.58	5
4-1-3	中等教育学校教育の充実	2.75	11	3.20	32	2.78	13	3.21	32	2.74	6	3.04	29	2.68	11	3.29	25	2.66	15	3.18	29
4-2-1	生涯学習の振興	2.83	4	3.03	38	2.81	9	3.06	39	2.83	2	2.86	38	2.90	2	3.01	37	2.81	3	3.00	38
4-2-2	青少年の健全育成	2.68	19	3.23	29	2.70	21	3.23	31	2.69	8	3.18	23	2.55	23	3.24	29	2.69	10	3.25	27
4-2-3	文化財の保存活用と伝統文化の継承	2.79	7	2.93	41	2.86	4	2.94	41	2.56	16	2.58	41	2.69	10	2.99	39	2.73	8	3.01	37
4-2-4	教育施設の充実	2.69	16	3.37	20	2.71	19	3.39	21	2.61	12	3.28	20	2.75	7	3.37	21	2.61	20	3.35	19
4-2-5	スポーツの推進	2.76	10	3.07	37	2.79	12	3.08	37	2.66	9	2.87	36	2.76	6	3.09	33	2.68	12	3.05	35
5-1-1	市民との協働によるまちづくり	2.69	17	3.10	35	2.72	16	3.13	36	2.54	22	3.00	33	2.63	15	3.04	34	2.65	16	3.00	38
5-1-2	人権の尊重	2.70	15	3.15	34	2.75	15	3.18	34	2.57	14	2.95	35	2.55	24	3.01	35	2.67	13	3.20	28
5-1-3	男女共同参画社会の確立	2.68	18	3.16	33	2.72	17	3.19	33	2.61	13	3.04	30	2.50	27	3.22	31	2.69	11	3.03	36
5-1-4	国際交流・国内交流の推進	2.62	22	2.98	40	2.66	26	3.05	40	2.39	34	2.77	40	2.56	21	2.88	41	2.64	17	2.81	41
5-2-1	効率的で効果的な行政運営の推進	2.59	27	3.47	13	2.68	22	3.45	16	2.43	31	3.44	14	2.42	33	3.61	4	2.45	32	3.44	15
5-2-2	安定的な財政運営の推進	2.45	38	3.60	6	2.50	38	3.57	8	2.38	35	3.65	1	2.33	38	3.69	1	2.43	35	3.55	6
	平均	2.64		3.34		2.68		3.36		2.54		3.24		2.57		3.34		2.57		3.31	

(2) 施策別の満足度・重要度の散布図

満足度を横軸に、重要度を縦軸にとり、満足度平均点と重要度平均点を境として4つの領域に分類した。
詳細については、29ページの全41施策、30～39ページの各分野別による散布図を参照。

A 重点改善施策

重要度が高いにもかかわらず満足度が低いため、満足度を向上させられるよう、最優先で改善すべき施策。

【防犯対策の強化、安定的な財政運営の推進 など】

B 改善施策

重要度は低い満足度も低いため、満足度の向上を意識して改善すべき施策。

【適正な土地利用と良好な景観形成、魅力ある市街地の整備 など】

C 重点維持施策

重要度も満足度も高いため、現状の水準を引き続き重点的に維持すべき施策。

【安定した水道水の供給、消防・救急体制の充実 など】

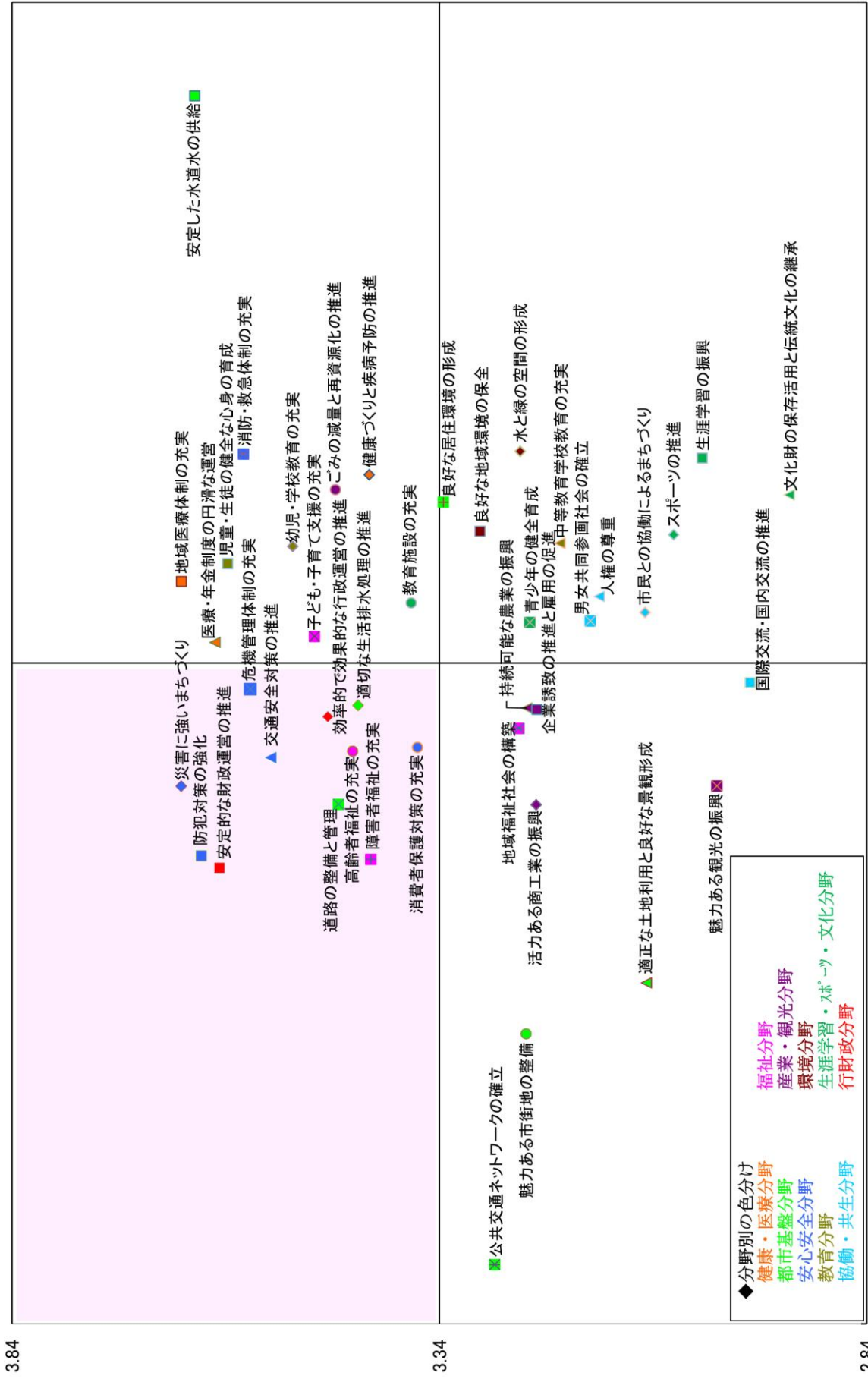
D 維持施策

重要度は低い満足度は高いため、現状の水準を維持すべき施策。

【文化財の保存活用と伝統文化の継承、生涯学習の振興 など】

<p>A 重要度が高く、満足度が低い</p> <p>～ 重点改善施策 ～</p> <p>満足度を向上させるため、最優先で改善すべき施策</p>	<p>C 満足度も重要度も高い</p> <p>～ 重点維持施策 ～</p> <p>現状の水準を引き続き重点的に維持すべき施策</p>
<p>B 満足度も重要度も低い</p> <p>～ 改善施策 ～</p> <p>重要度は低い満足度の向上を意識して改善すべき施策</p>	<p>D 満足度が高く、重要度が低い</p> <p>～ 維持施策 ～</p> <p>重要度は低い満足度の向上を意識して改善すべき施策</p>

施策別の満足度・重要度の散布図(全41施策)



重要度平均点

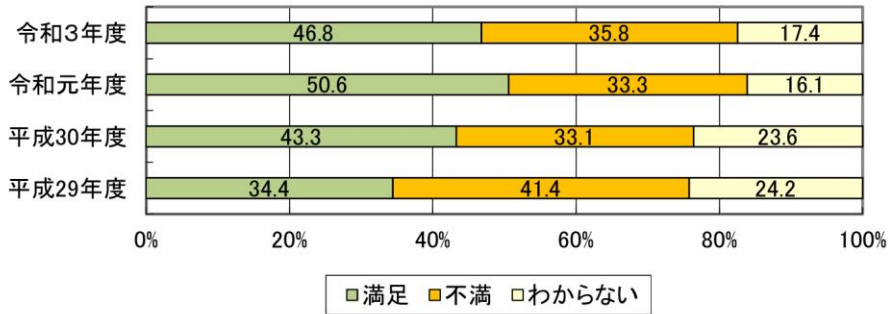
2-2-4 魅力ある観光の振興

[取り組みの例]

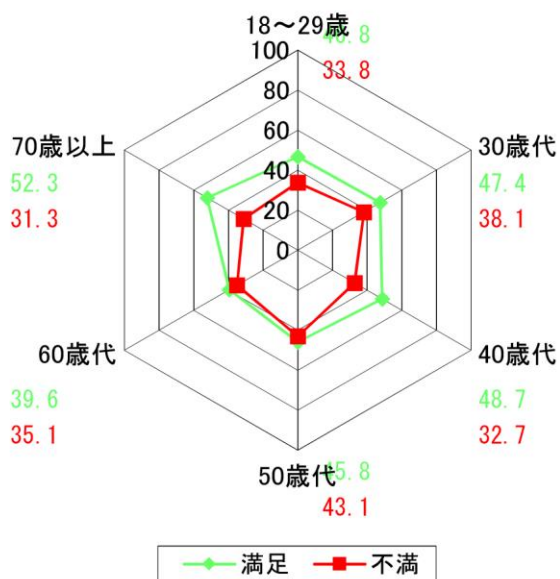
- ・華蔵寺公園遊園地・赤堀花しょうぶ園などの花施設など観光資源の活用
- ・夏まつり・花火大会・グルメイベントなど誘客イベントの開催 など

順位	満足度 2.53	重要度 3.02
全41施策中	R3 : 32位	R3 : 39位
全41施策中	R1 : 28位	R1 : 39位
全41施策中	H30 : 35位	H30 : 37位
全41施策中	H29 : 39位	H29 : 39位

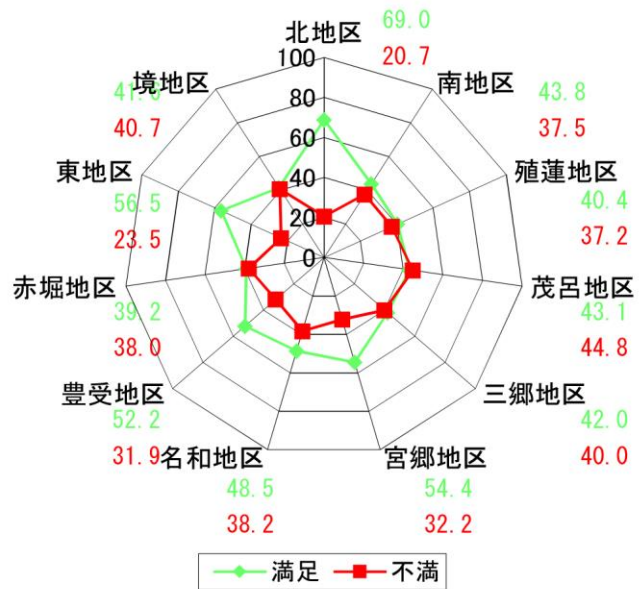
満足度割合



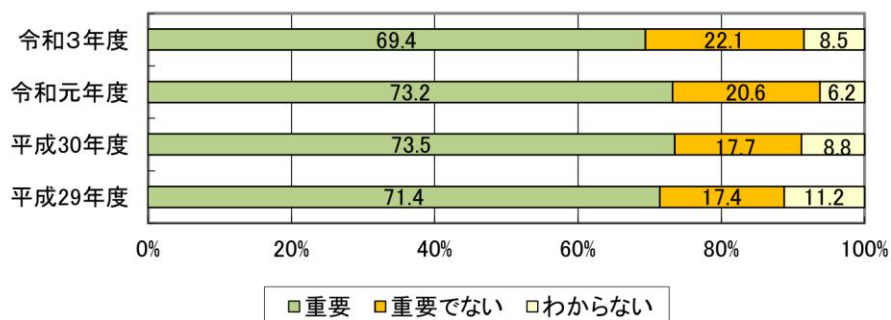
年代別満足・不満足度割合



地区別満足・不満足度割合



重要度割合



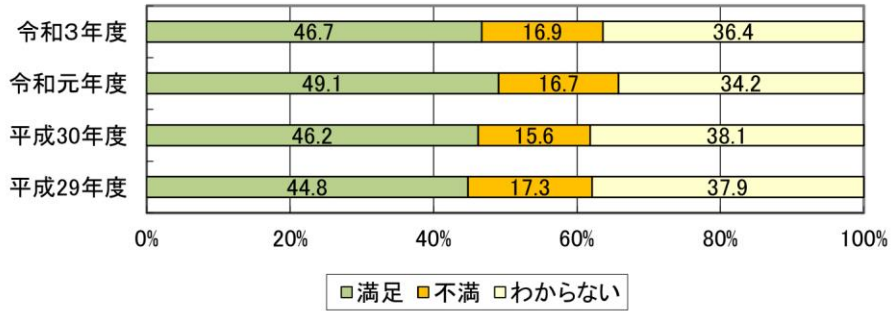
4-2-3 文化財の保存活用と伝統文化の継承

[取り組みの例]

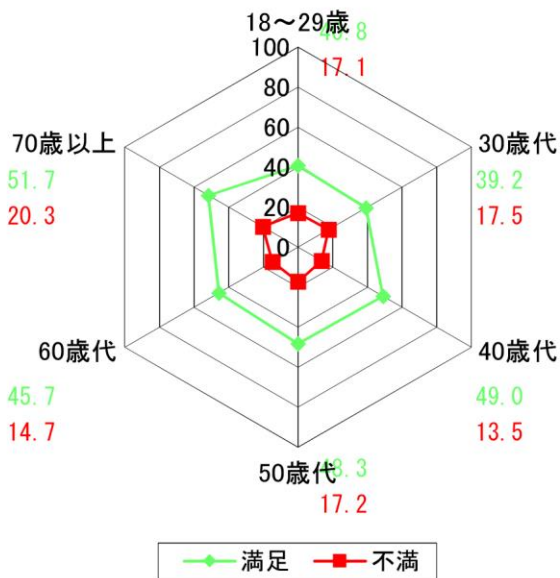
- ・田島弥平旧宅などの史跡の整備活用
- ・歴史的建造物や遺跡などの調査研究と情報発信
- ・伝統文化の継承活動への支援 など

順位	満足度 2.79	重要度 2.93
全41施策中	R3 : 7位	R3 : 41位
全41施策中	R1 : 16位	R1 : 41位
全41施策中	H30 : 5位	H30 : 41位
全41施策中	H29 : 10位	H29 : 41位

