

An illustration of the Tomioka Silk Mill complex. The scene shows several large, multi-story brick buildings with dark roofs and numerous windows. People are depicted walking through the courtyards and standing on balconies. In the background, there are rolling hills and mountains under a hazy sky. A tall, cylindrical smokestack is visible on the left side of the image. The overall style is that of a historical painting or a detailed illustration.

Tomioka Silk Mill and Related Sites

WORLD HERITAGE NOMINATION



Tomiooka Silk Mill and Related Sites

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Executive Summary

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1. State Party

Japan

2. State, Province or Region

Gunma Prefecture

3. Name of Property

Tomioka Silk Mill and Related Sites

4. Geographical Coordinates to the Nearest Second

No	Components	Latitude	Longitude
001 (S1)	Tomioka Silk Mill	N36°15'19"	E138°53'16"
002 (S2)	Tajima Yahei Sericulture Farm	N36°14'47"	E139°14'20"
003 (S3)	Takayama-sha Sericulture School	N36°12'12"	E139°01'54"
004 (S4)	Arafune Cold Storage	N36°14'48"	E138°38'07"

5. Textual description of the boundary(ies) of the nominated property

The property consists of 4 components: Tomioka Silk Mill, Tajima Yahei Sericulture Farm, Takayama-sha Sericulture School, and Arafune Cold Storage: together these components exhibit the entire production system in silkworm rearing and silk reeling that made mass production of high quality raw silk possible. All components are delineated on the basis of the areas nationally designated as Historic Sites under the national Cultural Properties Protection Law. Those areas include all buildings and/or structures necessary to convey the significance and characteristic of each component. The policy to delineate the buffer zone is to identify an area where we need to prevent landscape factors from having negative impact that could become a threat to the value of the property.



Photo E-2 S1 Tomioka Silk Mill (Silk-reeling plant)

6. A4 (or “letter”) size map of the nominated property, showing boundaries and buffer zones

Attached to the end of the executive summary.

7. Criteria under which property is nominated (itemize criteria) (ii),(iv)

8. Draft Statement of Outstanding Universal Value

a. Brief synthesis

Tomioka Silk Mill and Related Sites comprise a technological ensemble depicting the significant technological interchange and development that enabled realization of the mass production of high-quality raw silk from the latter half of 19th century into the 20th century, during the period when the world market was unified through international trade. This ensemble brought about developments in global silk industry as well as popularization of silk consumption and contributed greatly to modernization of the Japanese economy.

Mass production of high-quality raw silk was achieved through innovations not only in reeling technology but also in silkworm rearing methods for increased



Photo E-3 S2 Tajima Yahei Sericulture Farm

production of high-quality cocoons. Tomioka Silk Mill played a central role in this technological innovation as a pioneer in the movement. Established in 1872 by the national government in the heart of Japan's sericulture region, located in the middle of the main island, the mill is a prototypical example of the move to introduce advanced Western technology and factory systems during Japan's early days of modernization. It exemplifies interchange in the fields of architecture and reeling technology. Tomioka Silk Mill was the setting in which a wide range of reeling technology was developed consecutively for about one hundred years, beginning with introduction of mechanical reeling technology from the West, and culminating in implementation of the automatic reeling machine in the 20th century. Here stand a complete set of structures that convey the progress of these important technological innovations.

The following three sites played essential roles in advancing silkworm rearing technology and aptly convey the process of innovations in silkworm rearing methods and their dissemination. Tajima Yahei Sericulture Farm was the starting point for improvements in silkworm rearing farmhouse structures focusing on ventilation. It was followed by Takayama-sha Sericulture School, an educational institute where standardized rearing methods were established by perfecting Tajima's method through use of a thermal-powered system for temperature and humidity control. Arafune Cold Storage provided cool storage for silkworm eggs to allow multiple rearing seasons, which enabled mass production of cocoons. These facilities joined



Photo E-4 S3 Takayama-sha Sericulture School

forces in work headed by Tomioka Silk Mill to improve and standardize silkworm species, and were responsible for the novel developments employing scientific experiments for superior breeds of silkworms. The materialization of a stable provision system for fine-quality cocoons in large quantities was achieved through the collaboration of Tomioka Silk Mill, a large-scale factory established employing modern Western technology, and the silkworm farmers that further developed domestic sericulture methods. Thus, a model for mass production of high-quality raw silk was established. This success was spread throughout the country and provided a standard for silk reeling factories and silk rearing establishments all over Japan.

