A Story
Narrated in Stacked Stone:
The Achievements of Our Ancestors

Sediment Control on the Dodo River

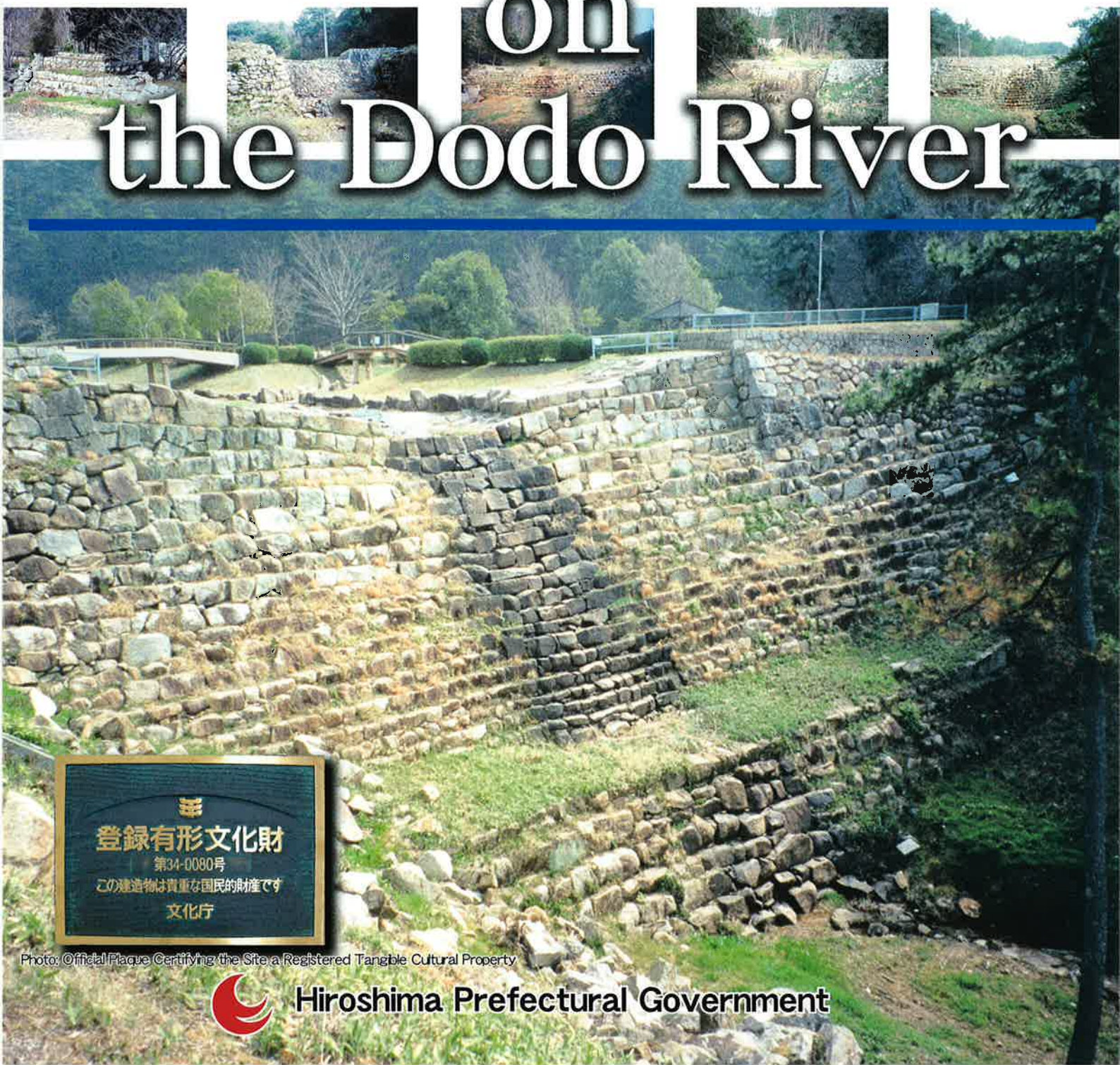


Photo: Official Plaque Certifying the Site a Registered Tangible Cultural Property