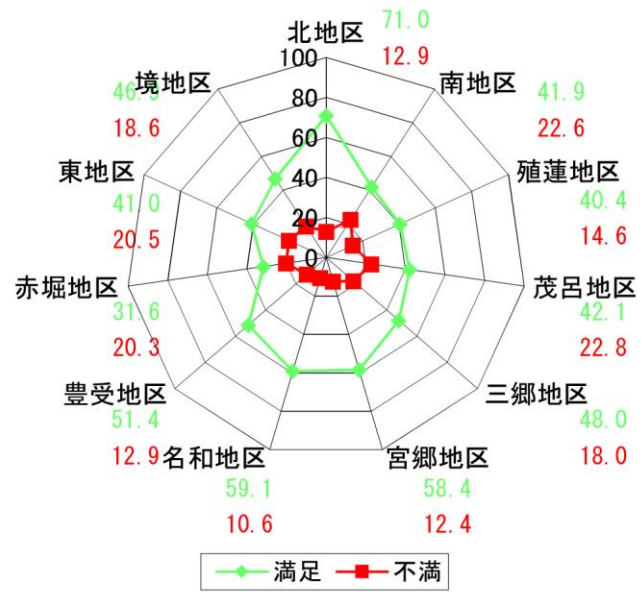
満足度割合



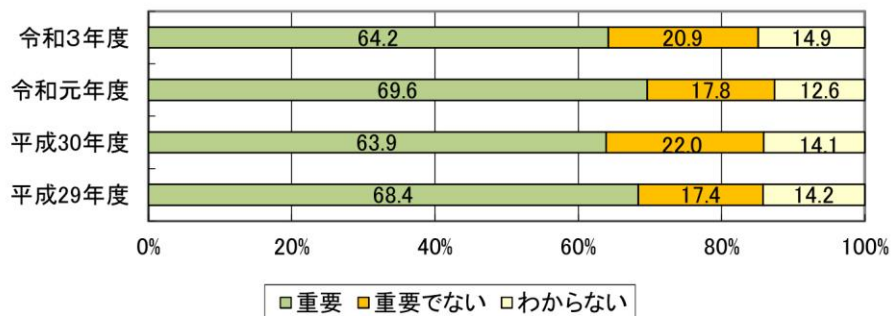
年代別満足・不満足度割合



地区別満足・不満足度割合



重要度割合



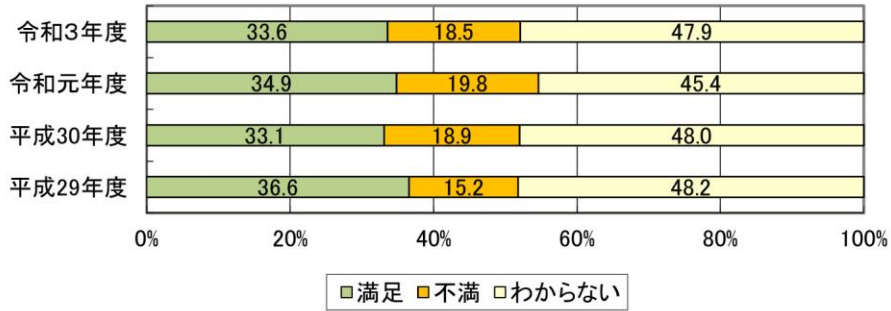
5-1-4 国際交流・国内交流の推進

[取り組みの例]

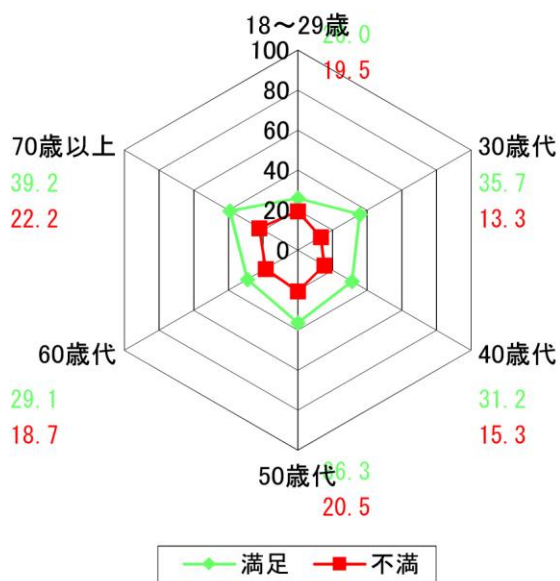
- ・日本人住民と外国人住民との相互理解の推進
- ・国際姉妹都市・友好都市、国内都市との市民交流
など

順位	満足度 2.62	重要度 2.98
全41施策中	R3 : 22位	R3 : 40位
全41施策中	R1 : 27位	R1 : 40位
全41施策中	H30 : 23位	H30 : 40位
全41施策中	H29 : 17位	H29 : 40位

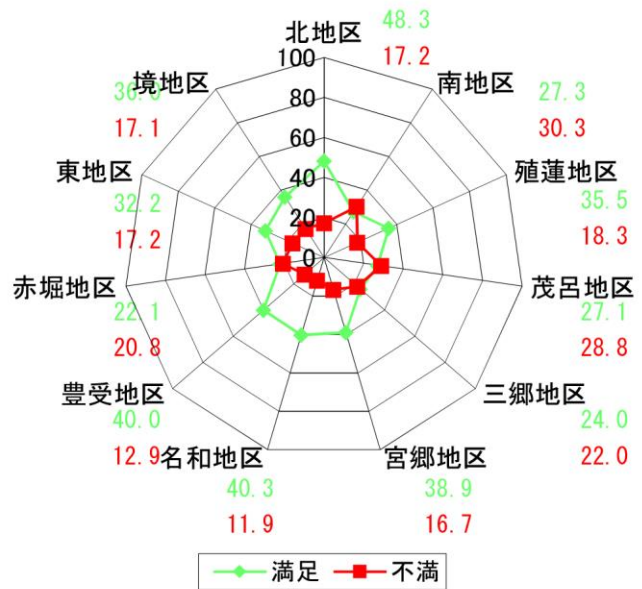
満足度割合



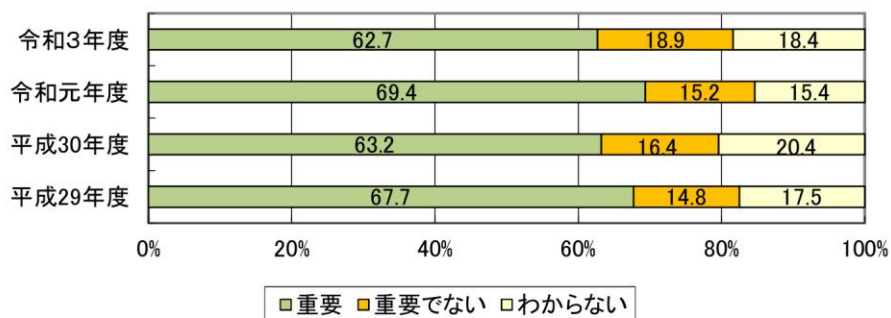
年代別満足・不満足度割合



地区別満足・不満足度割合



重要度割合



APPENDIX C

市 民 ア ン ケ ー ト 調 査
結 果 報 告 書

平成31年1月

藤 岡 市

図表1 市の現状評価(全体、居住地区別/満足度)

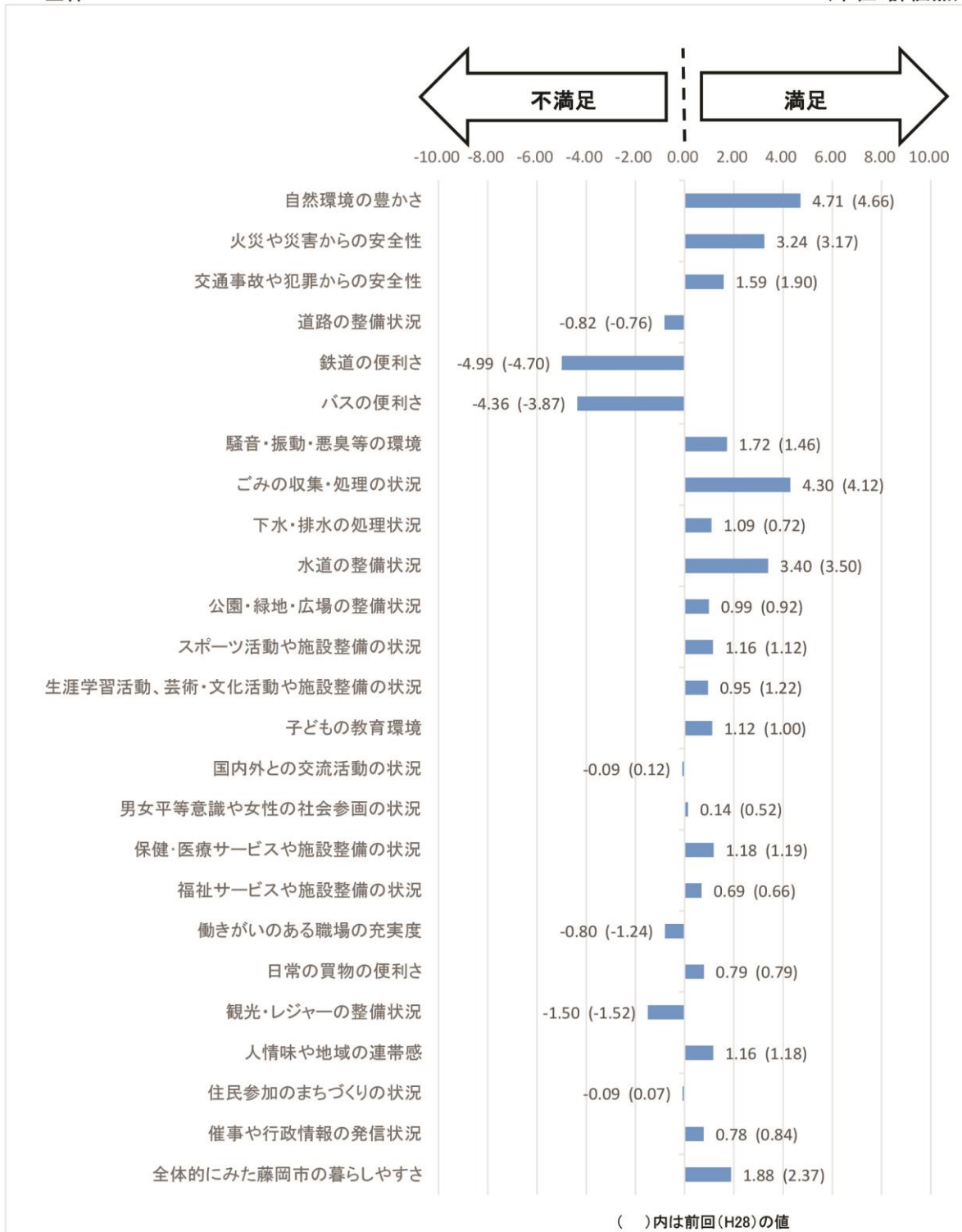
(単位:評価点)

	満足度								
	全体	居住地区							
		藤岡	神流	小野	美土里	美九里	平井	日野	鬼石
(1) 自然環境の豊かさ	4.71	4.35	4.47	4.93	4.23	5.72	5.25	6.11	5.24
(2) 火災や災害からの安全性	3.24	3.20	3.26	2.88	3.66	4.75	4.68	0.56	1.03
(3) 交通事故や犯罪からの安全性	1.59	1.37	1.34	1.33	1.15	1.79	3.11	1.67	2.82
(4) 道路の整備状況	-0.82	-1.04	-1.12	-0.74	-1.07	-0.19	1.61	-2.06	-1.64
(5) 鉄道の便利さ	-4.99	-5.27	-2.86	-3.40	-6.09	-4.81	-6.43	-7.22	-7.34
(6) バスの便利さ	-4.36	-3.90	-4.32	-4.22	-5.32	-3.23	-5.57	-5.56	-5.63
(7) 騒音・振動・悪臭等の環境	1.72	2.01	1.89	1.74	0.44	2.22	1.03	4.12	1.64
(8) ごみの収集・処理の状況	4.30	4.18	4.38	4.16	4.06	5.31	5.00	4.44	3.67
(9) 下水・排水の処理状況	1.09	2.71	-1.07	0.27	-0.88	1.69	1.03	1.39	0.97
(10) 水道の整備状況	3.40	3.61	3.05	3.38	3.42	4.05	2.86	2.22	3.05
(11) 公園・緑地・広場の整備状況	0.99	1.67	0.50	-0.54	0.66	2.50	0.65	0.56	0.86
(12) スポーツ活動や施設整備の状況	1.16	1.28	0.90	1.22	0.68	2.56	0.87	0.83	0.39
(13) 生涯学習活動、芸術・文化活動や施設整備の状況	0.95	1.35	0.86	0.96	0.27	1.63	0.24	1.11	0.08
(14) 子どもの教育環境	1.12	1.34	1.04	1.52	1.06	1.17	0.89	1.11	-0.31
(15) 国内外との交流活動の状況	-0.09	0.08	-0.59	0.38	-0.23	-0.37	-0.08	-1.94	0.00
(16) 男女平等意識や女性の社会参画の状況	0.14	0.27	-0.32	0.45	-0.05	0.50	0.08	-1.11	0.08
(17) 保健・医療サービスや施設整備の状況	1.18	1.20	1.47	1.61	1.21	1.44	0.71	0.83	-0.16
(18) 福祉サービスや施設整備の状況	0.69	0.58	0.94	1.22	-0.05	1.31	0.63	0.83	0.16
(19) 働きがいのある職場の充実度	-0.80	-0.50	-0.60	-0.35	-1.65	-0.88	-1.05	-2.22	-1.35
(20) 日常の買物の便利さ	0.79	1.62	1.35	2.74	0.85	0.56	-2.78	-2.50	-4.38
(21) 観光・レジャーの整備状況	-1.50	-1.60	-1.24	-0.83	-2.12	-1.05	-1.31	-2.35	-2.27
(22) 人情味や地域の連帯感	1.16	0.94	1.32	1.56	0.63	1.54	1.11	1.94	1.59
(23) 住民参加のまちづくりの状況	-0.09	0.19	0.05	0.38	-0.72	-0.56	-0.63	-0.56	-0.31
(24) 催事や行政情報の発信状況	0.78	0.78	1.08	0.92	0.71	1.36	0.08	0.28	0.32
(25) 全体的にみた藤岡市の暮らしやすさ	1.88	1.99	2.01	2.87	1.43	2.68	0.95	0.00	0.23

図表2 市の現状評価(全体/満足度)