As a result, Japan's raw silk exportation developed exponentially to dominate a share of 80 percent in the global market in the 1930s. It was not only exportation of raw silk but also worldwide transfer of efficient technology for silkworm rearing and silk reeling, developed under the leadership of these four sites, that provided the foundations for contemporary raw silk production. Such contributions made by this group of sites enhanced the broad dispersal of silk products to new consumers.

b. Justification for criteria

Application of Criterion (ii)

Tomioka Silk Mill and Related Sites exhibit an important interchange of scientific



Photo E-5 S4 Arafune Cold Storage

knowledge between Japan and various countries, on developments in silk production technology. This group of sites well exemplifies mutual exchange of industrial technology on a global scale that resulted in mass production of high-quality raw silk by the early 20th century, and brought about a uniquely modern consumer culture in which silk may be consumed by the general public. Western technology and full-scale factory systems were first introduced in Japan at the government established Tomioka Silk Mill. The mill spearheaded development in silk reeling technology and dissemination throughout Japan, and promoted advancement in silkworm cultivation in conjunction with three related sites. This was followed by the worldwide transfer of modern sericulture technology together with the effective silk production machinery perfected in Japan, which continue to support raw silk production to this day.

Application of Criterion (iv)

Tomioka Silk Mill and Related Sites form an exemplary technological ensemble that represents the significant stage in human history when mass production of raw silk was realized, from the late 19th century into the 20th century. This group of four sites consists of a large-scale factory and three small-scale breeding facilities responsible for developments in silkworm rearing and reeling technology that enabled mass production of raw silk. They vividly depict the progression from mechanical reeling machines introduced from the West, to the later Japanese in-



vention of the automatic reeling machine, as well as the process of repeatedly attempted innovations in silkworm breeding technology and its dissemination. Such technological innovations played a pivotal role in the development of the modern global silk-industry during this time when the world market was unified through international trade.

c. Statement of integrity

All components of the nominated property are indispensable for giving an account of international exchange and major technological innovations that contributed to the development of the world's silkworm rearing and silk-reeling industries. By treating the four components as a group of interrelated sites responsible for the mass production of high-quality raw silk, it is possible to exhibit the entire picture of the series of production systems for silkworm breeding and silk reeling. The nominated property is appropriately delineated to include all buildings and structures necessary to convey the significance of each component. Each of these properties is preserved accordingly.

d. Statement of authenticity

The principal structures extant at each property typically retain their original construction. Site boundaries as well as the layout of main buildings within the premises remain unchanged. Minor interventions undertaken on some buildings as functional enhancements to meet technological innovations of each period do not mar any of the major characteristics of each property. Repairs have been made with sufficient consideration for maintaining authenticity of original form and design, material and quality, use, and function. Authenticity of major characteristics including technology and tradition is ensured.

e. Requirements for protection and management

Each component is fully protected under the Law for the Protection of Cultural Properties, having been designated as a Historic Site and/or Important Cultural Property. In the buffer zones, all possible measures are being taken for protection of surrounding environments under such laws as the City Planning Act and the Landscape Act as well as ordinances enforced by their respective municipal governments. Comprehensive preservation and management plans to cover all components have been formulated and are being appropriately enacted. A cooperative committee comprised of all relevant prefectural and municipal governments was established to ensure effective measures are being taken among the parties concerned.

Possible major threats to these properties are natural disasters. Careful preventive measures against damage by such causes are being taken and long-term measures have been drawn up based on detailed surveys by professionals. In order to continuously protect these sites into the future, both development of surrounding areas and public access to components are being appropriately regulated. Protection is reinforced by the efforts of local volunteer groups involved in preservation and promotion of these resources.

