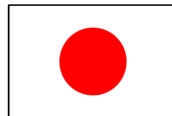


Sado Island Gold Mines

A Unique Nexus of Culture, Technology and Tradition



Pictures (left and right) from the Edo period (1603-1867) showing traditional mining in Sado Island, and Sado *koban*, large-denomination oval gold coins (center)



The Government of Japan
February 2022

Overview of *Sado Island Gold Mines*

Sado Island is located 40 kilometers off the coast of Niigata Prefecture in the Sea of Japan. With a land area of approximately 855 square kilometers, it is a little larger than the island of Singapore.

Sado Island was long the center of Japanese gold production. **Many well-preserved mines and mining villages still exist on the island today.**

***Sado Island Gold Mines* operated without the use of mechanical mining equipment:** gold production was carried out entirely by hand until the middle of the 19th century. **Despite this limitation, the island led the world in the volume and quality of its gold production during the 17th century,** thanks to the unique social and technical systems that evolved around its mining industry.

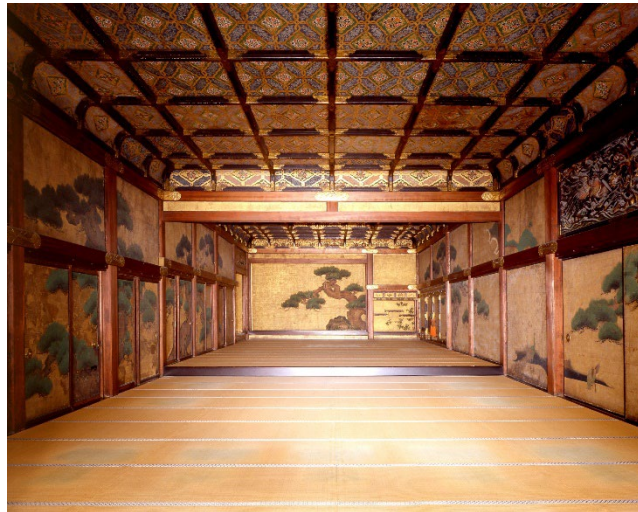


Sado Island gold: a foundation for Edo art and culture

- ❑ Large amounts of Japanese gold flowed into Asia beginning in ancient times. In the early 14th century, the Venetian merchant and traveler Marco Polo introduced lavish gold decorations in Japan to Europeans. His book, *The Travels of Marco Polo*, created a reputation for Japan as a “land of gold”.
- ❑ Gold produced on Sado Island helped drive a shift in Japanese artistic styles during the Edo period (1603-1867). **Extravagant gold decoration came to be used on everything from shrine gates to traditional wall paintings.** Sado gold was also formed into *koban*, large-denomination oval gold coins, which circulated in Japan and around the world, leading to global recognition for Sado as a gold mine.



Toshogu Shrine (1636)
Inscribed on the UNESCO World
Heritage List in 1999



Nijo-jo Castle (1626)
Inscribed on the UNESCO World
Heritage List in 1994



Sado *koban*

What's special about *Sado Island Gold Mines*?

- ❑ *Sado Island Gold Mines* is the only gold mining site in the world where the following features can be found in one place: 1) gold mine; 2) mining by manual operation only until the middle of the 19th century; and 3) not only mining zone but also settlement zone remains which illustrates its social systems.
- ❑ There are evidence of both the technical systems, such as mining and drainage tunnels, and the social systems, such as mining villages and the magistrate's office site, has been preserved in excellent condition.

Sir Rutherford Alcock's description of Japan's technically sophisticated traditional manual industry, in "*The Capital of the Tycoon*" (1863)

"I should say that theirs was a material civilisation of a high order, in which all the industrial arts were brought to as great perfection as could well be attainable without the aid of steam-power and machinery."

Sir Rutherford Alcock,
The Capital of the Tycoon, a Narrative of a Three Years' Residence in Japan,
Volume 2 p.301, first published 1863

*British Minister to Japan at the end of the Edo period

What's special about Sado Island Gold Mines?

- ❑ The history of human mining can be divided into two major eras: pre-mechanisation, when mining was carried out by manual operations, and post-mechanisation, which began in Europe after the Age of Discovery in the 16th centuries. *Sado Island Gold Mines* represents **the final advanced development stage of the unmechanised gold production system in history**.
- ❑ In its heyday, Sado Island led the world in both the quantity and quality of its gold, producing the largest amount of the precious metal, at the highest purity, of any mining site.