全体

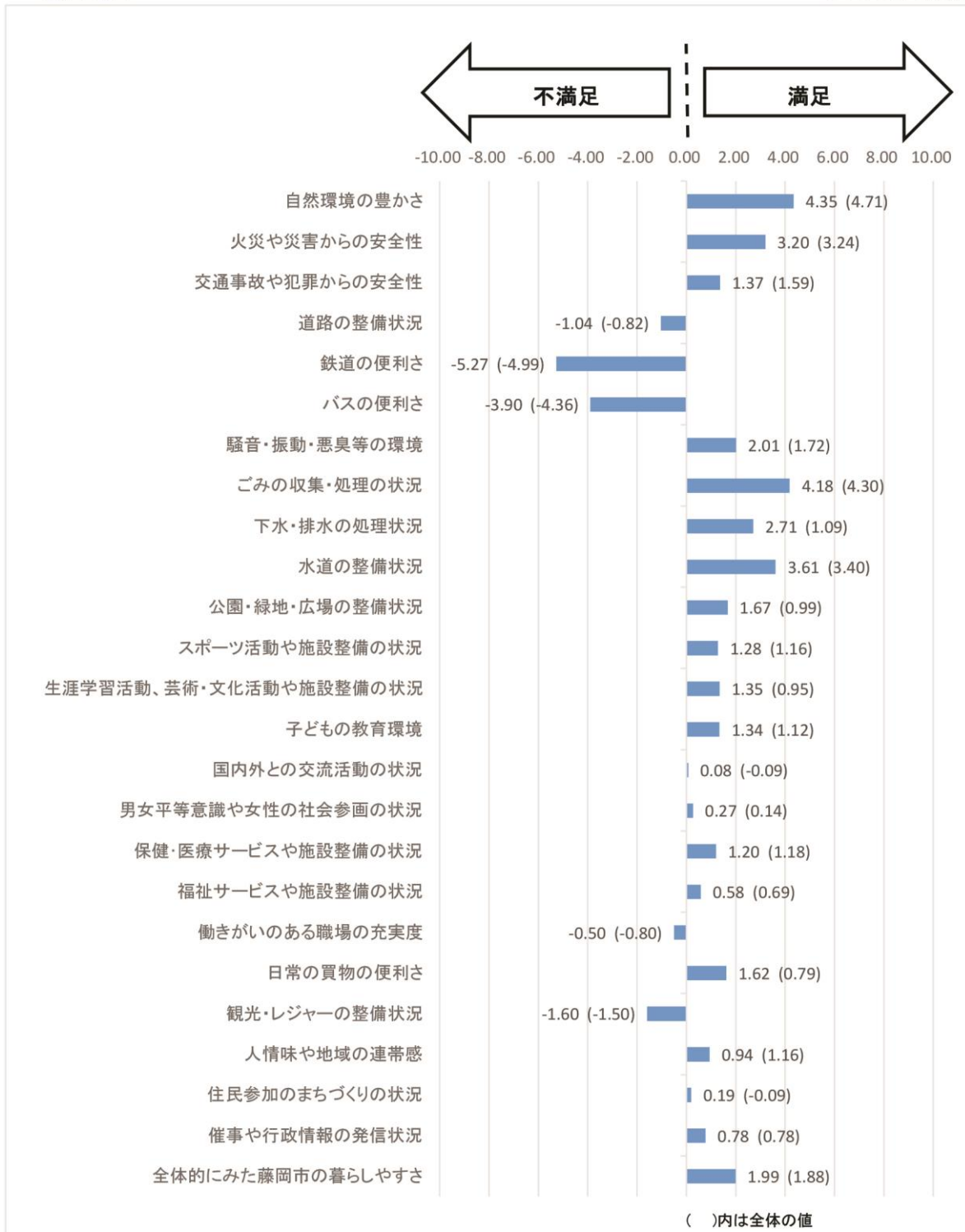
(単位:評価点)



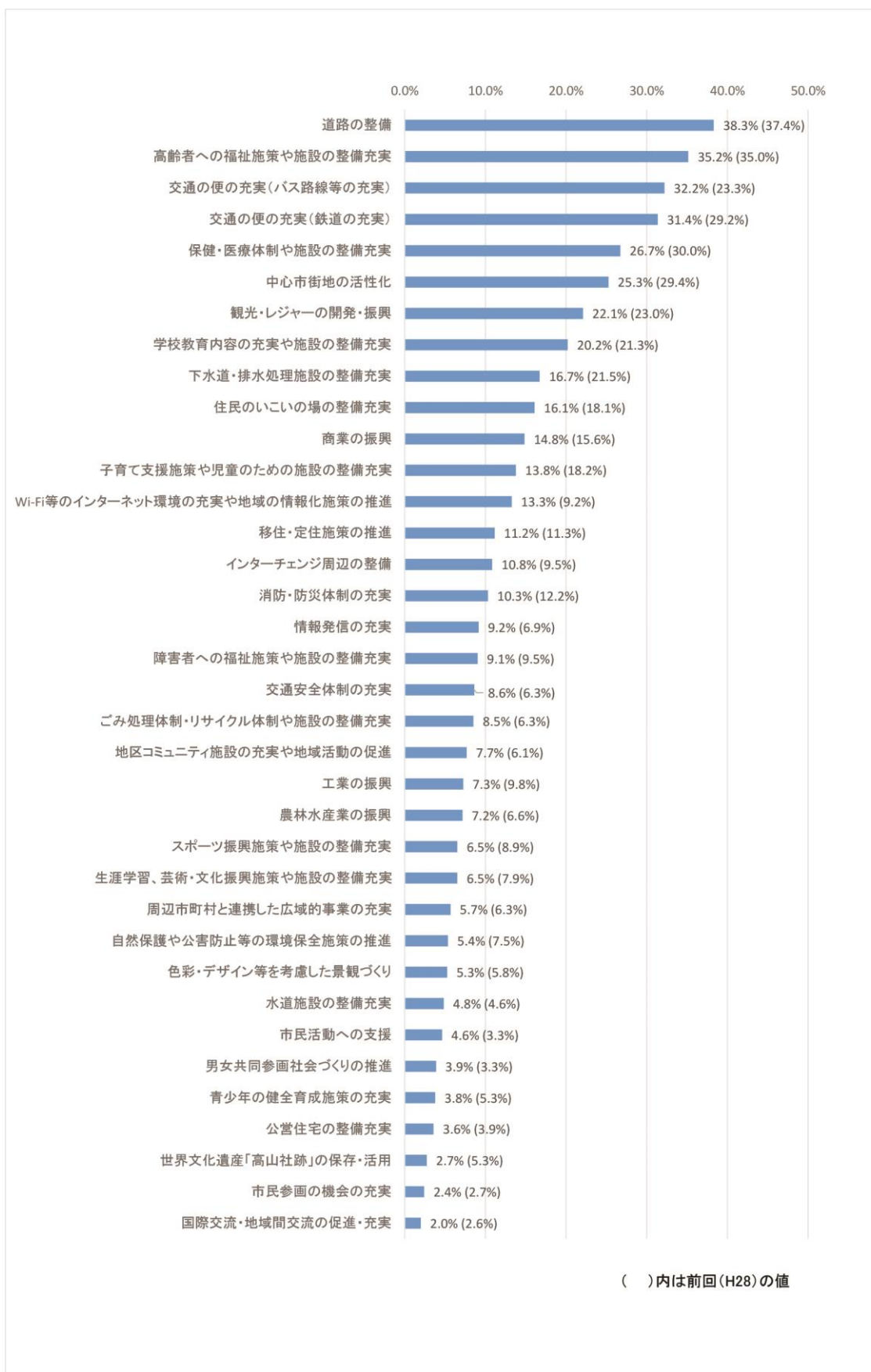
図表3 市の現状評価(居住地区別/満足度)

藤岡地区

(単位:評価点)



図表4 今後の重点施策分野(全体/複数回答)



APPENDIX D

下仁田町まち・ひと・しごと創生アンケート集計結果

「第2期 下仁田町まち・ひと・しごと創生総合戦略」を策定するにあたり、結婚・出産・子育てや移住・定住などに関する町民の意識を把握するため、町内の全世帯を対象にアンケート調査を実施したアンケートの概要は以下の通りです。

ご協力いただきありがとうございました。

下仁田町役場 企画課 地域創生係 (0274-64-8809)

【アンケート調査の概要】

調査対象 : 下仁田町内の全世帯 各一票 (配布数:2,871 票)