9. Name and contact information of official local institution/ agency

Agency for Cultural Affairs
Monuments and Sites Division, Cultural Properties Department
Address: 3-2-2 Kasumigaseki, Chiyoda-ku, Tokyo 100-8959 JAPAN
Tel: +81-3-6734-2877
Fax: +81-3-6734-3822
E-mail: w-isai@bunka.go.jp
Web address: <http://www.bunka.go.jp>

Gunma Prefectural Government
World Heritage Registration Promotion Division,
Address: 1-1-1 Ote-machi, Maebashi-shi, Gunma, 371-8570, JAPAN
Tel: +81-27-226-2328
Fax: +81-27-224-2812
E-mail: sekaiisan@pref.gunma.lg.jp
Web address: <http://worldheritage.pref.gunma.jp>

Tomioka City
Tomioka Silk Mill Division, Department of World Heritage and Town Planning,
Address: 1-1 Tomioka, Tomioka city, Gunma Prefecture 370-2316, JAPAN
Tel: +81-274-64-0005
Fax: +81-274-64-3181
E-Mail: worldheritage@city.tomioka.lg.jp
Web address: <http://www.tomioka-silk.jp/hp/en/index.html>

Isesaki City
Cultural Property Protection Division, Isesaki City Board of Education
Address: 1-64-5 Nishikubo-cho, Isesaki City, Gunma Prefecture 379-2298, JAPAN
Tel: +81-270-63-3636
Fax: +81-270-63-3001
E-Mail: bunkazai@city.isesaki.lg.jp

Fujioka City
Cultural Property Protection Division, Fujioka City Board of Education
Address: 1291-1 Shiroishi, Fujioka City, Gunma Prefecture 375-0055, JAPAN
Tel: +81-274-23-5997
Fax: +81-274-23-5997
E-Mail: bunkazai@city.fujioka.gunma.jp

Shimonita Town
Section of Cultural Property Protection, Shimonita Town Board of Education In the
Shimonita Town Furusato Center
Address: 71-1 Shimokosaka, Shimonita Town, Gunma Prefecture 370-2623, JAPAN
Tel: +81-274-82-5345
Fax: +81-274-82-5345
E-Mail: bunkazai@town.shimonita.lg.jp