Age of Discovery: 16th centuries

Ancient Era

Post-16th century

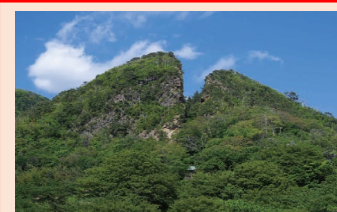
Manual
Operation



Las Médulas
(Spain)

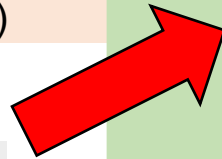


Roşia Montană
(Romania)



**Sado Island
Gold Mines (Japan)**

The Tokugawa Shogunate* (1603-1867) strictly limited technological exchange with other countries under a policy of national seclusion. As a result, an unmechanised system of gold production developed that was based solely on traditional techniques of production, measurement and mathematical calculation. Despite such limitations, Japan came to lead the world in both the quality and quantity of the gold it produced.



Mechanised
Operation



Banská Štiavnica
(Slovakia)



Potosí (Bolivia)
UNESCO HP ©A.Sandoval-Ruiz



Ouro Preto (Brazil)
UNESCO HP ©M & G Therin Weise

(*The Tokugawa Shogunate: a long-term stable government of samurai who ruled Japan from 1603 to 1867)

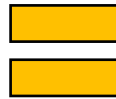
Why is *Sado Island Gold Mines* worthy of World Heritage status?

- ❑ The **technical system** that enabled Sado Island's large-scale, high-quality gold mining
- ❑ The **social system** that managed the world-class production and adapted to multiple types of mines

How *Sado island Gold Mines* meets UNESCO's criteria

UNESCO World Heritage Criteria	<i>Sado Island Gold Mines</i>
(iv) be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history	Technical System <ul style="list-style-type: none">●The world's largest amount and highest purity, exceeding that of mechanised mines●Advanced excavating and surveying or refining technologies
(iii) bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared	Social System <ul style="list-style-type: none">●Long-term, strategic mining management by the Tokugawa Shogunate●Culture based on mining created by the local community

Aligned



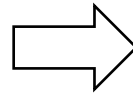
Technical System 1: The world's largest amount and highest purity, exceeding that of mechanised mines (Criterion iv)

- ❑ The entire production process from mining, dressing, smelting and refining to minting was conducted on the island.

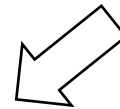
Production Process in the Edo Period



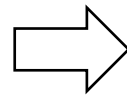
1. Mining



2. Dressing



3. Smelting & Refining



4. Minting

Images from *Sado no kuni kanahori no maki*, Middle of the 18th century

Technical System 2: Advanced excavating and surveying or refining technologies (Criterion iv)

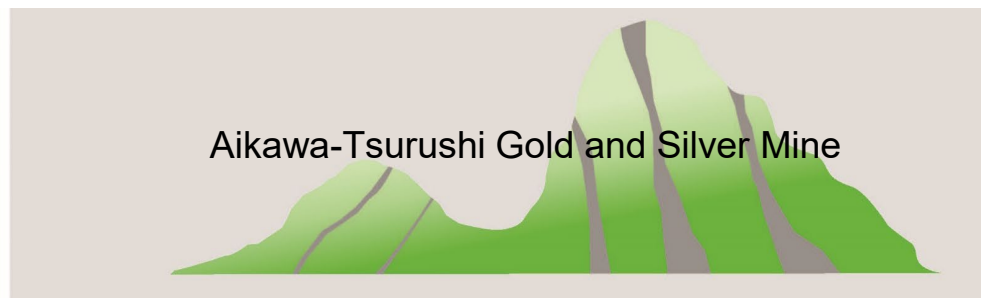
- At the **placer gold deposit** (Nishimikawa Placer Gold Mine), the "Onagashi" method was used to extract gold by washing it away with a flow of artificially stored water. **In lode deposits** (Aikawa-Tsurushi Gold and Silver Mine), excavating and surveying technologies were further developed to solve problems such as drainage and ventilation, while dressing, smelting and refining techniques evolved to efficiently process ore.