調査時期 : 令和元年 10 月 1 日～10 月 17 日

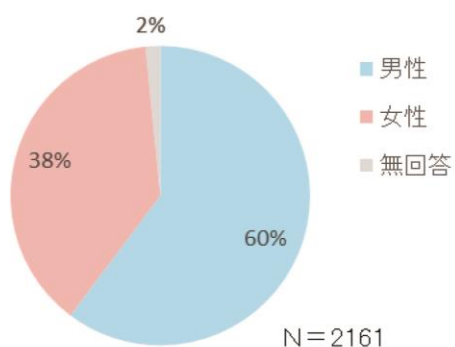
回収数 : 2,222 票

※有効票:2,161 票 無効票(白紙回答):61 票

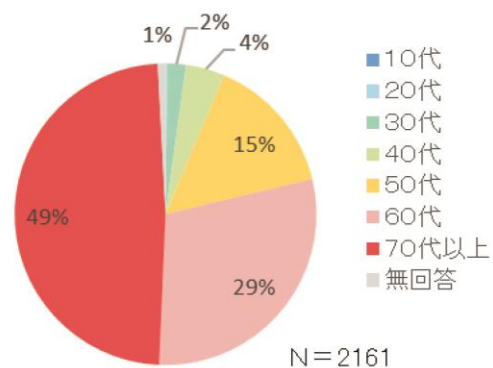
回収率:77.4%

◆ご回答いただき、あなた自身についてお聞きます◆

《性別》



《年齢》



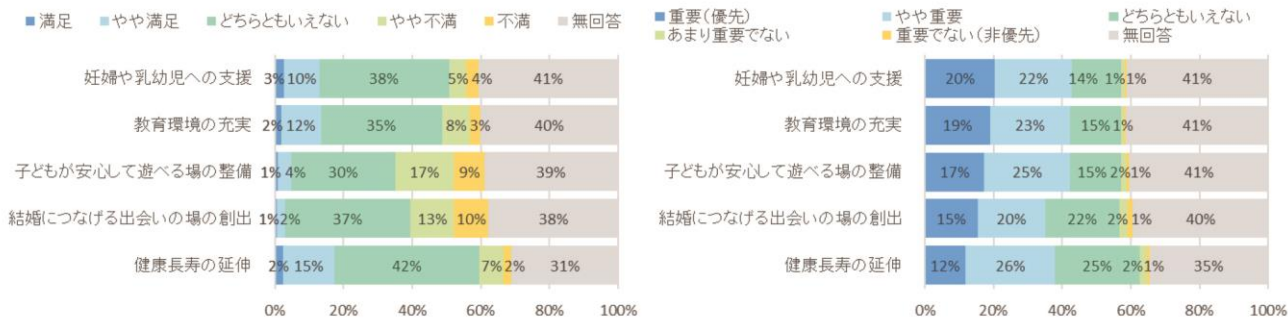
◆下仁田町がこれまで進めてきたまちづくりについてお聞きします◆

《「総合戦略」に基づき進めてきた施策の「満足度」と、これからの「重要度」》

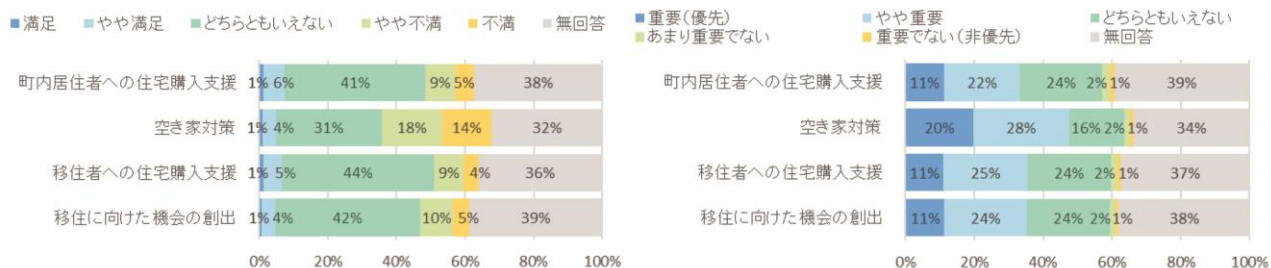
満足度

重要度

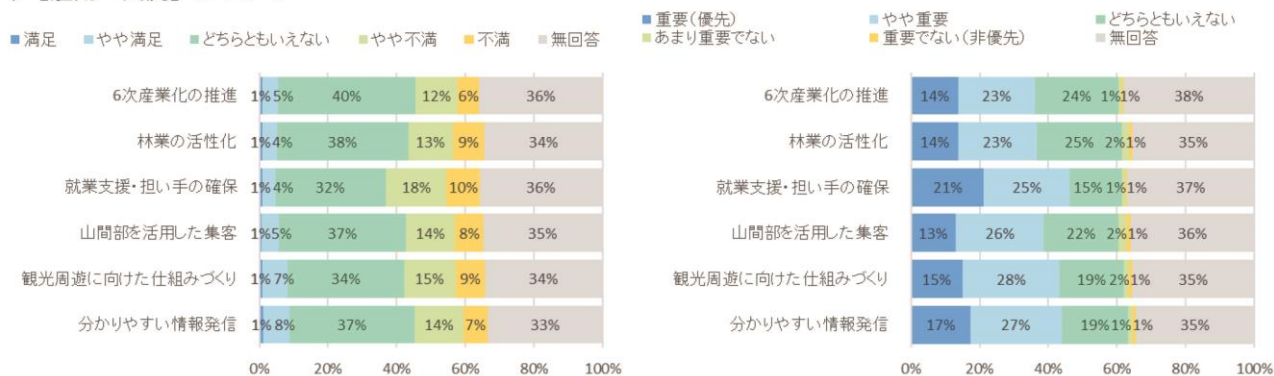
◆【生活・育児】について



◆【定住・移住】について



◆【雇用・交流】について

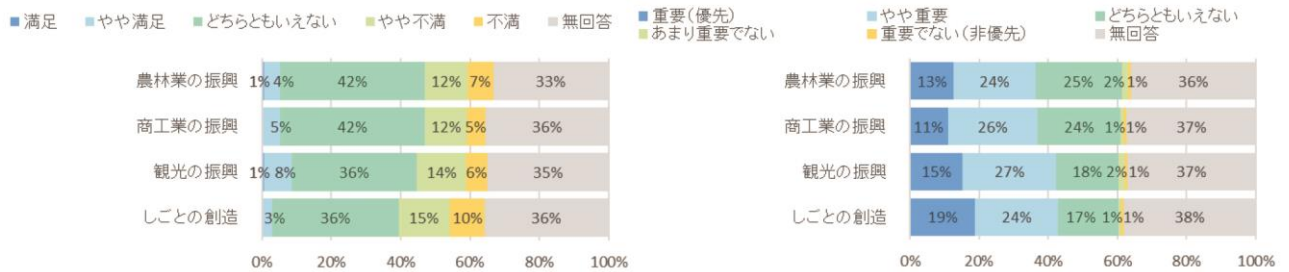


《「総合計画」に基づき進めてきたまちづくりの「満足度」と、これからの「重要度」》

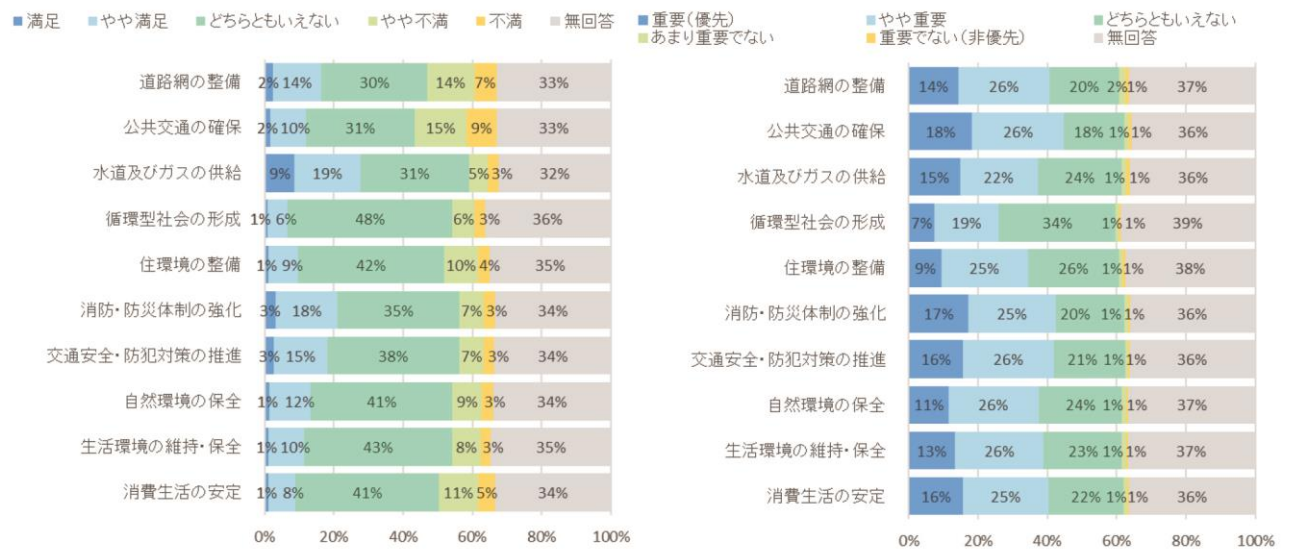
満足度

重要度

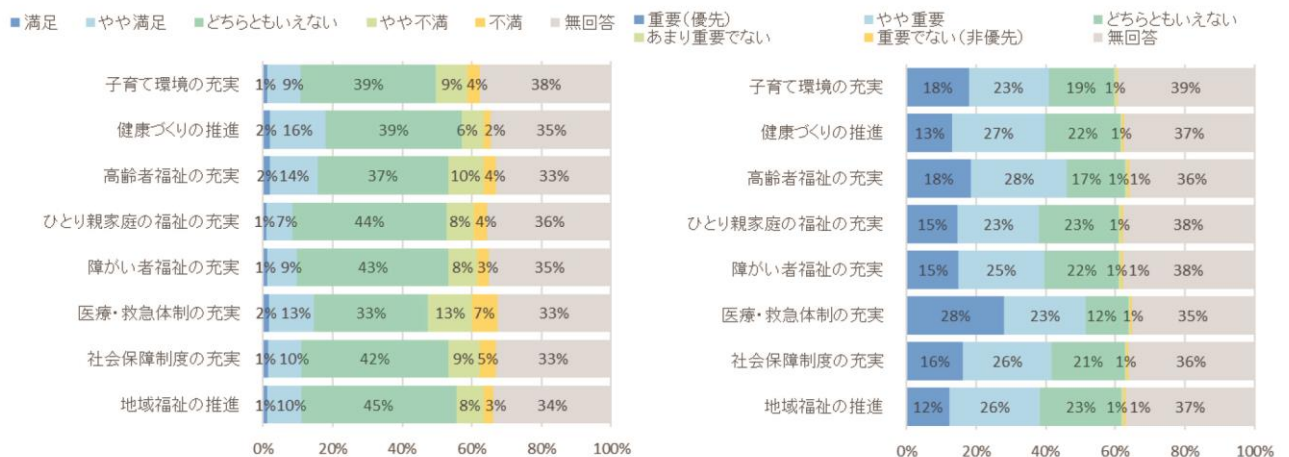
◆産業・経済の振興について



◆生活・防災の向上について



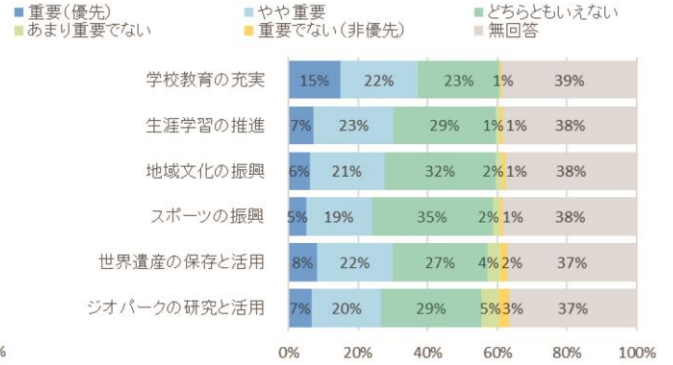
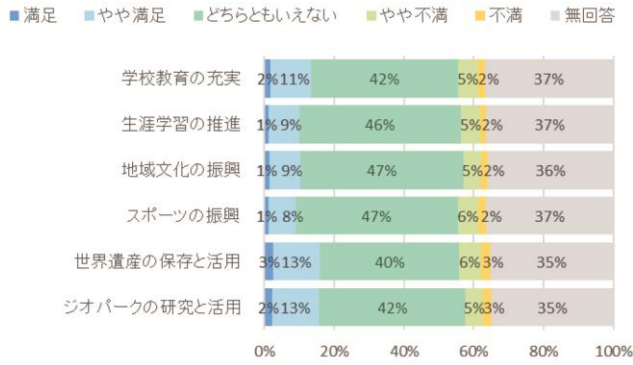
◆健康・福祉の充実について



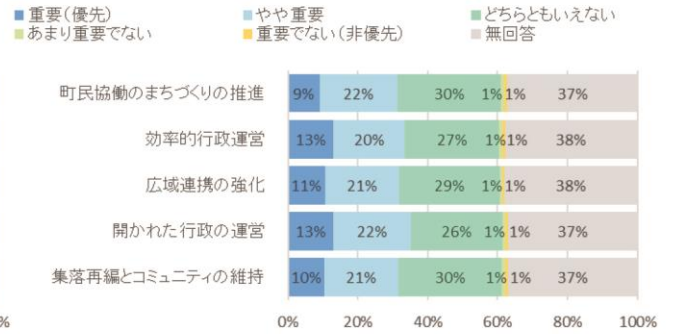
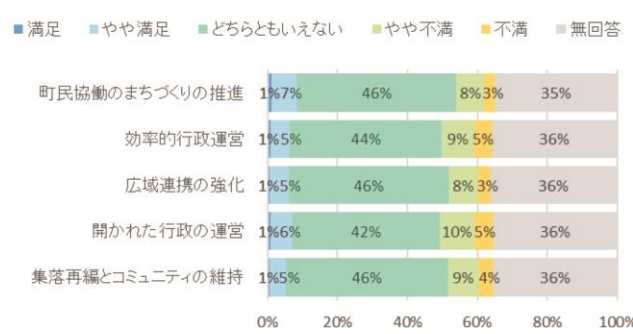
満足度

重要度

◆教育・文化の高揚について



◆町民協働・行政運営効率化について



◆その他 ご意見・ご要望◆

《主な意見・要望》

《町政について》

- ・役場職員は町内に住むべき
- ・役場職員の挨拶を徹底、迅速な対応をしてほしい
- ・町会議員、役場職員の削減
- ・役場職員や町会議員の意識改善等してほしい
- ・どの部門でも職員が対応できるよう人材育成
- ・役場職員は夫婦で勤めている場合、どちらか一人にするべき
- ・班長、組長、区長等の負担軽減
- ・役員の担い手がいないため、行政区の再編
- ・近隣市町村と合併し行政の再構成をしてほしい
- ・役場で手続等困難な場合、自宅訪問等で手続きできる仕組みを整えてほしい
- ・姉妹都市の提携
- ・固定資産税等税金を下げしてほしい
- ・節税、行政の健全化
- ・具体的な施策・目標を掲げて実施してほしい
- ・町内業者を積極的に利用してほしい
- ・町所有の土地、施設の有効活用

《行政サービス》

- ・下仁田厚生病院の医師の確保、質の向上
- ・救急医療を含む医療体制の改善をして欲しい
- ・町営バス運転手の対応を改善してほしい
- ・国道 254 号の騒音等対策
- ・道路の整備、歩道の草刈りをしてほしい
- ・ゴミ出しの回数を増やしてほしい(可燃ごみ)
- ・回収用ごみ袋の値段を下げしてほしい
- ・公共交通機関等の充実
- ・水道料金等外注費の見直し
- ・高崎市の図書館と利用協定を結んでほしい
- ・町営住宅が空いているときは収入に関わらず貸してほしい

《子育て支援・人口減少対策》

- ・小中学校の一貫校・英語・IT の特区・専門校の設置
- ・町営の学童保育施設が欲しい
- ・教育・保育環境を整えてほしい
- ・かるがも広場を日曜日も開放してほしい
- ・公園を作してほしい
- ・通学路の整備、確保
- ・単身者用のアパート・マンションを作してほしい
- ・住宅地等の整備

《高齢化対策》

- ・福祉の充実、検診時の送迎をしてほしい
- ・タクシー券を増やしてほしい
- ・民生委員の人数を増やしてほしい
- ・高齢者等に対する見守り、相談に乗ってほしい
- ・高齢者に対する健康推進力の強化、またその実施
- ・高齢者集合住宅の計画があるなら詳細を知りたい

《観光・町活性化》

- ・観光等の強化、観光地のピーアール
- ・道の駅でのイベントを企画してほしい
- ・道の駅の入り口を2か所にしてほしい
- ・廃校等を再利用してほしい
- ・下仁田駅周辺の再開発
- ・飲食店等の後継者不足の解消
- ・雇用の創出、企業誘致
- ・空き家を利用したシェアハウスを検討してほしい
- ・大学生等の合宿所等の誘致、設置
- ・休日等に利用できる娯楽施設、スポーツ施設等が欲しい
- ・荒船の湯の営業について考えてほしい
- ・登山道の整備

《農林・産業》

- ・耕作放棄地を整備し、活用してほしい
- ・有害鳥獣対策の強化、補助制度の拡充
- ・森林整備
- ・地場産業の振興
- ・地産地消の推進

《防災・安全》

- ・災害対策等の強化
- ・河川整備の充実を図ってもらいたい
- ・防災無線をもっと各家庭の中でわかるようにしてほしい
- ・防犯パトロールに青パトの活用をお願いしたい
- ・空き家の解体費用補助額を増やしてほしい
- ・街灯を増やしてほしい

《景観》

- ・メイン通りの電柱の地中化
- ・大正・昭和初期のレトロ感の創出
- ・景観豊かな自然の町にしてほしい

《アンケートについて》

- ・アンケートの簡素化、質問事項が見にくい
- ・アンケートの集計結果を公表してほしい
- ・このアンケートがちゃんと活用されることを希望する

APPENDIX E

田島 亀夫 殿
文化庁長官 宮田 亮平 殿
群馬県知事 大澤 正明 殿
群馬県教育長 笠原 寛 殿
群馬県議会議長 織田沢 俊幸 殿
埼玉県知事 上田 清司 殿
埼玉県教育長 小松 弥生 殿
埼玉県議会議長 小林 哲也 殿
伊勢崎市市長 五十嵐 清隆 殿
伊勢崎市教育長 徳江 基行 殿
伊勢崎市議会議長 田島 勉 殿
深谷市長 小島 進 殿
深谷市教育長 小柳 光春 殿
深谷市議会議長 吉田 幸太郎 殿
本庄市長 吉田 信解 殿
本庄市教育長 勝山 勉 殿
本庄市議会議長 小林 猛 殿

一般社団法人 日本建築学会関東支部
支部長 井上 勝夫

田島亀夫家蚕室の保存活用に関する要望書

拝啓 時下ますます御清祥のこととお慶び申し上げます。

平素より、本会の活動につきましてご理解とご協力を賜り、厚く御礼申し上げます。

さて、伊勢崎市と本庄市にまたがって所在する田島亀夫家住宅は、四件隣の世界遺産・田島弥平旧宅（群馬県伊勢崎市境島村）とともに、幕末から明治初期における当地域の蚕種製造業隆盛を示す貴重な文化遺産です。しかし、上毛新聞 2017（平成 29）年 6 月 27 日の報道によると、田島亀夫家蚕室は現在取り壊しの危機に直面していると聞き及んでおります。

田島亀夫家住宅は、1868（明治元）年建築とされる 2 階建て主屋をはじめ、2 階建て蚕室、土蔵 2 棟、表門、井戸上屋、屋敷神、西面の防風・日除林、背面の洪水除け石垣、など島村における大規模蚕種製造者屋敷を良く留める存在として知られています。特に、南

側から屋敷を眺望した場合、蚕室と主屋の大きな瓦屋根建築が雁行して並び建ち、その屋頂に換気用の越屋根（通称「櫓」）をかかげる姿は、大型蚕種製造建築が多数現存する島村において随一の景観を誇ります。

蚕室の明確な建築年代は不明ですが、明治末から大正初期頃と推定され、1階は貯桑場、2階が蚕室でした。蚕室の利用形態は、昭和40年代の養蚕廃業後に倉庫として利用されてきましたが、基本的な規模・構造・意匠を良く留め、蚕種製造家の蚕室実態を把握することは十分可能です。そうした専門的な評価は別紙見解に示したとおりです。つまり田島亀夫家蚕室は、専用蚕室の良好な遺構が少ない島村において、年代や機能において世界遺産・田島弥平旧宅の桑場(上階は蚕室)の研究を進める上で不可欠な存在です。

このように田島亀夫家蚕室は、幕末から近代における我が国の蚕種製造業を考える上で重要な存在です。しかし、屋敷地が群馬県と埼玉県の間境にあり、蚕室や主屋は埼玉県本庄市側に所在するため、群馬県側からは文化財保護施策対象と認識されていません。また、埼玉県側からも「自県の文化遺産」との積極的姿勢は感じられません。このような県境の悲哀は島村では少なくありません。

一方、田島弥平旧宅の世界遺産登録に伴うバッファゾーン設定には、田島亀夫家住宅はじめ埼玉県境に所在する屋敷数件も含まれています。また、伊勢崎市・本庄市・深谷市は、田島弥平旧宅の世界遺産登録を契機として三市間の行政連絡会議を行ったり、絹文化や郷土の偉人顕彰を通じた観光連携を試行したり、地域の歴史的資産を行政の枠を超えて活かす試みも芽生えています。

貴下におかれましては、この貴重な建物と敷地の持つ文化的意義と歴史的価値についてあらためてご確認いただき、田島亀夫家蚕室の保存問題を契機として、県境を横断した行政連携による「文化遺産保存活用を核とした魅力ある地域づくり創出」について、格別のご配慮を賜りたくお願い申し上げます。

なお、日本建築学会関東支部といたしましては、この建物の保存活用に関して、学術的観点からのご相談をお受けいたします。

敬具

田島亀夫家蚕室についての見解

一般社団法人 日本建築学会関東支部
歴史意匠専門研究委員会
主査 海老澤 模奈人

1. 建物の概要

群馬県伊勢崎市島村は、利根川中流域の氾濫原と冬の季節風という厳しい立地条件を、良質な桑生産に活かし江戸時代後期以降蚕種製造を様々に試み、幕末に至り国内蚕種製造の一大産地の地位を築く。その過程において、栗原家や田島家などの篤農を中心に養蚕理論・実践の研鑽が進み、2階建て・棧瓦葺きで屋頂に越屋根形式の換気装置を持つ大規模蚕種製造建築を創出した。なかでも1872(明治5)年に『養蚕新論』を著して清涼育理論と上記蚕種製造建築の創出に貢献した田島弥平の旧宅は、現在国指定史跡・世界遺産として保存公開されている。

田島亀夫家は田島弥平家の同族で屋敷も近接し、田島亀夫(現当主)が8代目という。かつて「有隣館」(田島平内)の屋号で蚕種業を営み、販路は東京・茨城であった。

屋敷は南・西・北の3面を道で区画した矩形敷地で南面する。南面の道は前方が広大な畑に連なり、畑から望む屋敷景観は壮大である。南面道から6mほど下がった中央東寄りに薬医門形式の表門を構え、表門東脇に2階建て蚕室(マエノウチ)が北面して建ち、表門西は生垣で区切る。屋敷中央に2階建て主屋を南面して構え、主屋西に離れが南面して接続し、主屋西北隅に文庫蔵が東面する。主屋背面西寄りに井戸上屋があり、文庫蔵後方西寄りに乾蔵跡が残り、屋敷西北隅は鳥居を構えて屋敷神を祀る。一方、主屋東は屋敷境界に沿って穀蔵と便所が建つ。また主屋東北隅は大型の物置が建つ。主屋前方の空地(オモチニワ)は作業場で、屋敷西南隅は植栽が手入れされた庭となり生垣で囲い、西面生垣は南面よりずっと高く構え、防風・日除けの役割も果たす。主屋は明治元年頃の建築と推定され、離れは昭和14年の建築と伝える。