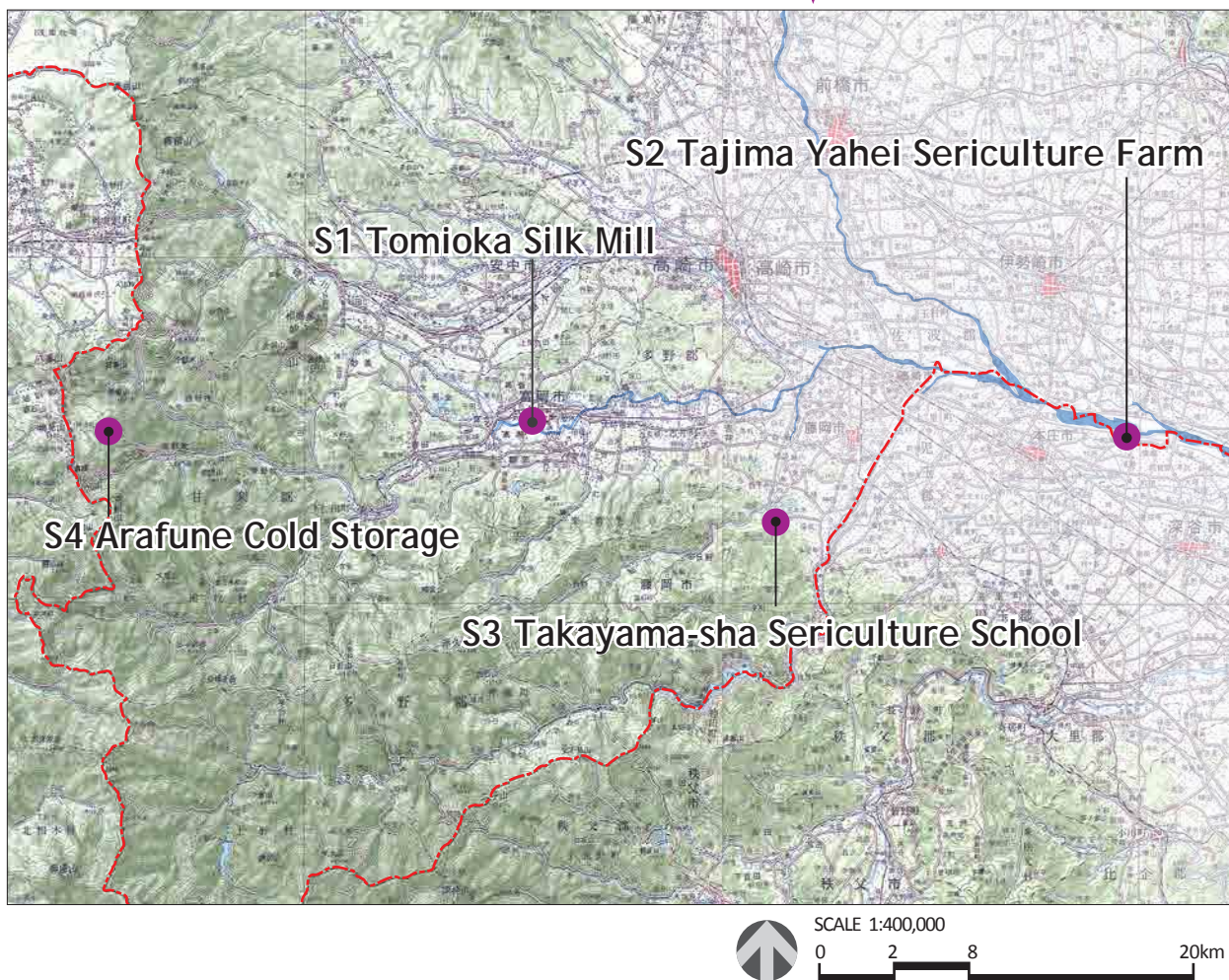
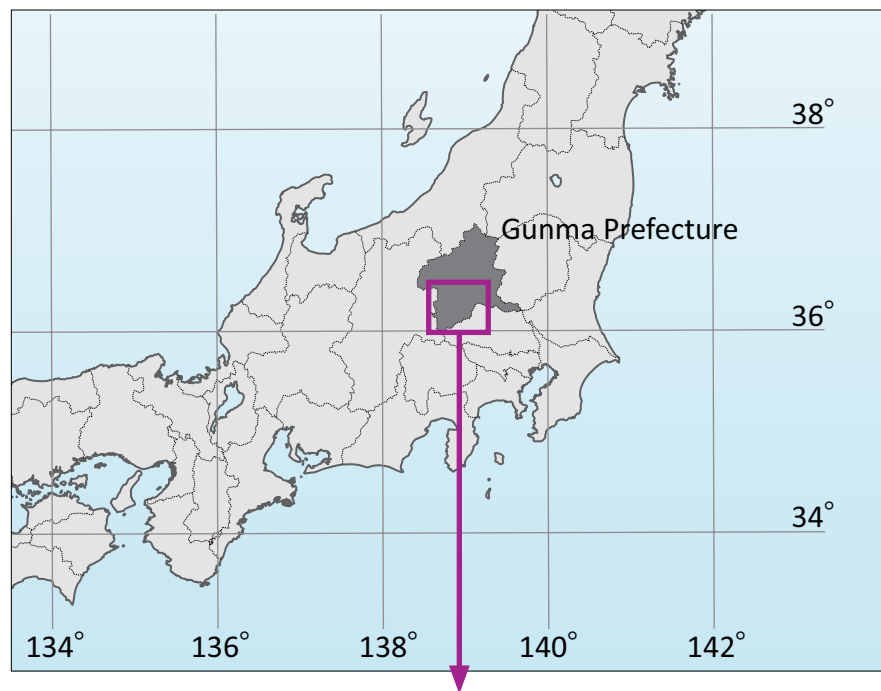