Deposit



Nishimikawa Placer Gold Mine

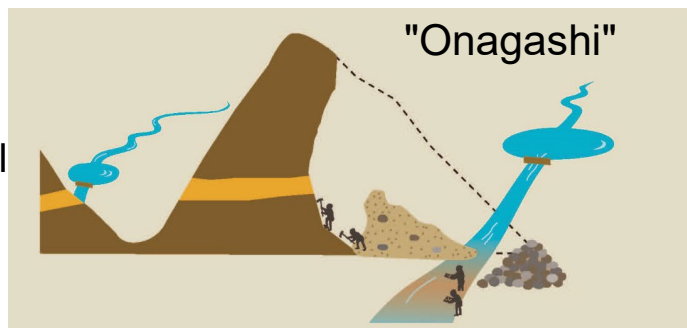
Placer gold deposit



Aikawa-Tsurushi Gold and Silver Mine

Lode deposits

Technical System



"Onagashi"



Main tunnel and ventilation tunnel

Mining tunnels and drainage tunnels

Technical System 2: Advanced excavating and surveying or refining technologies (Criterion iv)

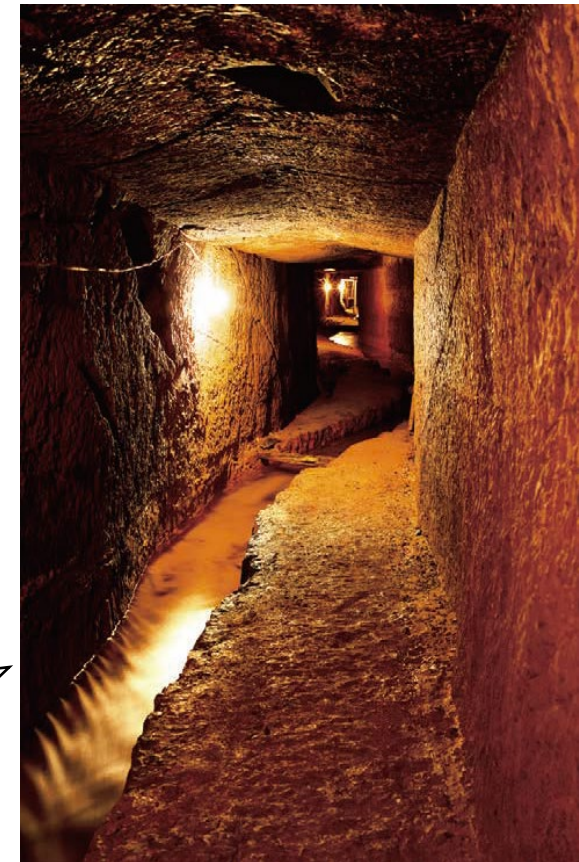
The mining galleries remain intact.



Mining tunnel

Parallel tunnels
for air circulation

This 922-meter tunnel was divided into three sections and excavated simultaneously from six locations, with just over 1 meter difference at each confluence.



©Takashi Amano
Drainage tunnel 9

Social system 1 : Long-term strategic mining management by the Tokugawa Shogunate and settlement formation (Criterion iii)

- ❑ Gold played an important role in government and the economy, as a means of paying for trade with foreign countries and as a reward for feudal lords and samurai.
- ❑ The Tokugawa Shogunate placed Sado Island under its direct control and established the **Sado Magistrate's Office**, which organized a large-scale social system that united the production systems of two different types of ore deposits for long-term, strategic mining management.



