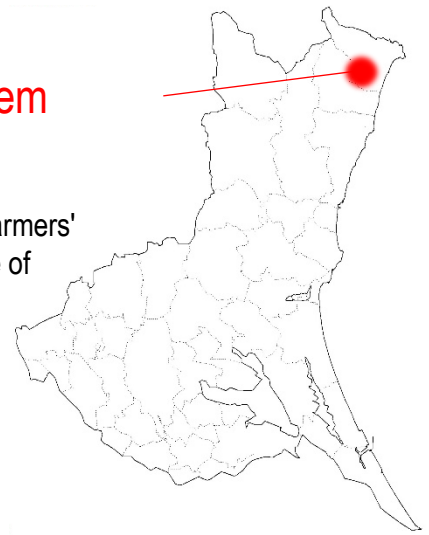


Jukkoku-bori Irrigation System

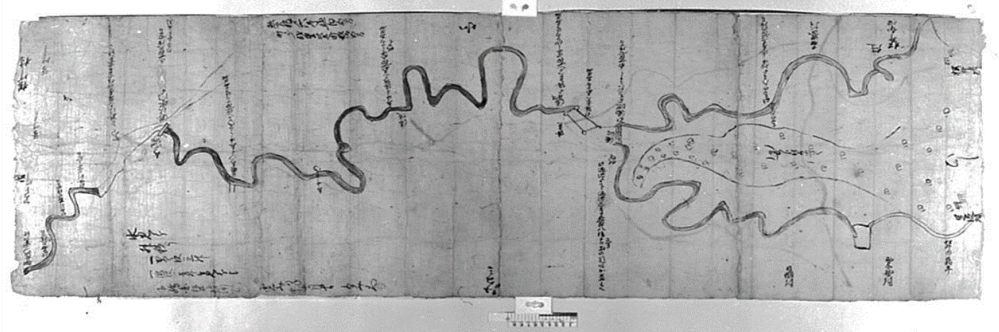
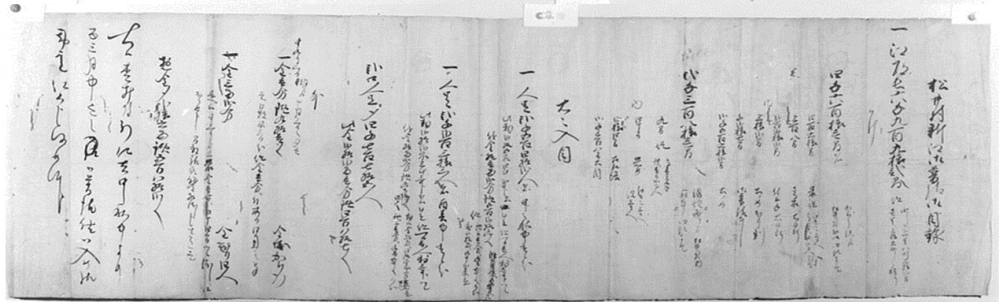
[Ibaraki Prefecture /
Kitaibaraki City]

Jukkoku-bori Irrigation System

A sustainable irrigation canal leveraging farmers' own ideas and plans as well as skillful use of natural terrain



- This area of the plateau was chronically short of water. In 1669, led by Kazue Numata, the farmers themselves planned and constructed an irrigation canal of about 13km within just half a year.
- To develop the water source, the "ditch", which was constructed as a headrace connecting two streams with different catchment areas, was excavated using a refined "gold digger" (mining engineer) technique.
- Capitalizing on the swampy and natural granite terrain, it had excellent durability with efficient maintenance and the farmers themselves procured materials to significantly reduce construction costs.



Construction records (above) and drawings (below) at that time



"Ditch" excavated by gold diggers



Energy dissipation work utilizing the natural terrain (granite)



Maintenance records prepared by local residents

Minuma-Dai Irrigation System

[Saitama Prefecture /
Gyoda City, etc.]

- In 1728, to develop new paddy fields and improve how water was used, the "Minuma Tamei" water source was reclaimed and used as a paddy field. The Tone river, which was located 60 km away, was named as an alternative water source and Minuma substitute canal was constructed.
- A branch canal was split along the trunk canal, other ponds and marshes were reclaimed and the largest irrigation system at the time, for a total 15,000 ha of new and existing paddy fields, was completed.
- With outstanding "Kishu-style" technologies, a canal of about 80km and the largest "Motoiri", "Fusekoshi" and "Kaketo" at the time were completed within just 6 months.
- A lock gate-type canal was constructed as a countermeasure to offset the 3m difference in elevation from the river to use the irrigation canal for water transportation. A wide-area logistics system in Edo and rural areas was constructed.

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Concentration of advanced civil engineering technologies that made Edo wealthy

Birth of the largest agricultural irrigation in Japan



Bird's Eye View of Minuma-Dai canal motoiri



Current Minuma Substitute Canal (Original shape conservation section)



Construction drawing of Shibayama Fusekoshi



Demonstration of a lock gate style canal



Abundant water volume of the Minuma Substitute Canal

Kurayasu and Hyakken Rivers Irrigation and Drainage System

[Okayama Prefecture /
Okayama City]

Kurayasu and Hyakken Rivers Irrigation and Drainage System

Irrigation and drainage system that
transformed the ocean into a "land
of fertility"



- The Kurayasu River is located in the Okayama Plain, where little rain falls as an irrigation canal connecting the Yoshii River in the east and the Asahi River in the west. (Completed in 1679)
- The Hyakken River is an irrigation canal that "controls water" by combining a retarding basin and a stone gutter (drainage gutter gate) at its mouth. (Almost completed in 1687)
- With these two canals, the large-scale reclamation of over 2,200 ha, Kurata and Oki new paddy fields, was realized; boosting food production considerably and helping regional agriculture develop.



Oki New Paddy Field Completion Drawing
(Ikeda Family Collection, Okayama University Library)



Kurayasugawa Yoshii Sluice, the oldest
lock-type sluice in Japan

The right is the Takasebune, which was
carried on the Kurayasu River.
It transported the daily supplies and
annual rice tax.



Hyakken River that runs through the center of
the Oki new paddy field

N hxfk #lulj dwtq #V | vwhp

Kikuchi Irrigation System

[Kumamoto Prefecture / Kikuchi City]

A field museum that conveys how paddy fields and agricultural irrigation have developed historically



- A group of facilities that started with the construction of "Tsukiji Ide" in 1615 and used the Kikuchigawa River as the source to supply water to 615 ha of paddy fields.
- Agricultural civil engineering technologies at the time centered on construction, such as adjusting water rights together with the Edo Shogunate and waterway tunnels penetrating limestone mountainous areas that were prone to collapse.
- Currently, it is boosting regional revitalization considerably, via facilities such as the "Ide Venture" (Haru Ide rafting) and a tour for elementary school students in Hoi Tunnel.



Tsukiji Ide part of the "Kikuchigawa River Complete Map"



Inside the Hoi Tunnel



Current "Tsukiji Ide"



Furukawa Hyodo Ide Intake Part



Haru Ide rafting "Ide Venture"