Figure E-1 Map of central Japan indicating the location of components of the nominated property

Figure E-2 S1 Tomioka Silk Mill

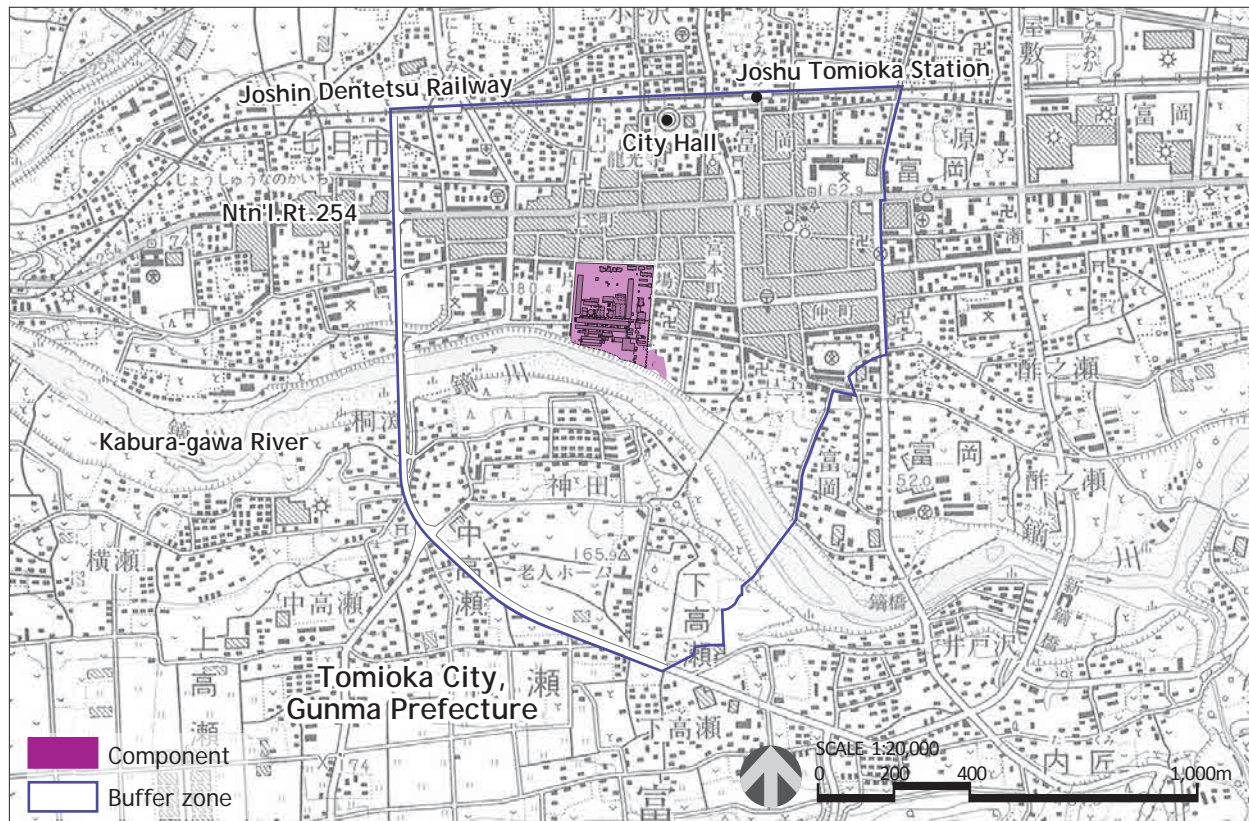


