

Where Modernization in Japan Began



Shuseikan Reverberatory Furnace



Former Foreign Engineer's Residence (Ijinkan)



Former Machinery Factory (now Shokoshuseikan museum)

SATSUMA SPIRIT

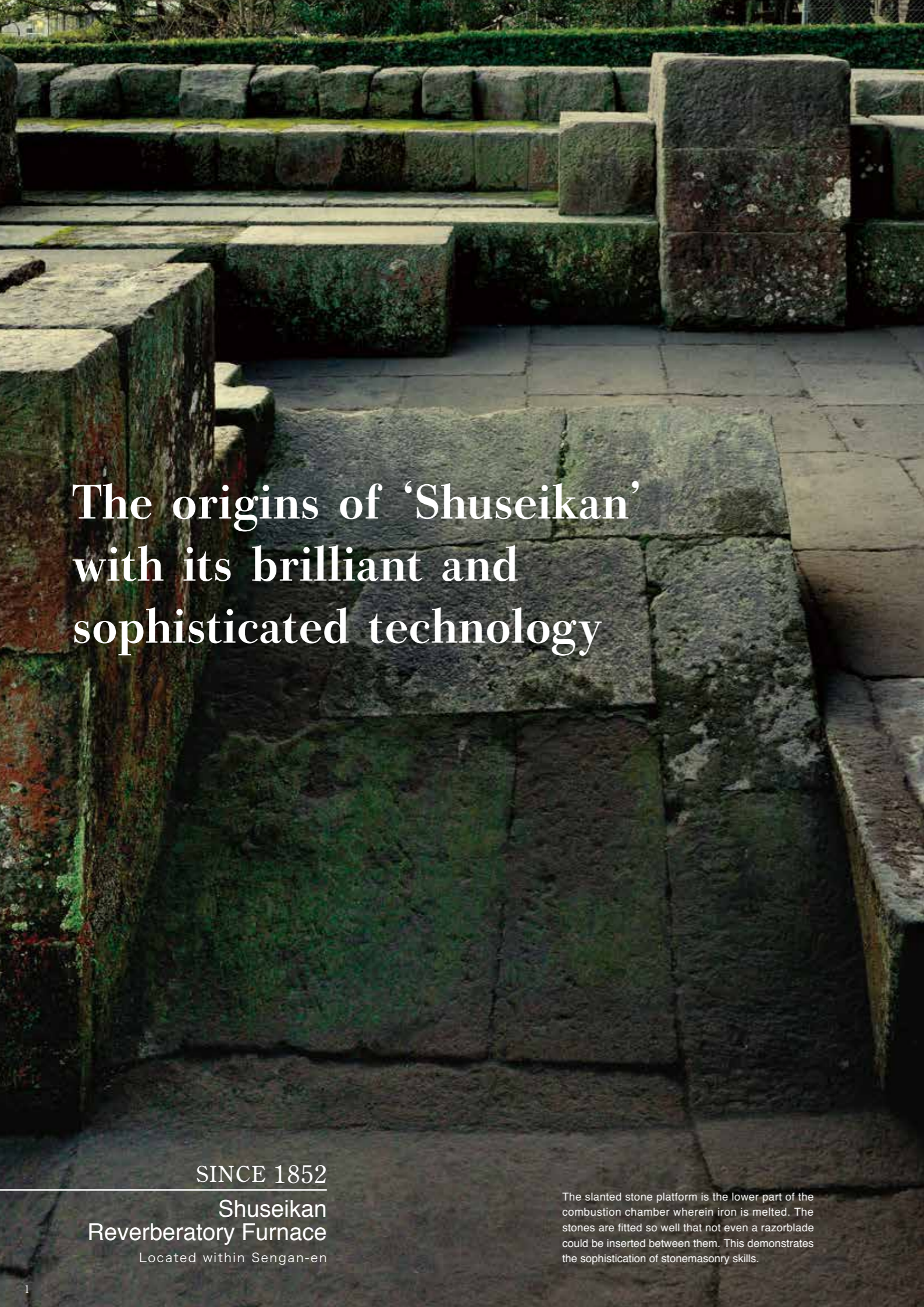
HERITAGE OF INDUSTRIAL MODERNIZATION
IN KAGOSHIMA



Sites of Japan's Meiji Industrial Revolution
Listed as UNESCO World Cultural Heritage Site in July 2015!

Old Photo of Kagoshima Spinning Mill
and the Engineer's Residence (1872)
Shokoshuseikan museum

The origins of 'Shuseikan' with its brilliant and sophisticated technology



SINCE 1852

Shuseikan Reverberatory Furnace

Located within Sengan-en

The slanted stone platform is the lower part of the combustion chamber wherein iron is melted. The stones are fitted so well that not even a razorblade could be inserted between them. This demonstrates the sophistication of stonemasonry skills.