蚕室は、6尺2寸を1間として桁行6間・梁行3間の切妻造り・棧瓦葺き屋根の2階建てで北面し、北面に巾1間の棧瓦葺き下屋を設け土庇とする。屋頂に切妻造棧瓦葺きの換気用越屋根(通称「櫓」)を2基備え、「2つ櫓」蚕室として親しまれている。建築年代は明らかでないが、現当主によると明治末から大正初期頃ではないかという。柱は2階建て主体部を4寸角柱で土台建てとし貫・天井梁・軒桁・小屋梁で繋ぎ、下屋柱は3.8寸角で東石上に建ち柱頂は軒桁で繋ぎ主体部から繋ぎ梁を架す。

現状の蚕室1階はコンクリート土間の単室で、北面と東面に出入口を設け、天井は2階床をそのまま現した根太天井とし、正面中央東寄りに昇降口を設け、昇降口の西側は半間巾の棚を設ける。ただし桁行6間の中央に間仕切痕(天井梁に付鴨居)があり、東西2分して板戸で仕切り、東を貯桑場、西を桑もぎ場としていた時期が認められ、貯桑場天井は亜鉛引き鉄板で覆っている。またその当時の昇降口は西半部に存在した。2箇所出入口は北面東寄りと東側面西寄りにそれぞれ間口1.5間巾で設け、南面に間口各1間巾の窓を2箇所設ける。それ以外は土塗り真壁で、外部は北面を腰板壁、西面を見下ろす板壁(2階まで)、南面と東面を波形鉄板(2階まで)で養生する。現状の北面出入口は、本来間口1間で指鴨居と土台に付敷鴨居を取り付けて大戸内引きとしていたが、昭和35年頃間口を西側に半間拵げて内法を鉄骨で補強し両開きの鉄扉を釣り込んだ。屋内に耕運機が入れるようにしたものである。本来の木製大戸は下屋の間仕切りに利用している。また、東側面出入口(シャッター)は、倉庫利用をはじめた昭和50年代に設置したもので、本来は土壁だった。外部の波形鉄板養生もこの時に行った。窓は鉄格子の内側にガラス障子引き違いとした形式で、現当主(83才)の記憶では変更はないという。また、正面西側に設けた棚も倉庫利用後の設置である。このように1階平面は出入口

の改造・増設が認められ、本来は北面西端から半間位置に間口1間の大戸片引き出入口を有していた。窓は変更がないらしい。また、昇降口は現在の位置よりも2間西寄りに設けていた。床は当初からコンクリート土間のようなものである。すなわち、建築当初は1階が貯桑場（当初から貯桑場と桑葉もぎ場に2分したか否かは不明）で、出入口は北面西寄りに柱間1間巾で設け、南面に1間巾の窓2箇所を設け、それ以外の柱間は半間間隔で密に設け土塗り真壁としていた。また、昇降口は比較的出入口に近い西半部の窓脇に設けていた。その後、昭和50年代に倉庫利用に転じた際に東側面のうち1.5間分を出入口としシャッターを設け、昇降口は本来より2間東へ移動させた。

2階は単室で、床は板張とし、天井は桁行方向に根太を配して簀子板を粗く配する。柱間装置は、南面の中央4間分と東側面の中央2間分を同規模の肘掛窓とし外雨戸を備える。また、北面中央4間分は窓として外雨戸を備え、窓下は土塗り真壁を挟んで掃き出し窓を設ける。それ以外の柱間は半間間隔で柱を密に配して土塗り真壁とする。なお、北面において窓と掃き出し窓の間に土壁部が存在するのは、外側に下屋屋根が取り付けられているためである。聞き取りによると、2階は蚕の上蔭（ジョウゾク：蚕に繭を作る場所を与える作業）のために用いたといい、第2次世界大戦中は島村に東芝工場が疎開してきた際の従業員居住用に提供（2家族使用）し、戦後は40年頃まで上蔭室として利用し、その後倉庫とした。すなわち、南・東・北の3面に大きな開口を設けた単室で、屋根に2つ檜を備え、天井は粗い簀の子天井を設けるが密閉した形跡がなく、北面に掃き出し窓を設ける、など積極的に換気を行う清涼育理論に合致した形式である。掃き出しと雨戸以外の建具は現在失われているが、明かり障子引き違いであった。島村地区では主屋の2階全体を蚕室にする事例が多く、その多くが単室における3面開口と檜による積極的換気を指向し、明治中期までに開口を拡げて肘掛窓から手摺付の掃き出しに変化する傾向を持ち、清涼育理論によって蚕室が変化発展する経緯を見ることができる。その一方、明治中期以後は島村の蚕種製造家主屋の2階は、空間を分割して天井を設け、温度管理にも配慮する折衷育への変化が認められる。そうした中で自家の蚕室が、明治前半期までの島村蚕種製造家主屋の2階蚕室と同様な形式を留める点は注目される。蚕室の形式からいえば、明治中期頃まで島村で一般的だった清涼育用蚕室なので、建築年代はそれより遡ると考えるべきかもしれないが、上蔭用に特化した建築故に（時期的に温度管理に配慮することなく）、清涼育理論通りの形式を採用したと考えれば、時代的矛盾は生じない。

小屋組は、南面および北面の柱頂を軒桁で繋ぎ、軒桁間に柱間1間毎に小屋組を架け渡す。この小屋梁は両端を軒桁位置よりも指し延ばして出梁形式とし、先端に出桁を受け小天井を設けた「せがい造（出桁造形式の軒）」を構成する。一方、桁行は出梁上に1間間隔で2通り桁行梁を架け渡し、この上に小屋束を立てて2重梁を受ける。小屋束は、前記のほかに出梁上に半間間隔に立て、母屋桁あるいは2重梁を受ける。小屋貫は存在しない。2重梁上は中央に地棟梁を架け渡すとともに、4尺巾で檜（越屋根）用の小屋束を立て、この小屋束に本屋根の垂木掛を取り付ける。4尺×6尺の檜（越屋根）2基は、いずれも南面と北面に引き違い板戸を設け換気に備える。屋根垂木は1間6割（約1.03尺）で螻端は3枝目を破風板で見切る。屋根は檜（越屋根）とともに切妻造・棧瓦葺きとし、下屋屋根も含めて屋根端部は丸瓦を2筋伏せ、大棟は平瓦による青海波積棟とし、檜の棟は熨斗積棟とする。屋根は昭和35-40年頃に全面葺き替えを行っているが、基本的に瓦は再利用しているようで、小屋組には改造形跡は認められない。

2. 歴史的価値

田島亀夫家蚕室は、瓦葺き2階建ての「2つ檜（換気用越屋根）」を設けた建築で、北面に土庇を設け、1階は貯桑場、2階は蚕室であった。1階の開口部、内部間仕切り、天井鉄板覆い、昇降口移設、外壁一部の鉄板養生、など改装部分も認められるが、基本的に建築当初の規模を留める。特に2階は一時居室に用いたというが、ほぼ当初の状態を留めている。明治末～大正頃という建築年代は、1階西半の旧コンクリート土間が当初と考える上で説得力があり、貯桑場機能（桑葉の乾燥防止のため撒

水する) 向上の古例として注目される。また、2階蚕室が島村の清涼育用蚕室の形式を良く留める点は、上蔭室として特化した存在を考えれば納得できる。そしてこのことは、世界遺産の田島弥平旧宅桑場(1階を貯桑場、2階を蚕室とする「2つ櫓」の棧瓦葺き2階建て建築で、明治27年頃の建築と考えられている)に関する調査研究を深化させる上で貴重な比較研究対象であることを意味する。

以上と1.建物の概要で述べた建築概要もふまえて田島亀夫家蚕室の歴史的価値をまとめると以下のようになる。

- 1) 建築当初の形式が容易に把握できるので、島村における清涼育展開の実態を知る上で貴重な存在である。島村の蚕種製造は主屋2階に設けた巨大な蚕室主体と考えられるが、附属屋としての専用蚕室において上蔭に特化した工程が展開していたかもしれない点、それ故に清涼育用に工夫された形式が折衷移行後も持続する点、などたいへん注目すべきである。
- 2) 上記の観点を含めて、田島弥平旧宅桑場との比較研究対象としてきわめて重要である。特に貯桑場とその上階における蚕室の役割解明は今後の重要な課題である。また、群馬県における独立した蚕室の遺構や調査研究事例が少ないことから見ても貴重な存在である。
- 3) 田島亀夫家は、島村の有力な蚕種製造家として屋敷内建築をほぼ留めている点で重要である。その中のひとつとして蚕室は存在意義が高い。
- 4) 柱間寸法は6.2尺を基準としている。この事実は島村における蚕種製造建築調査実績に照らし合わせると幕末以後の標準寸法といえる。ただし群馬県下の同時代建築は柱間6尺が標準であり、6.2尺という寸法は島村の蚕種製造建築の特徴を示すものである。

なお、田島亀夫家屋敷を南側から遠望したときに、正面右手に蚕室(2つ櫓の2階建て建築)、その左手奥に主屋(3つ櫓の2階建て建築)が並び建つ景観は、島村の代表的景観として広く知られている。

3. まとめ・総合的価値

以上田島亀夫家蚕室は、島村における附属屋としての蚕室の実態解明が途上である現在、田島弥平旧宅桑場とともに民家建築史上・産業技術史上において重要である。しかもその外観は、屋敷内建築群が充実している中であって正面構えの要として不可欠の存在でもある。さらに、島村の集落景観全体を俯瞰した場合、蚕種製造建築群としての価値を端的に示す存在としてもきわめて価値が高い。