Hiroshima Prefectural Government

Japanese Sediment Control in the Preserving

Check dams, called "sunadome" ("sand guards" in Japanese), were built on the Dodo River in the late civil engineering structures as well as historic cultural properties. They are in fact still in operation, playing admire and their historic and cultural value, environmentally consistent sediment control projects

Sediment Control Project (The Present Check Dams of the Dodo River)


Dodo Park and Check Dam No. 6

Check dams are permanent or temporary barriers designed to promote sedimentation by slowing flow velocity and then smoothing flows. Check dams can be constructed from a variety of materials. The Dodo River's check dams are constructed from rock. Built as early as the 1700's, some of the dams continue to serve important sediment control roles. Others have changed, shifting from protecting the citizenry to becoming historic sites of cultural significance to the surrounding community.

Dodo Park was built in 1976 on sediment accumulated at Dodo River Check Dam No.6. Designed in the style of a traditional Japanese garden, the Park contains numerous waterways built of stone from nearby fields. Visitors are encouraged, while enjoying the seasonal flowers of spring, playing in the waters of summer, or collecting the colored leaves of autumn, to recall the legacies and achievements of people living many years ago. The park is alive with visitors year-round.

Tobigasako and Uchihiro check dams are built on tributaries of the Dodo River. Portions of them had collapsed but were rebuilt to match the stonework seen in remaining parts of the dams. New stone frameworks were constructed as seen those days.


Stone Frameworks


Newly-repaired Tobigasako Check Dam


Dodo River Dike

18th and 19th Centuries : Our Historic Dams for the Future

Edo Period[1] (between the 1700's and the 1860's). Today these dams remain as both as important an important sediment control role in the modern Fukuyama region. While continuing to cherish and continue on the Dodo River.

[1] The Edo Period is a division of Japanese history: 1603-1868.

Registration as a Cultural Landmark

In 2006, in recognition of the technical and historic value of the sediment control system, 8 check dams(Check dams No.1～No.6, Tobigasako, and Uchihiro check dams) on the Dodo River were registered as Tangible Cultural Properties by the Agency for Cultural Affairs of Japan.


No.5 Check Dam and the Accompanying Tangible Cultural Property Plaque


Check Dam No.4 and the Accompanying Tangible Cultural Property Plaque

Community Use and Involvement

The annual "Kannabe Wood Festival" is held at the Park in the fall. Additionally, local community groups conduct river clean-up and woodland conservation activities, sometimes releasing marsh snails into the river for the fireflies. The protection of this precious place is deeply engrained in the surrounding community.


"GIANT" Okonomiyaki Cook-out (Japanese-style Pancake)


Releasing Marsh Snails into the River

Firefly

Kannabe Wood Festival

Exhibition of Fireflies Living in the Dodo River

The Heritage of 18th and 19th Centuries' Ci

The History of Sediment Control on the Dodo River

The Dodo River originates in Kannabe area of Fukuyama City, running 4 km and joining the Class "A" Ashida River.

Geologically, biotite granite and rhyolite from the Cretaceous Period dominate the shores. The granite in particular was badly weathered, and the topsoil was on the verge of serious erosion. With neighboring soils by nature unfit for renewal, no reforestation had been attempted. The result is further devastation and incessant natural disasters.

According to records from 1641, a letter from Fukuyama Domain load to his chief retainer complains of typhoon and referred to their damage prevention measures. From that year forward, more serious sediment and erosion disasters began to emerge.

The Fukuyama Domain considered it important policy to conduct extensive sediment control projects, building a number of "sunadome," or check dams, along the Dodo River.

Although historic ambiguities exist regarding these projects, work records spanning 1830 to 1843 were found in the "the Mitani Collections" kept at the Fukuyama Castle Museum. These valuable records indicate continual construction during the Edo Period (1603-1868).