Takeo Nabeshima Family Archives, Takeo City Collection

Shuseikan as depicted in the 'Pictorial map of Sashu-Kagoshima'.

This painting depicting the Iso area is drawn by a retainer of the Saga Clan in 1857. It is said that as Japan's first Western-style industrial complex, Shuseikan employed about 1200 workers at its peak.



Shokoshuseikan museum

Nariakira Shimadzu, 11th lord of the Satsuma Clan

Lord Shimadzu's initiation of the Shuseikan Project had a great influence on the modernization of Japan.



Shoko Shuseikan Collection

- 1 The stone foundation of the reverberatory furnace. There were originally two tower furnaces built atop the foundation.
- 2 The reverberatory furnace that manufactured cannons from melted iron was built according to a translated foreign text.
- 3 There is an opening for ventilation at the center of the remaining stone foundation.

In 1852, full-scale construction of the reverberatory furnace began.

In the 19th century, as countries such as Britain, France, and the U.S.A. made steady forays into Asia, the Satsuma Clan at the southernmost tip of Japan was the first to face threats from foreign countries. The move to take caution against foreign advances intensified in the Satsuma Clan after China was defeated in the First Opium War in 1842.

Nariakira Shimadzu who became feudal lord of Satsuma in 1851 believed it necessary to make Japan a strong and wealthy nation equal to other countries, not only by reinforcing armaments, but also by encouraging new industries. He thus built a factory complex called 'Shuseikan' in Iso, Kagoshima City. Focusing the efforts of the domain on producing modern cannons and shipbuilding, as well as the construction of reverberatory furnaces, he eventually succeeded in building the furnaces singlehandedly. The modernization projects carried out during the short seven years of his succession as feudal lord extended over a variety of fields, but in 1858, Nariakira passed away suddenly before accomplishing all that he had set out to achieve.

After his death, the projects were drastically downsized. However, during the Anglo-Satsuma War in 1863 triggered by the Namamugi incident, the Satsuma Clan experienced firsthand the overwhelming difference in power between them and other countries, such as Britain with her modern fleet. This led the people of Satsuma to realize the importance of modernization that Nariakira had advanced.



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Related sites that supported the Shuseikan Project

- 4 **Terayama Charcoal Kiln**
As coal was not available, the Satsuma Clan focused its energies on the production of white charcoal, a high quality, powerful heat source as their main source of fuel.
- 5 **Sekiyoshi Sluice Gate of Yoshino Leat**
Water was taken from Yoshino Plateau, behind Iso where Shuseikan is located. Power was generated using water-wheels that utilize the height difference of the cliff.

The Road to Modernization

The reverberatory furnace that fuses Satsuma's traditional technology with Western technology

At the end of the Shogunate period when Japan was under its seclusion policy, Western technology required for modernization was assimilated from Western texts. As the Satsuma Clan was already skilled in Satsuma pottery, iron smelting, and stonemasonry, they adapted these traditional techniques and independently constructed a reverberatory furnace. The remains of the reverberatory furnace show slatted stonework, a technique not mentioned in Western texts. This reveals the advanced level of the Clan's technical capabilities.



Stone bridge masonry techniques (Nishida Bridge)



Satsuma pottery techniques (fire-proof bricks)

Production of fire-proof bricks used in the reverberatory furnace incorporated techniques from Satsuma pottery, and the furnace itself was built using traditional stonemasonry techniques.

Japan's oldest surviving Western-style machinery factory



- 1 The western-style construction of the roof truss reveals a reliance on Dutch texts by the Satsuma builders.
- 2 A shaper made in 1863 by a Dutch machine tool manufacturer is housed in Shokoshuseikan museum.
- 3 Steam engines were used to power the factory. A large cog wheel that conveyed power to the machines within the factory is on display in the center of the museum.



In 1865, the Shuseikan Modernization Project restarted.

After the death of Nariakira Shimadzu, the Satsuma people who witnessed the difference in power with other countries in the Anglo-Satsuma War recognized the importance of the Shuseikan Project that Nariakira had carried out. The Satsuma Clan stepped up on modernization and industrialization by actively absorbing new technologies and knowledge such as through dispatching students to Britain in 1865. It also directly imported sophisticated machineries from the West.

The resurrected Shuseikan Project engaged in many projects, from iron production and shipbuilding, to the development of machinery manufacturing, cotton-weaving, glasswork, and Satsuma pottery. Through the wisdom and efforts of many people, these projects turned Nariakira's dreams of modernization, and of creating a strong and wealthy nation, into reality.