屋敷正面をみる(右が蚕室、中央が主屋で主屋前に表門が建つ)。写真左端は田島昭次家主屋

撮影はすべて大野敏



屋敷東側の外便所・穀蔵・蚕室



屋敷背面 種蔵跡・井戸上屋・主屋・文庫蔵・屋敷神



蚕室南面・東側面全景 東側面のシャッターは後設



蚕室北面・西側面全景



蚕室北面下屋の仮設間仕切り転用の旧大戸



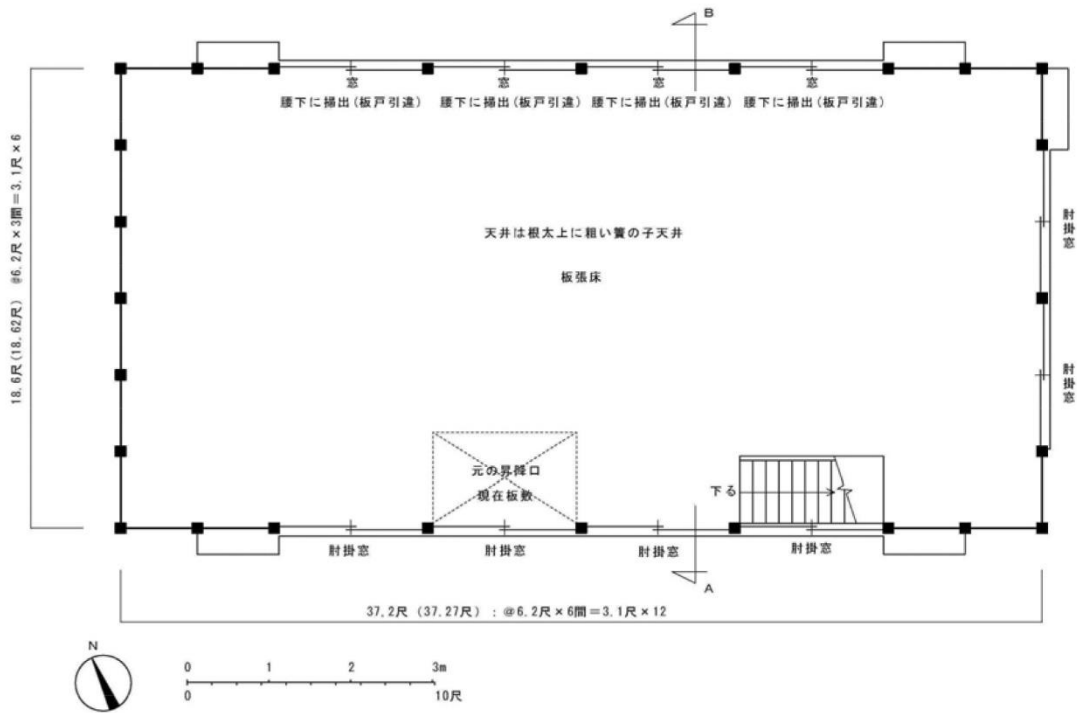
蚕室1階 東から西方を見る



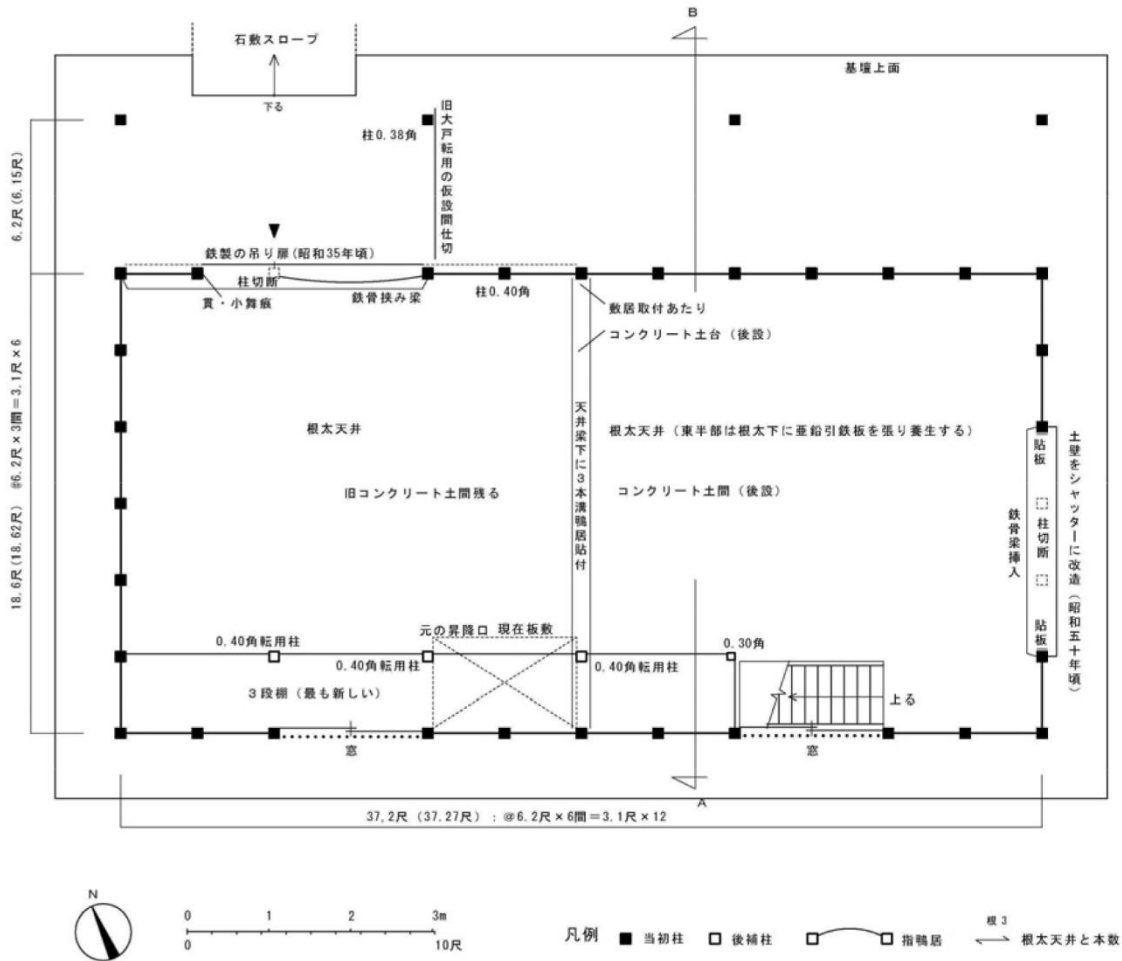
蚕室2階内部 東から西を見る



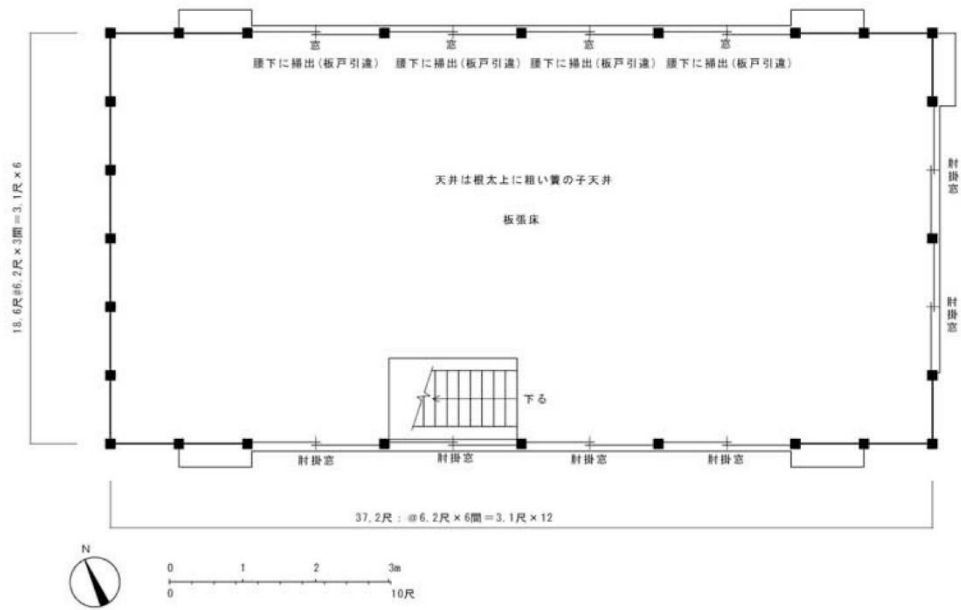
蚕室2階小屋組



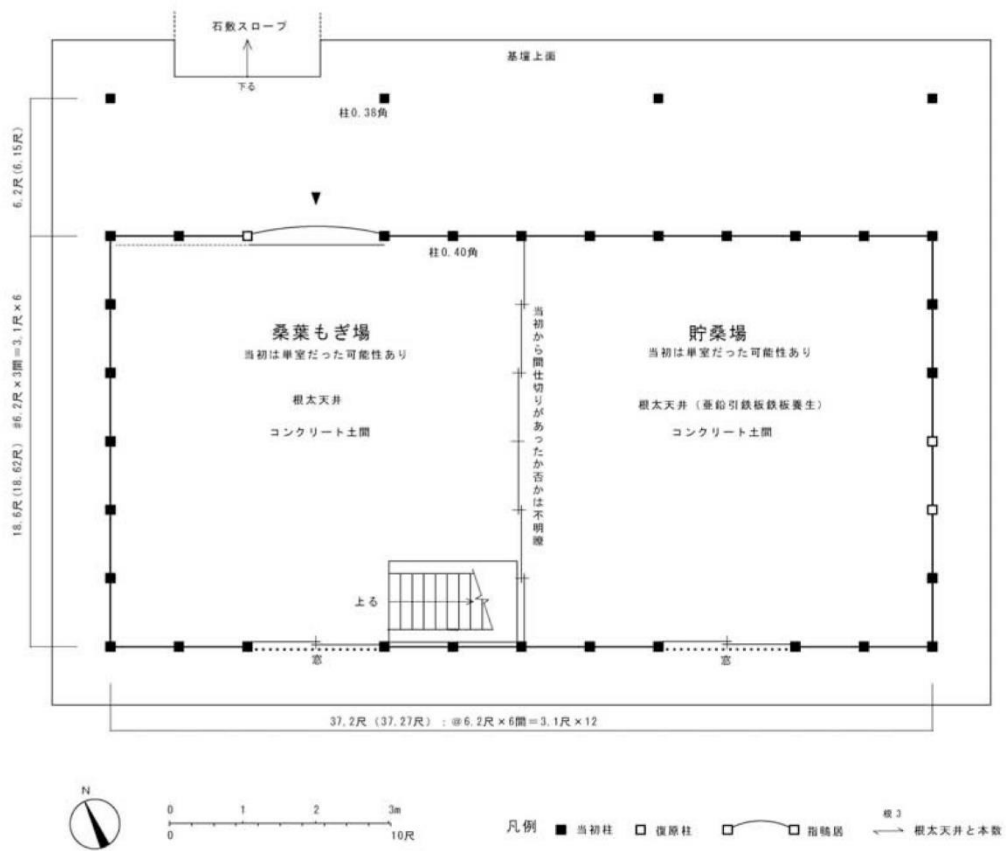
田島亀夫家蚕室 2階現状平面図 調査・作図 横浜国立大学 大野敏



田島亀夫家蚕室 1階現状平面図 寸法は原則として計画尺で記し、実測値は()に記す 調査・作図 横浜国立大学 大野敏

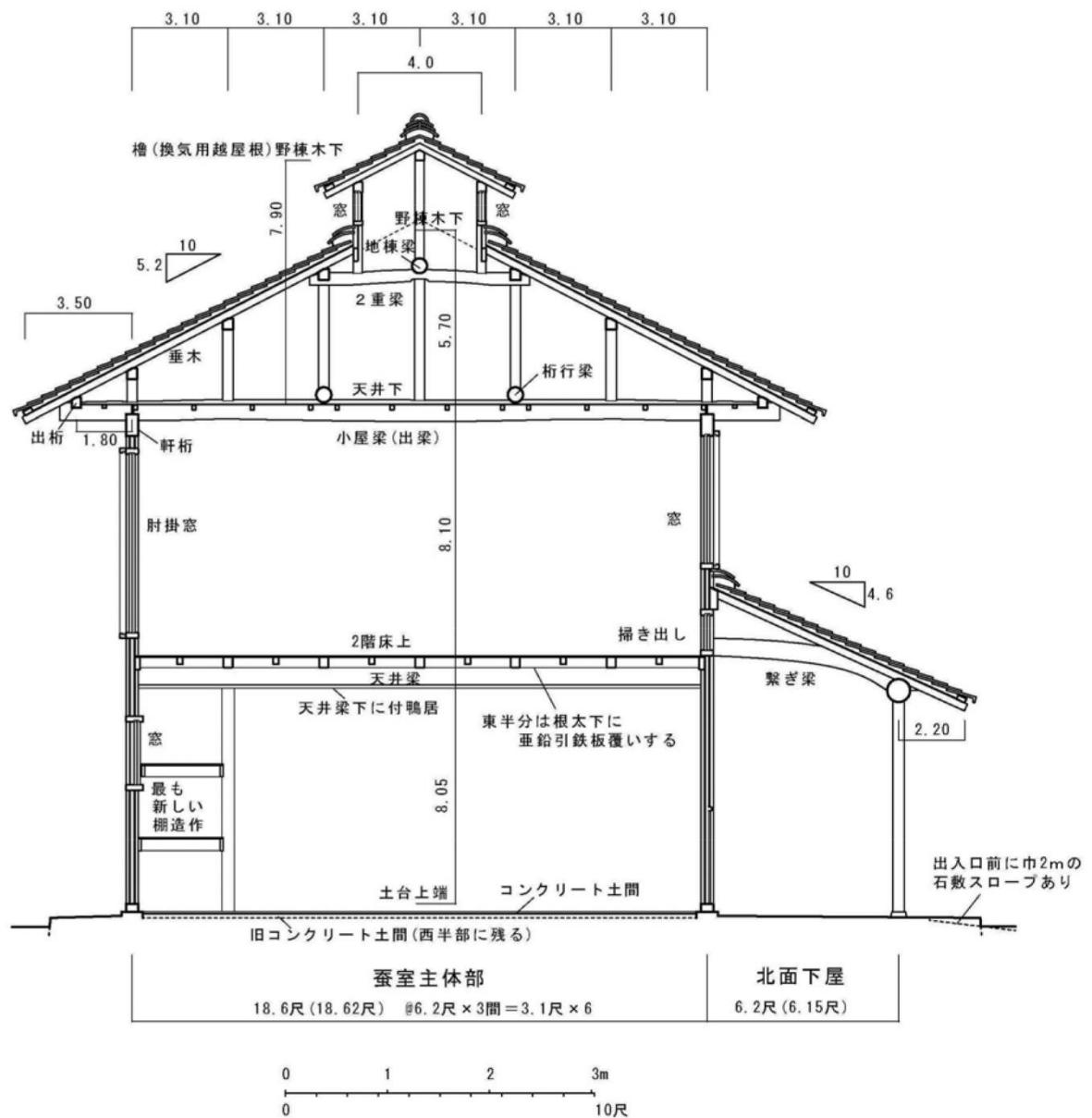


田島亀夫家蚕室 2階復原平面図 調査:作岡 横浜国立大学 大野敏



田島亀夫家蚕室 1階復原平面図 寸法は原則として計画尺で記し、実測値は () に記す 調査:作岡 横浜国立大学 大野敏

凡例 ■ 当初柱 □ 復原柱 □ 指輪居 ← 根太天井と本数



田島亀夫家蚕室 現状梁行断面図 (A-B) 調査: 作図 横浜国立大学 大野敏
寸法は原則として計画尺で記し、実測値は () に記す

APPENDIX F



伊 広 第 171 号
平成29年9月27日

一般社団法人 日本建築学会関東支部
支部長 井上 勝夫 様

伊勢崎市長 五十嵐 清 隆
(企画部広報課報道広聴係)



日頃より、市政全般にわたり、ご協力を賜り、厚くお礼申し上げます。
さて、貴台から申し出のありました「田島亀夫家蚕室の保存活用に関する要望書」につきまして、別紙のとおりお答えいたします。
今後とも市民に愛される市政実現のため、努力したいと存じますので、よろしくお願ひ申し上げます。

(別紙)

【回答】

平成29年8月16日付けで伊勢崎市長及び伊勢崎市教育長あてに田島亀夫家蚕室の保存活用に関する御要望をいただきましたが、伊勢崎市又は伊勢崎市教育委員会が、これを保存活用する計画はございません。

APPENDIX G

横浜国立大学 都市イノベーション学府

2019年 AT スタジオ課題

「島村蚕種製造民家 資料作成」

金井義明家主屋および呑山楼

2019年6月22日・23日

担当

大野敏・守田正志・チェンスイイ

参考文献

『島村のたてもの』（2011年 伊勢崎市教育委員会）

『島村（伊勢崎市）蚕種製造民家群』（2016年11月）

※主屋および呑山楼は『島村のたてもの』における調査が十分でなく、部分的に不明箇所があるため、今回の演習で補足調査を行い、資料を整える。

5. 所見 金井義明家主屋および吞山楼

金井義明家は、新野地区における金井家の本家である。幕末の南画家・金井鳥洲(1796-1857)やその子・之丞(書家・貴族院議員1832-1907)を輩出した家として名高い。鳥洲の父は養蚕で財を成した豪農・金井萬戸であるが、当家は蚕種業を専門としてはいなかった。

屋敷の立地と構成

屋敷は新野地区の西南寄りに位置し、敷地西北隅に主屋が南面して建ち、主屋東隣に鳥洲のアトリエと伝える吞山楼が所在する。金井一族は前島から新野へ移転したと伝えており、本家である当家は明治元年(1868)に新野移転と伝える。その移転に際し、先に移転していた分家の金井ナホ家(義明家の東隣に立地する)に、本家主屋が完成するまでのあいだ家財道具を預かってもらったという伝承がある。また、主屋の東に建つ2階建の吞山楼は、鳥洲のアトリエを前島から解体移築したと伝える。

確かに当家および周辺の敷地割は、新野地区の開拓者である栗原茂之家や栗原利成家付近の敷地割とは軸線が異なるので、新しい地区割と考えられる。

当家主屋の建築年代は明確でなく、伝承が正しければ明治元年頃の建築といえるが、家屋台帳は明治17年(1884)とする。

主屋の建築概要

主屋は、柱間1間を6.22尺として桁行7間・梁間4.5間の切妻造・瓦葺・2つ檼付の総2階建を主体とし、正背面と東側面に下屋を設ける。基礎は金井ナホ家ほど高くは構えない。

主屋の平面

1階平面は4間取を基本とし、居室部背面には主体部入側と下屋を一体化した空間を2室加え、土間側背面も同様に1室加える。東面下屋は幅1間にとり、南端から洋間、便所、浴室、洗面、台所として利用する。正面の下屋は幅3.5尺を確保し、居室部は内縁とし、上間部は出入前を土庇、東端部は洋間に取り込む。

主体部の土間側はかつてダイドコと呼ばれ、前端部の床形式と居室境の小縁に土間時代の名残を留める。後半部と下屋部分は現代住宅としての改装が認められ、2階への昇降階段は後半部北端に設けているが、本来の昇降階段は小縁南端であろう。ダイドコ周囲は太い柱が目立つが、特に大黒柱は太い檜材を用いており見事である(太さなど要確認)。また大黒柱は土間側に芯をずらして居室側の畳のおさまりに配慮する。なお、ダイドコの天井は全面にわたって本来の根太天井を留めており、大黒柱とともに力強い空間を伝えている。

東側面下屋の前端部は馬小屋と伝え、島村で内馬屋が確認できる珍しい事例である。後半部分は便所や台所に改装されている。

下屋の天井は内装により不明であるが、繋ぎ梁が露出するところから判断すると、化粧屋根裏だったとおもわれる。

下列前室と後室はともに2間4方で、4周を指鴨居で固め、天井も同形式の根太天井とする。下列前室は土間寄り付きの部屋で、日常の接客や上列前室の控間として用いる。下列後室は家族の居間

で、西面北端に神棚を祀る。

下列下屋は西面南寄りに仏壇を配し、仏間兼納戸だったと思われる。天井は入側部が板天井で、下屋部が化粧屋根裏である。

上列前室と後室も2間4方で、天井は下列と同高・同形式の根太天井である。ただし前室(オクザシキという呼称でよいか)は西面全体に大床風の造作を設けた座敷で、上列後室は西面南端間に内縁・同北端間に押入を設ける(本来形式か要確認? 半柱のおさまりから見ると西面は全面壁か)。

なお、正面下屋は繋ぎ梁上に2階縁東? 2階柱? を受けているが、本来はこの東? 柱? が1階柱として存在し狭い入側を構成していた可能性がある(近年まで存在したか要確認)。すなわち、同じ新野集落の栗原信博家の当初形式(明治28年ころ)に類似すると思われる。

2階は昇降用に整備された東北隅室をはじめ、東南隅室、下り前室、上列前室の正面側は内装・建具とも現代風に改装された洋間風に整備されており、本来の蚕室の雰囲気は西北隅室でのみ見ることができる。ここでは窓以外は旧状を留め、小屋組を一望できる。なお、内装を整備した各室も、旧柱や小屋梁は旧状をよく留めている。

主屋の架構・軒・小屋組

1階軸組は指鴨居や大井桁を多用し、棟通りから正背面の側柱を直接つなぐ明快な架構を示す。

2階は棟通り柱を上重小屋梁まで伸ばして梁・束による小屋組を形成し、軒は正面側のみ梁先を伸ばして出桁造を形成する。檼の幅は約4.6尺で、比較的小型といえる。

なお、2階の架構を見ると、梁行は本来4間で完結し、背面半間は下屋的に付加していたことがわかる。2階背面が下屋形式となるのは島村では珍しい。また、上重小屋組の束が下重梁の交点からずれて立ち上げる点もおさまりとしては不可解である。柱間寸法が6.22尺とやや長い点を考え合わせると、金井ナホ家のように前身建物の存在が考えられるが、詳細は不明である。

正面庇は縁の手摺位置に柱を建てたもので、出梁下に柱を挿入した形式は明らかに後設で、田島信孝家や津行家の手法に通じる。(昔から存在か?)