Figure E-3 S2 Tajima Yahei Sericulture Farm

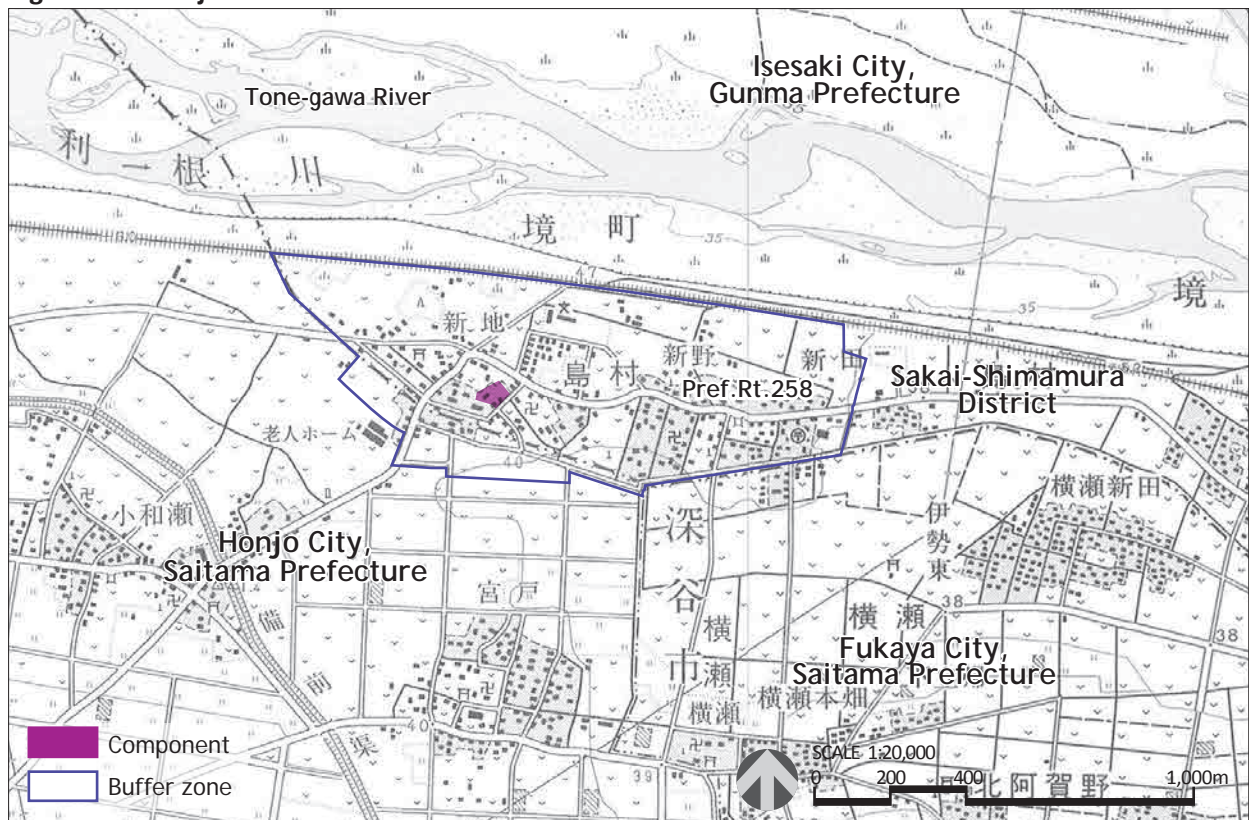
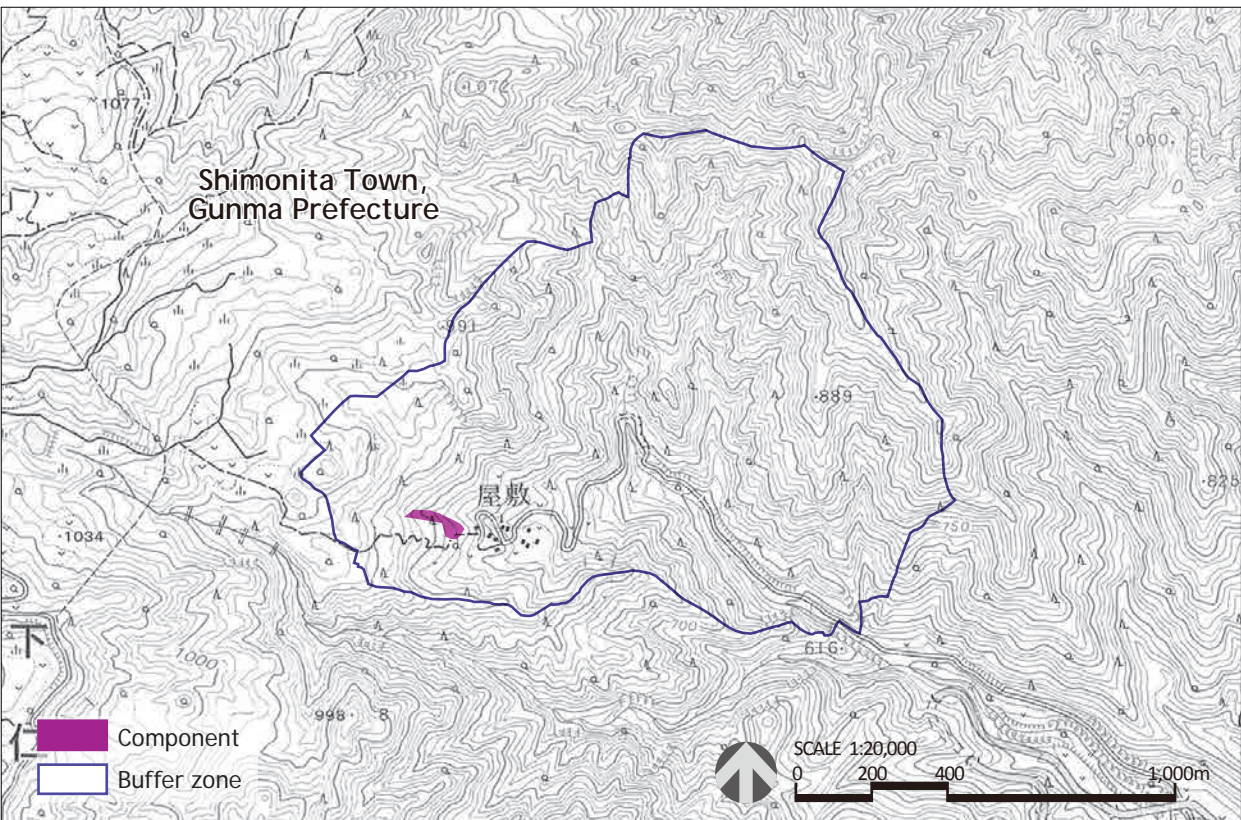