The Former Machinery Factory was constructed in 1865 by Lord Tadayoshi who inherited Nariakira's ambitions, based on the factory that was destroyed in the Anglo-Satsuma War. As the oldest surviving Western-style machinery factory in Japan, it shows us today how the factory used to look like in bygone days.



4 The Former Machinery Factory was constructed using locally sourced welded tuff, and since completion it has been referred to as the 'Stone Home'. It is designated as a National Important Cultural Property.



5 Chisel marks can be seen on the carefully stacked stones. The Japanese architectural style called 'Kamebaraishi' can also be seen at the building's foundation.

SINCE 1865

Former Machinery Factory
(now Shokoshuseikan museum)

At Shuseikan during Tadayoshi Shimadzu's reign, machinery was directly imported from foreign countries. The mechanics studied new Western technologies as they worked towards Japan's modernization.

The Road to Modernization

Triggered by the Anglo-Satsuma War, students were sent to Britain to study Western technologies

In just a year and a half after the Anglo-Satsuma War, youths from the Satsuma Clan were dispatched to Britain to study. As overseas travel was prohibited at that time, after departing from Kushikino, they secretly boarded a vessel arranged by an English merchant Thomas Glover and set off for Europe. The students played an active role in a variety of fields upon their return to Japan, and while in Britain Tomoatsu Godai and others arranged for the import of spinning machinery and dispatch of engineers to Japan.



Satsuma students in Britain
In 1865, four envoys and fifteen students were dispatched to Britain.

The very first fully-fledged Western-style architecture in Japan



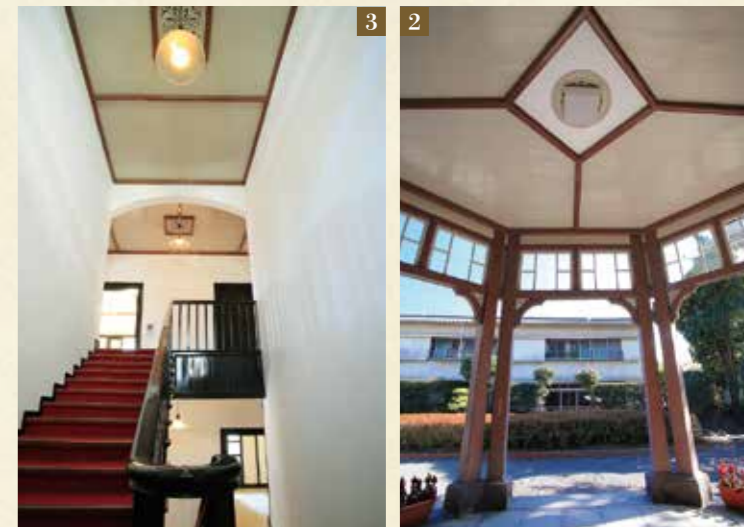
SINCE 1867
Foreign Engineer's Residence
(Ijinkan)

The exterior features an impressive multi-faceted porch. As it was an early example of Western building, Japanese technology and measurements were used for the roof truss.

In 1867, Japan's first Western-style spinning mill was completed.

The modern spinning industry was a key industry in Japan in the Meiji period. It is said that Nariakira focused on the spinning industry so as to manufacture sail cloths for their Western-style ships. After his death, Kakutaro Ishikawa, who had undertaken the study of western sciences by means of Dutch language in Nagasaki and was in charge of the construction of the reverberatory furnace thus promoted by Nariakira, conveyed the importance of the spinning industry to Satsuma feudal lord Tadayoshi. With his persuasion, the Satsuma Clan sent delegates to Britain to purchase spinning machinery from Platt Brothers & Co., Ltd., and also requested for engineers to be dispatched to Japan as instructors.

In 1867, Kagoshima Spinning Mill, Japan's first Western-style spinning mill, was completed. The lodging for British engineers (Foreign Engineer's Residence) was also completed, and the engineers set about giving technical instructions to the mechanics. The people of Satsuma, who were already skilled in manufacturing broad weaving looms, mastered the skills for Western-style steam-powered spinning in just a year. In the Meiji period, their skills and knowledge eventually spread to other spinning mills throughout Japan.



- 1 A beautiful colonial style building with a balcony on all four sides.
- 2 The façade and interior decorations are Western in style, but Japanese construction techniques were applied.
- 3 Decorative touches in the interior exude a luxurious feel.