主屋の復原考察

主屋は、桁行7間・梁行4間の主体部を持つ2階建を前身として現状の梁行4.5間の規模として成立し、成立初期から1階の背面と東側面には幅1間の下屋を設けていたと考えられる。すなわち、主体部は土間側に広い1室、居室側に4室を確保し、背面は入側を取り込んだ幅1.5間の部屋を3室設ける。また、東側面は幅1間の下屋でその南端に内馬屋を設けていたらしい。正面下屋に関しては、2階縁との関係に留意して解明していく必要があり、現時点では不明としておく。

2階は本来単室の蚕室であったようで、その後間仕切ったようであるが詳細は不明である。ただし西面外壁は柱間に半柱を挿入した全面土壁で塞ぎ、2階開口は現状と同じ3面開口であったことは

5. 所見

金井^{よしあきら}義明^{おもや}家主屋および^{どんざんろう}吞山楼

間違いない。2階正面の縁形式が移転当初まで遡るかは今後の課題である。

主屋の建築年代推定

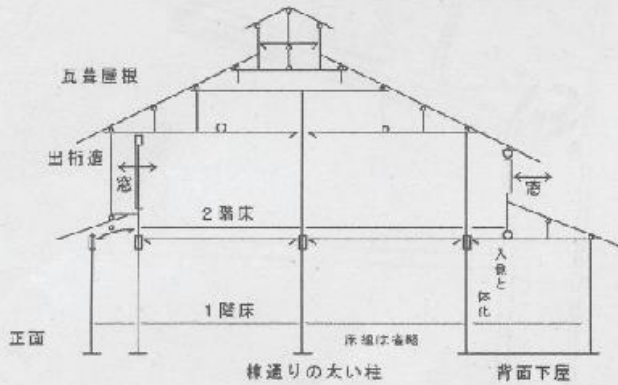
当家の主屋には前身が存在し、移転時にはほぼ現状の規模に整備された可能性が高い。移転時に現形式の原形が成立したとすると、課税台帳が示す明治17年(1884)が妥当と思われる。

一方、前身建物はこれよりも遡ることは間違いなく、柱間寸法から判断すると江戸時代まで遡る可能性は十分あろうが、前身建物については、当家との関係を含めて不明である。明治元年の移転がどのような根拠であるか興味深いのが、今後の課題としたい。

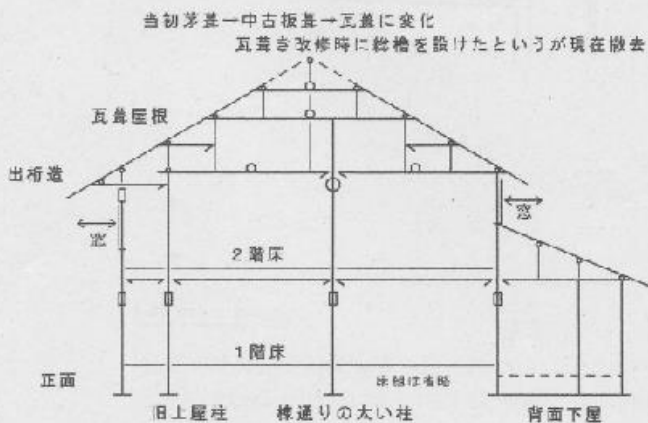
吞山楼の建築

総評

以上、金井義明家主屋は中規模な瓦葺・2つ檜付の総2階建養蚕農家建築の形式を保ちながら、近年の改装により居住性が大幅に向上した。今後の島村の養蚕農家建築のあり方を考えるうえで、橋本敏夫家とともに示唆に富む家として貴重である。



金井義明氏宅主屋断面模式図（土間部屋境）



金井ナホ氏宅主屋断面模式図（土間部屋境）

6. 位置図 金井義明家主屋

出典は地理院地図

地理院地図

1/1 ページ



住所：群馬県伊勢崎市境島村 (行政上の住所。正確な住所を示すとは限りません)
36度14分41.08秒 139度14分47.46秒 36.244745,139.246516 ズーム：18
JTMポイント：54SUF42441252
標高：39.8m (データーソース：DEM5M)

表示種の説明

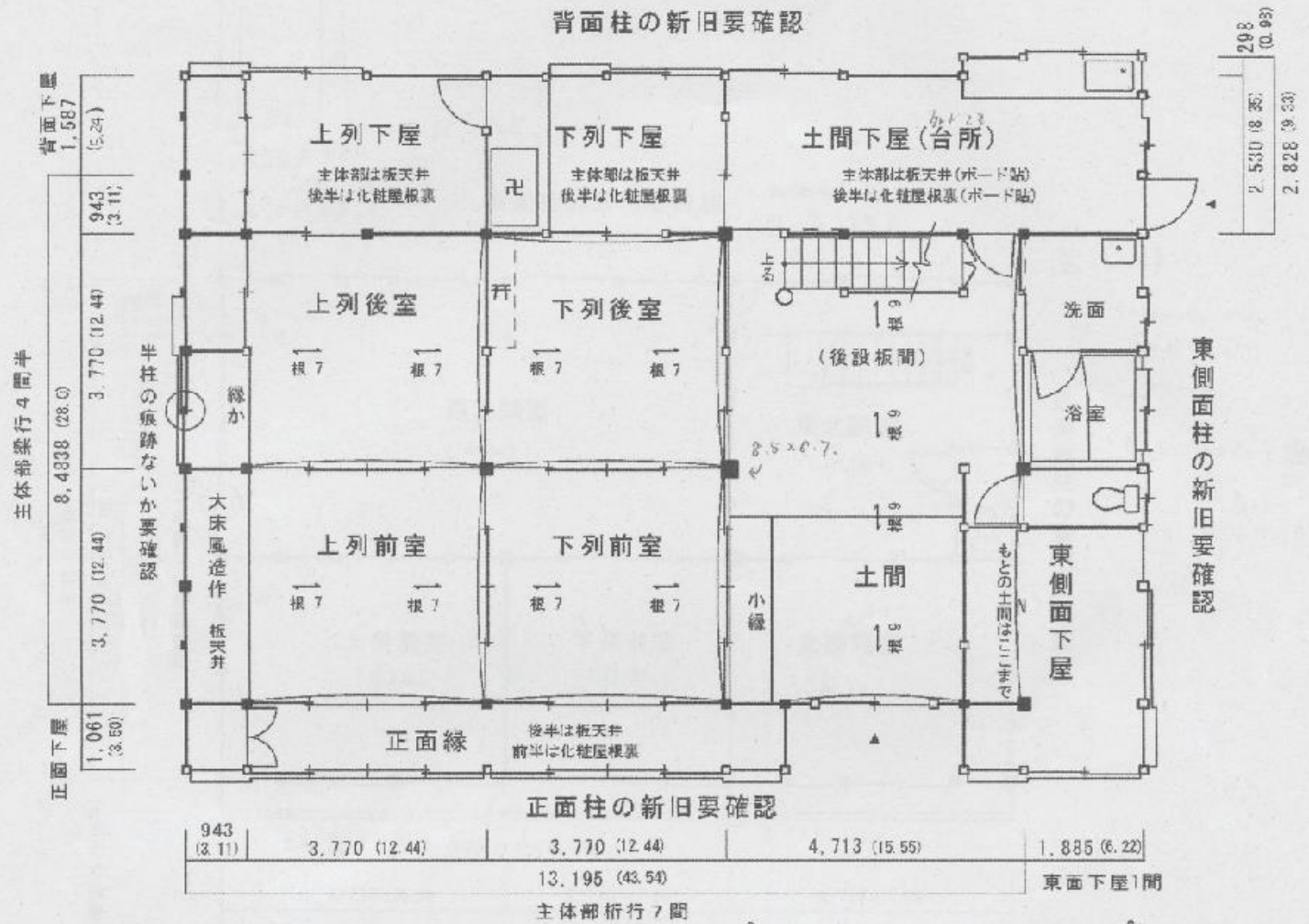
7. 配置図 金井義明家主屋

出典は『島村のたてもの』(2011年 伊勢崎市教育委員会)より



配置図

8-1. 平面図 金井義明家主屋1階平面図



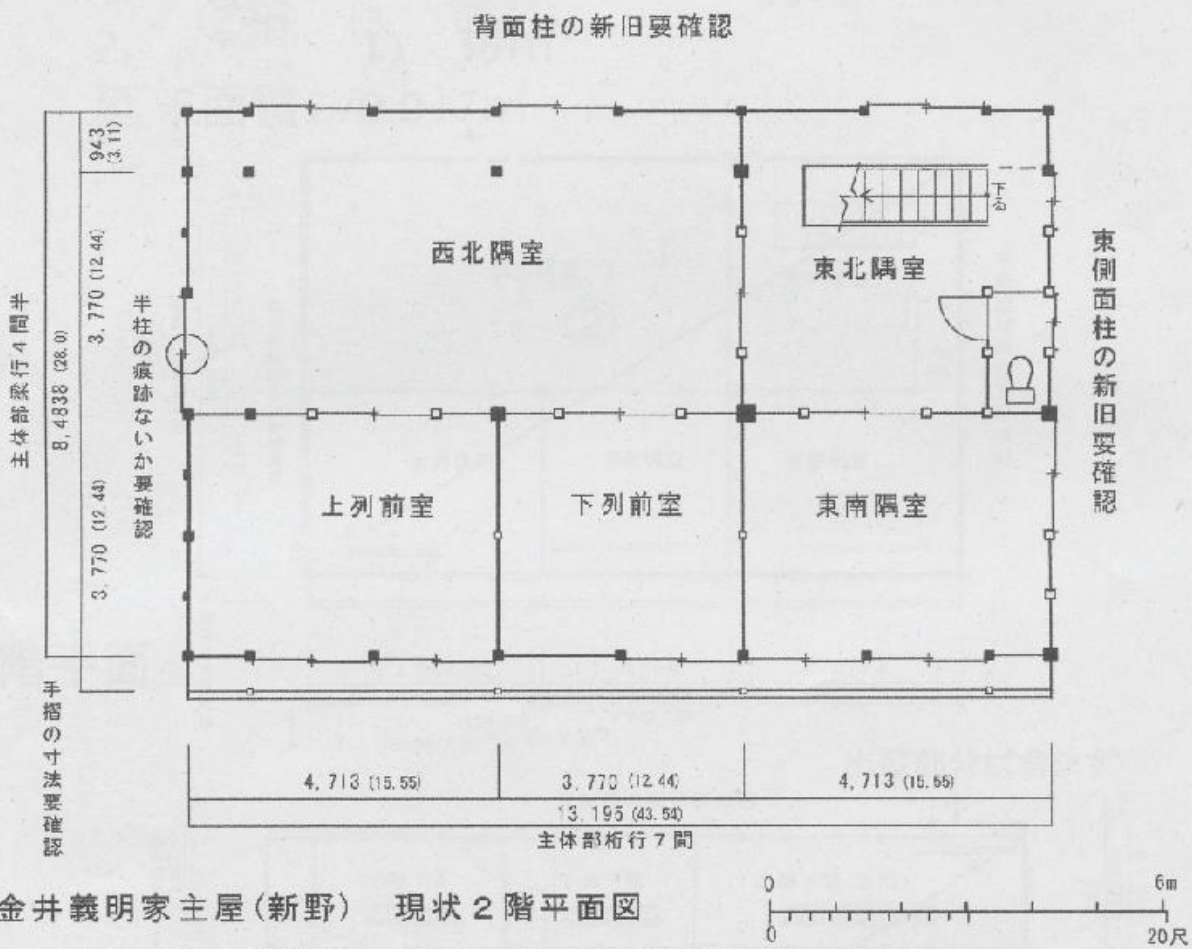
金井義明家主屋(新野) 現状1階平面図

作成:大野敏。室名は仮称。『しまむらの建物』掲載図と実地調査をもとに作成。

寸法は実測値をもとに計画寸法をmm表記し、()に尺表記した。1間は6.22尺=1885mm

凡例 ■当初柱(転用古材含) □後補柱 □指鴨居 根3 根太天井と本数

8-2. 平面図 金井義明家主屋2階平面図



金井義明家主屋(新野) 現状2階平面図

作成:大野敏。室名は仮称。『しまむらの建物』掲載図と実地調査をもとに作成。
寸法は実測値をもとに計画寸法をmm表記し、()に尺表記した。1間は6.22尺=1885mm

凡例 ■当初柱(転用古材合) □後補柱 □指輪居 根 根太天井と本数

9. 求積図および求積表 金井義明家主屋

① 桁行(13.195m + 1.885m) × 梁行(1.061m + 8.483m + 0.943m)
 = 15.08m × 10.487m
 = 158.144m² ※出窓部分は含まず

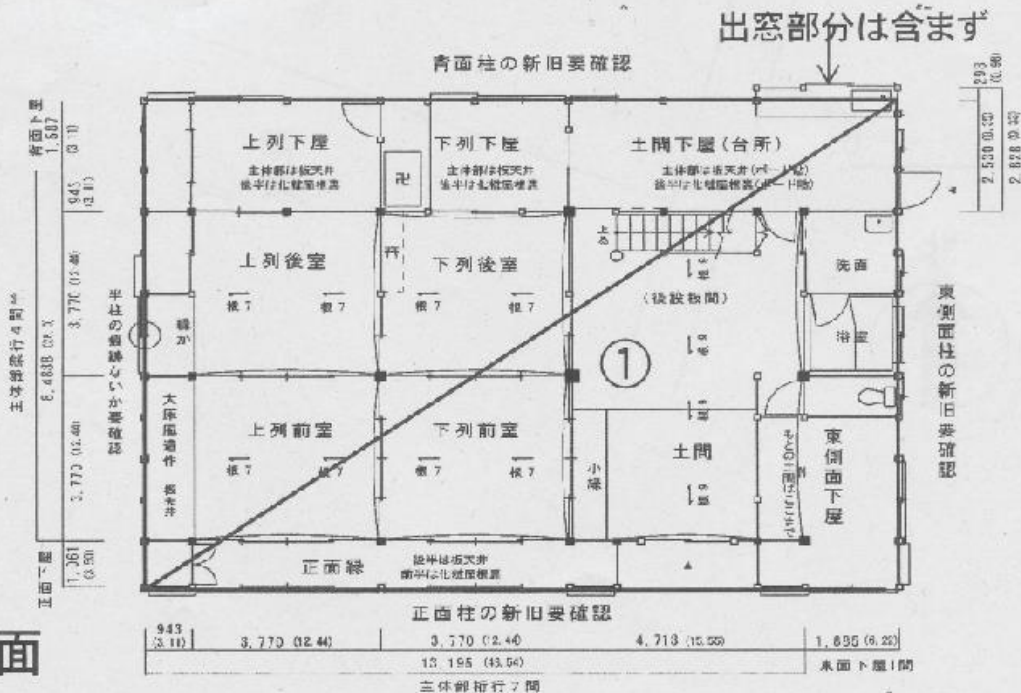
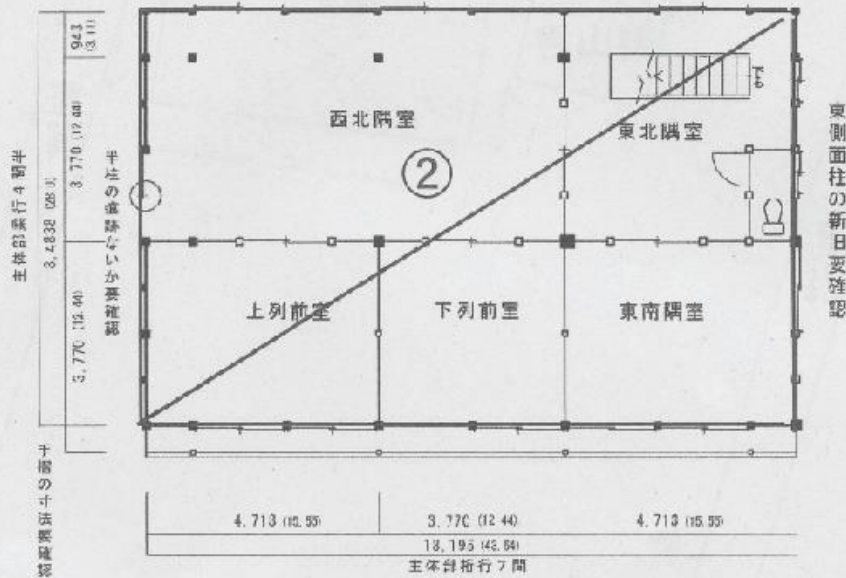
② 桁行13.195m × 梁行8.483m
 = 111.933m² ※手摺縁は含まず