Figure E-4 S3 Takayama-sha Sericulture School



Figure E-5 S4 Arafune Cold Storage



Key Terms


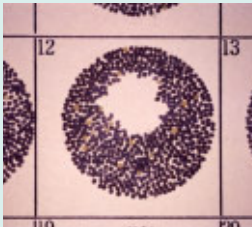
For better understanding of the nomination dossier

Silk Production Process in Japan

Sericulture

silkworm egg production
/ des graines de vers à soie
蚕種製造

silkworm raising
/ l'élevage des vers à soie
養蚕



Silk worm egg

Silk worm larva

Cocoon

(Research & Development)

S2 Tajima Yahei Sericulture Farm

S3 Takayama-sha Sericulture School

S4 Arafune Cold Storage

Raw Silk Production Processes




cocoon drying
/ séchage de cocon
殺蛹

cocoon cooking
/ cuisson cocon
(trempage des cocons dans de l'eau chaude)
煮繭





reeling
/ filature
繰糸

re-reeling
揚げ返し

Hand works



Machine works



Cocoon dryer

Cocoon cooking machine

Automatic reeling machine

Re-reeling machine

Cocoon

Raw silk



Raw silk

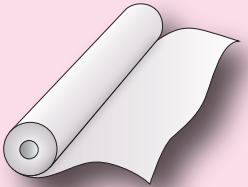
S1 Tomioka Silk Mill

Cloth making Processes

Throwing (twisting)
/ moulinage
撚糸

Weaving
/ tissage
製織





Textile

Some raw silk production processes reel directly into large frames, and put into finished products without re-reeling process.