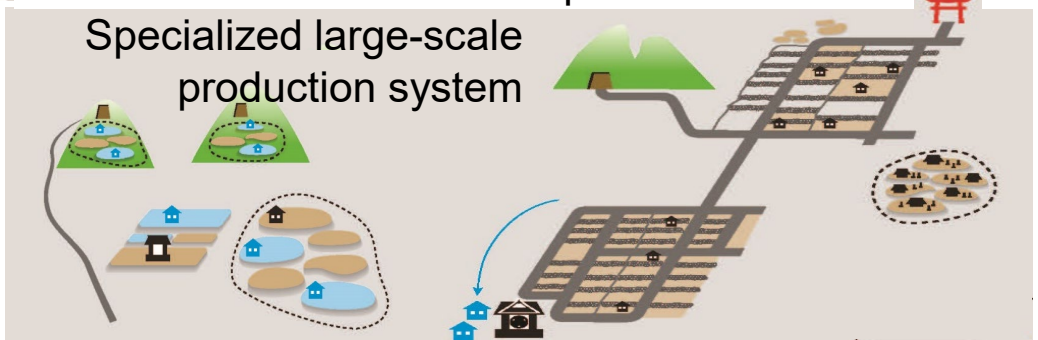
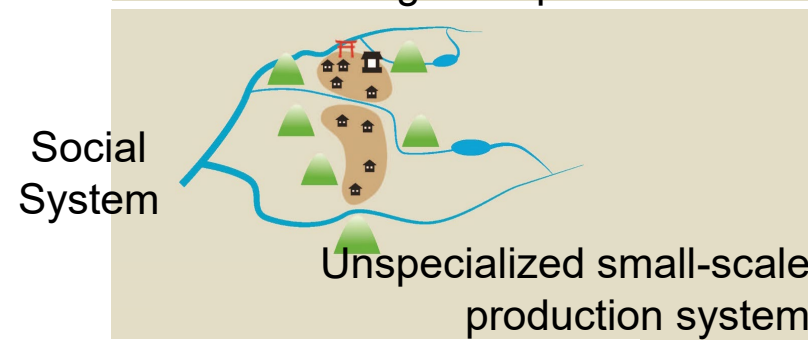
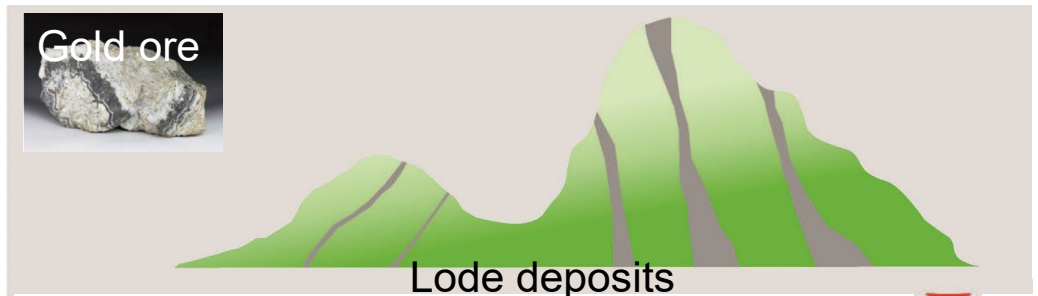
Sado Magistrate's Office site

Social system 1 : Long-term strategic mining management by the Tokugawa Shogunate and settlement formation (Criterion iii)

- Villages and towns on Sado Island were developed around its unmechanised gold mining industry

Nishimikawa Placer Gold Mine

Aikawa-Tsurushi Gold and Silver Mine



Nishimikawa settlement zone
(Small scale and unregulated structure)



Aikawa settlement zone
(Large scale and planned structure)

Social system 2: Culture based on mining created by the local community (Criterion iii)

- ❑ A large number of skilled mining experts came to Sado Island from all over Japan. Cultural practices and beliefs including faiths, performing arts and festivals were developed and flourished among these people. Traditional songs and rituals of the mine are still being passed down today.
- ❑ One of the cultural practices that was developed around Sado's mining industry was the "Yawaragi," a performing arts ritual sung by mining professionals to please mountain deities and pray for the discovery of softer ores containing gold and silver. The result was a culture unique to the region.



A wealth of historical documents support the value of the site

- ❑ A large number of picture scrolls and other historical documents remain to this day, giving a detailed perspective of gold mining on Sado Island.



The Niigata Prefectural Museum of History



Picture scroll of the mine

Picture scroll of Sado Gold and Silver Mine,
early 18th - mid 19th century



Technical Book on mining
Outline of Gold and Silver Mine,
18th century

A wealth of historical documents support the value of the site

- The “Doyu-no-Warito,” a V-shaped crack in a large rock formation, has become a symbol of Sado Island. Created as a result of manual digging for gold, it is depicted in drawings from the Edo period.



©Hoichi Nishiyama

"Doyu-no-Warito"

Current picture of Sado Island scenery



Drawing of Doyu

Sado Ginzan Yotsuya no Kakusho Maki

Late of the 18th century