1階平面積 158.144m²

2階平面積 111.938m²

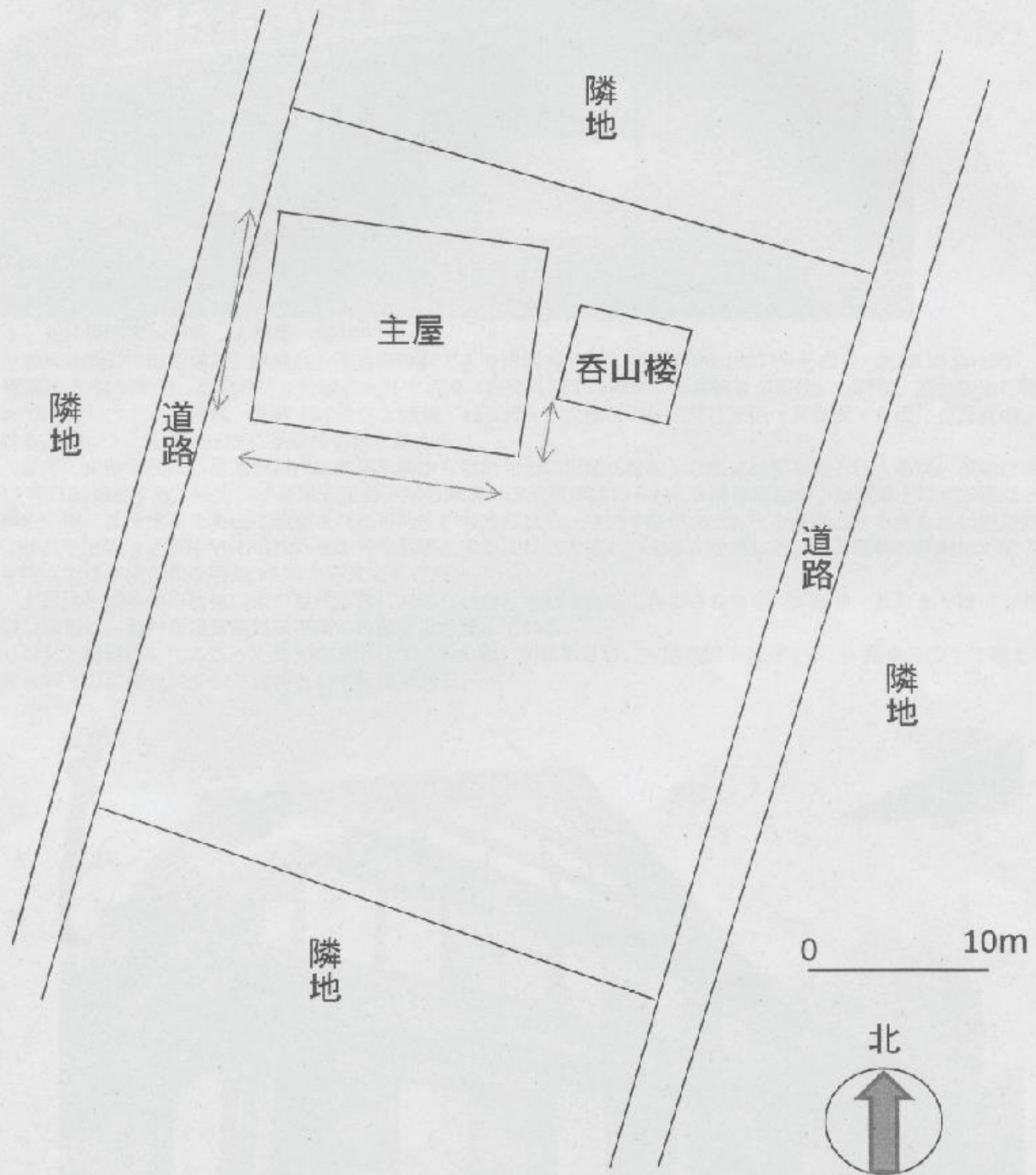
延床面積 270.077m²

2階平面



1階平面

10. 通常望見できる範囲図 金井義明家主屋





1 金井義明家 主屋 正側面 20100316

当家は養蚕で財を成した豪農金井萬古の継嗣である南画家・金井烏洲(1796-1857)やその子・之恭(1833-1907 書家・貴族院議員)を輩出した家系で、分家の金井ナホ家(谷文晁門下の画家・金井研香が初代)と同様、蚕種製造に特化した家ではなかった。主屋は、基壇上に建つ2階建・桧瓦葺・2つ櫓付の住宅で、正面・東側面・背面に桧瓦葺の下屋を設ける。2階は元蚕室で正面に手摺付の縁を備える。

主屋の建築年代は、当家が村内の前島集落から明治元年に現地へ移転した際に建築したと伝えるが、家屋台帳は明治17年(1884)とする。一方、小屋組と正面下屋の架構に改造歴が認められ、2階背面柱がつなぎ梁上に立つ点などから、移転の際に前身建物をもとに改築された可能性が考えられる。柱間寸法が6.22尺を基本とする点も、6 田島弥平旧宅(1863)や田島澤之家住宅(1867)が6.2尺を基準とするよりも古式といえる。ただしその前身建物の詳細は不明であり、現時点では建築年代を明治17年と考えておきたい。

主屋は平成◆年の改修により現代生活に対応したおしゃれな住宅に再生されたが、2階建・瓦葺き・櫓付で基壇上に建つ様相は、島村蚕種製造民家建築の特徴をよく留めている。

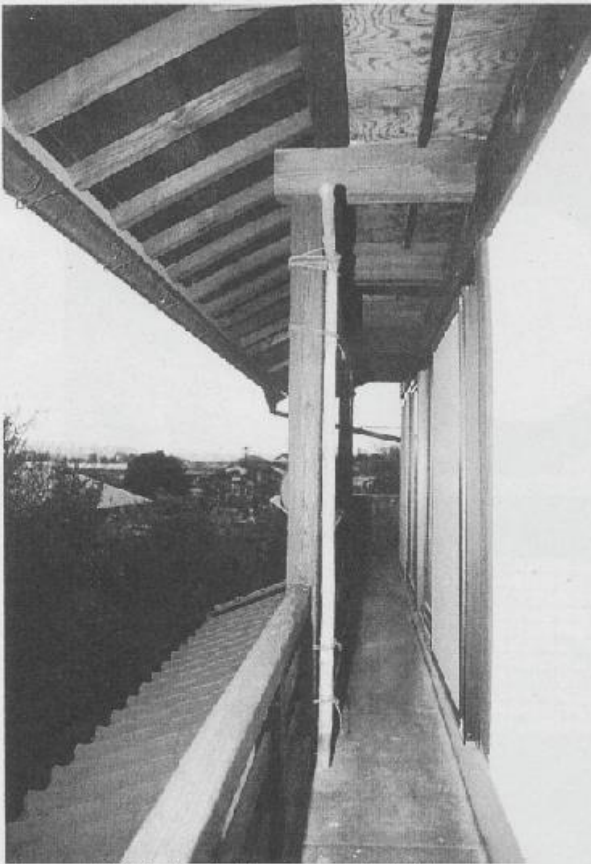
なお、現地移転にあたって烏洲のアトリエ「呑山楼」が移築され、主屋東隣に現存する。2階建ての小建築であるが、文人画家の創作空間を知る遺構として貴重である。



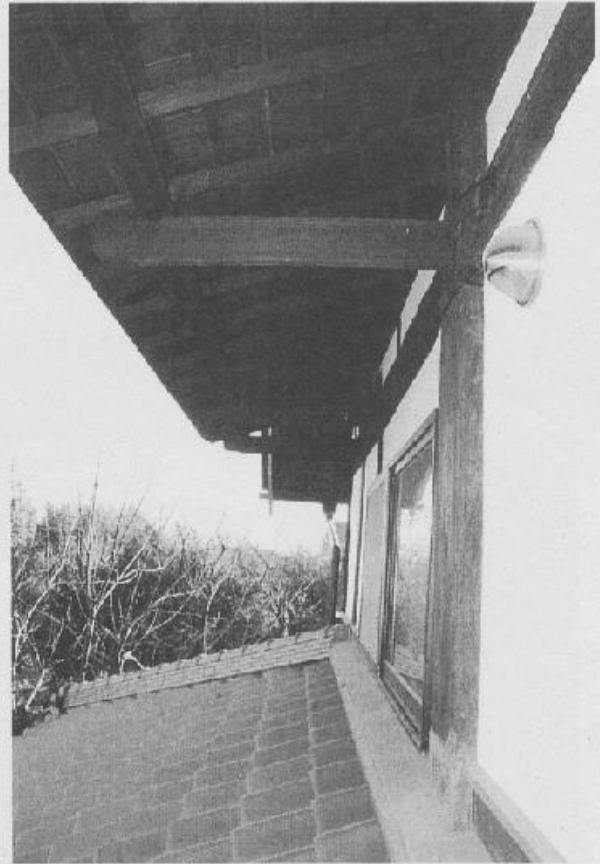
2 金井義明家 主屋 東側面 20071216 (石井) DSC_1026
写真右手に金井烏洲のアトリエだった呑山楼がみえる。



3 金井義明家 主屋 西側面 20071216 (石井) DSC 1036



4 金井義明家 主屋 2階 于摺付縁
20071216 (石井) DSC_1051



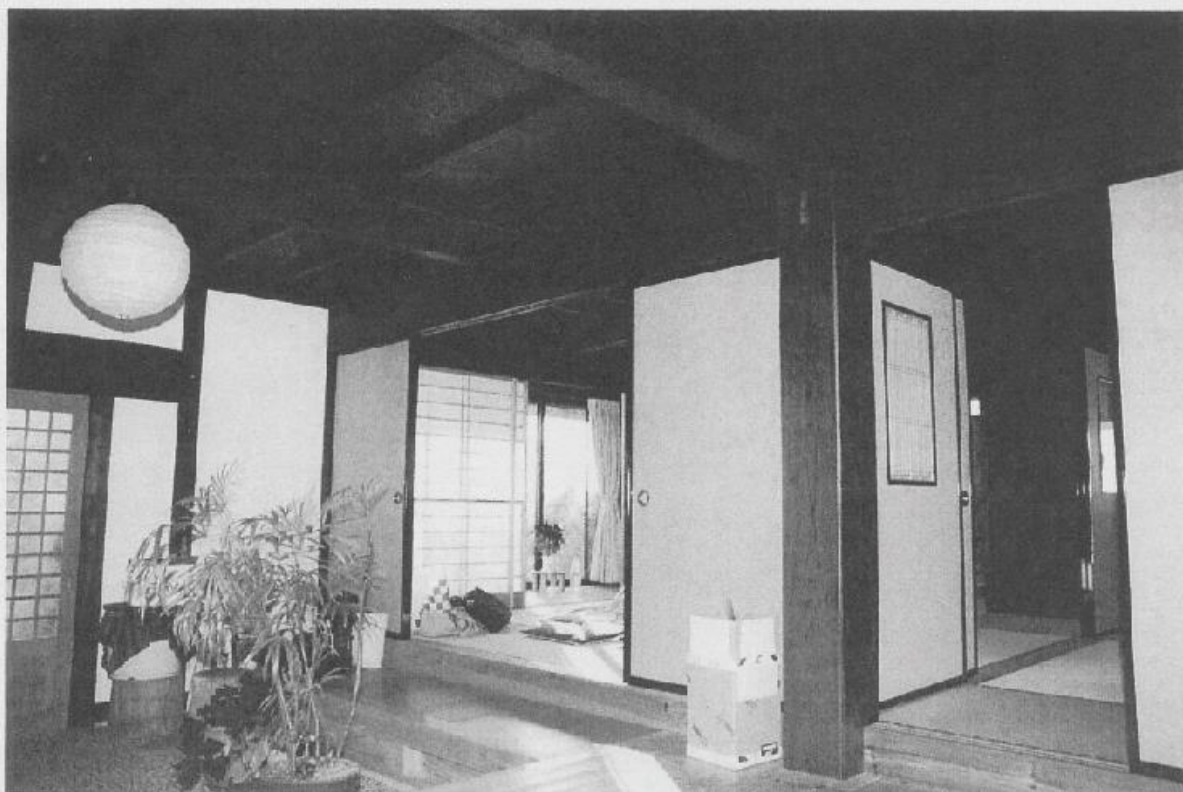
5 金井義明家 主屋 2階 東側面軒
20071216 (石井) DSC 1018



6 金井義明家 主屋 1階 上間正面出入口から後方を見る 20071216 (石井) DSC_0895
1階土間部分は手前に旧状を留めるが、後半部と東面下屋は改装して現代的な生活に適応させている。正面に見える床柱風の皮むき丸太の右手に2階への階段室を設ける。



7 金井義明家 主屋 1階 上間背面から正面見返し 20071216 石井君 DSC_0890
上間前半部は比較的本来の形式を留めており、居室部境の小縁形式も同様である（洗いか？）



8 金井義明家 主屋 1階 土間東北方から下列前室方を見る 20071216 石井君 DSC_0893
大黒柱は檜の■尺角で見事。柱は十間側に芯をずらしている(居室の畳敷きを意識している)。



9 金井義明家 主屋 1階 上間(現板間)より下列後室を見る 20071216 石井君 DSC_0894
下列の居室境は指鴨居で2間開口であったが、中央に柱を補足して後半部を耐震壁とした。

APPENDIX H



境島村の伝統的建物の調査発表 「島村伝統民家の魅力と可能性」



今年度も1件の登録有形文化財が答申されました。
島村の文化財登録についてご尽力いただいた大野先生の講演です。

日時：10月8日（土）14：00～16：00
場所：伊勢崎市境総合文化センター・小ホール
伊勢崎市境木島818番地 ☎0270-76-2222

参加費：無料（定員200名）

内容：第1部 講演

島村の伝統民家の魅力と可能性 現状と展望

講師 大野 敏

（横浜国立大学大・学院都市イノベーション研究院・教授）

第2部 学生の活動成果紹介と意見交換

報告者 チェン・スイ・イ

（横浜国立大学大学院・都市イノベーション学府博士課程後期）

協力：横浜国立大学 大学院都市イノベーション研究院

主催：境島村登録文化財活用推進協議会

連絡先：会長 田島 達行 ☎0270-75-1714

後援：伊勢崎市 伊勢崎市教育委員会 利根川南部環境整備促進協議会

ぐんま島村蚕種の会 一般財団法人さかい・ふるさと創生基金

境いきいきアイ寺子屋瑛訶比 富岡製糸場世界遺産伝道師協会

境史談会 相川考古館 島村蚕のふるさと会 上毛新聞社

* コロナの感染状況によっては延期・中止もありますのでご承知ください。