A fully-fledged Western-style residence for the British engineers



- 4 Foreign Engineer's Residence (Ijinkan) at the time of construction
The residence is a two-story timber structure with an open porch that wraps around the house. It is valuable as an early example of a Western-style building in Japan.
- 5 British engineers
Between 1865 and 1868, the Satsuma Clan employed seven British men for the construction of the Kagoshima Spinning Mill. Although they were contracted to work for two to three years, they returned to Britain after a year.

The Road to Modernization

The spinning skills of the Satsuma Clan that laid the foundation for the modernization of spinning mills throughout Japan

The foundation for the spinning industry, which became a key industry in the Meiji period, was laid down by Kakutaro Ishikawa and others, who exhorted the importance of Nariakira's ideas. After the completion of Kagoshima Spinning Mill in 1867, Sakai Spinning Mill was constructed in 1870. Ishikawa became a government official after the Meiji Restoration, and was involved in the construction of spinning mills across Japan, including the silk mill in Tomioka and spinning mills in Aichi and Hiroshima. The engineers of Kagoshima and Sakai thus spread the spinning technology of Satsuma cultivated since Nariakira's time throughout Japan.



Carding machine (Shokoshuseikan museum exhibit)

One of the carding machines used at Kagoshima Spinning Mill is on display at Shokoshuseikan museum.



Kakutaro Ishikawa

World Cultural Heritage

'Sites of Japan's Meiji Industrial Revolution: Iron and Steel, Shipbuilding and Coal Mining'

What are the 'Sites of Japan's Meiji Industrial Revolution: Iron and Steel, Shipbuilding and Coal Mining'

From the latter half of the 19th century to the early 20th century, Japan has achieved rapid industrialization in heavy industries (iron and steel, shipbuilding, coal mining). The 'Sites of Japan's Meiji Industrial Revolution: Iron and Steel, Shipbuilding and Coal Mining' are composed of a series of industrial heritage sites (including active industrial facilities) that attest to the journey of rapid industrialization in chronological order.

The sites are located in Kyushu, Yamaguchi and associated regions (8 prefectures and 11 cities), and although they are geographically scattered, as a whole they have the outstanding universal value as they are extremely rare in terms of world history in that they show how the science and technology of the West converged with traditional Japanese culture to modernize in such a short time.



Component parts in Kagoshima

The Satsuma Clan situated in the southwestern point of Japan was the first to be threatened by foreign powers. In 1840, faced with heavy pressure to trade from European and American countries, the Clan engaged in modernization. The Shuseikan Project initiated by Nariakira Shimadzu who became feudal lord in 1851 engaged in the construction of reverberatory furnace and mechanization of factories, further laying the foundation for Japan's rapid modernization that was to come.

Kagoshima's three component parts are: the Shuseikan (comprising the site of the reverberatory furnace, the Machinery Factory, the Foreign Engineer's Residence), Terayama Charcoal Kiln, and the Sekiyoshi Sluice Gate of Yoshino Leat.

Chronology of modernization in Japan

Year	1851	1857	1858	1865	1867	1869	1890	1901
	Launch of the Shuseikan Project	Completion of Nirayama Reverberatory Furnaces	Completion of Shuseikan Reverberatory Furnace	Completion of Shuseikan Machinery Factory	Completion of Shuseikan Machinery Factory	Completion of Kosuge Slip Dock	Start of operations at the Imperial Steel Works, Japan	Start of operations at Hashima Coal Mine

Travelling to Kagoshima's Component parts

Shokoshuseikan museum & Sengan-en

- How to get there From JR Kagoshima-Chuo Station, take the Kagoshima City View, the Machi-meguri Bus or local buses (3 companies) to 'Sengan-en-mae'
- Enquiries Shokoshuseikan museum TEL.099-247-1511 Sengan-en TEL.099-247-1551

The Foreign Engineers' Residence (Ijinkan)

- How to get there From JR Kagoshima-Chuo Station, take the Kagoshima City View, the Machi-meguri Bus or local buses (3 companies) to 'Sengan-en-mae'. It is a minute's walk away.
- Enquiries Culture Assets Division, Kagoshima City TEL.099-227-1962

Getting inscribed to the UNESCO World Heritage List

World Heritage Sites are sites that transcend national borders and are shared by all mankind and transmitted to future generations. 'Yakushima' was listed in 1993 as Japan's first World Natural Heritage Site. 'Sites of Japan's Meiji Industrial Revolution: Iron and Steel, Shipbuilding and Coal Mining' are listed as World Cultural Heritage Site on 8th of July 2015.

April, 2013	Draft nomination submitted to the government
End of January 2014	Nomination submitted to the UNESCO World Heritage Center
September and October 2014	Evaluation by the International Council on Monuments and Sites (ICOMOS)
8 July 2015	Listed as World Heritage Site