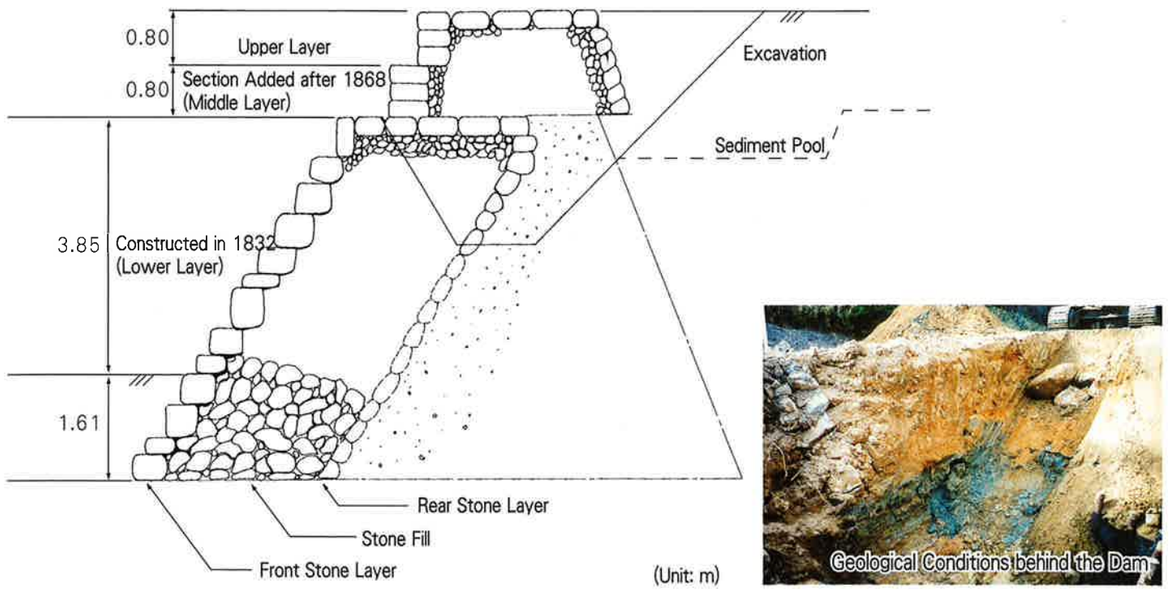
At present, there are 11 check dams along the Dodo River. Check Dam No.6 is the most expansive, its stacked stone bringing to mind towering castle ramparts. It is living proof of our ancestors' architectural expertise.

The Structure of Dodo River Check Dam No.3

In 1996, to learn more about the structure of the check dams, Dodo River check dam No. 3 was excavated for study.

Condition of the Dam Face after Excavation

Cross-sectional view of the additional construction carried out after the Meiji Restoration in 1868



Geological Conditions behind the Dam

Dodo River Check Dam No.1

Registration No.34-0075

Size : 3.2m tall, 9.6m wide
Structure : Blocked-stone Embankment
Method of Construction : Layered Stone
Year of Construction : Before 1773 (est.)

This dam is believed to be the first dam built to protect houses and rice fields from sediment disaster. What we see today is a portion of the original check dam repeatedly expanded. According to ancient village "Locality Specification" records found in Shimogoryo Village, it used to be a large-scale check dam extending approximately 20 meters.

Dodo River Check Dam No.2

Registration No.34-0076

Size : 3.9m tall, 25.8m wide
Structure : Stone Wall Embankment
Method of Construction : Right bank - Irregular Stacked Masonry
Left bank/spillway-Uncoursed Masonry
Year of Construction : Dam was constructed between 1700 and the 1860's (est.)
Spillway and left bank was rebuilt after 1868.

This dam is believed to have been constructed in the late Edo Period (between 1700' s and 1860' s). However, the uncoursed masonry of the spillway was added from 1912 to 1915. The direct connection to a spillway and the installation of an erosion-preventing apron at the base are special characteristics of Check Dam No. 2.

Dodo River Check Dam No.3

Registration No.34-0077

Size : 5.46m tall, 36.2m wide
Structure : Reclining Stone Retaining Wall
Method of Construction : Coursed, Layered Stone
Year of Construction : Work started in 1832. Upper layer was reconstructed after 1868.

This dam is constructed in upper and lower layers. Construction began in 1893. According to "Tototani Yoteki" court records of 1893, "Check dam construction laborers finally arrived at Shimogoryo Village March 13; 6 workers sent to No. 3 check dam, March 14."

vil Engineering: Dodo River Check Dams

Dodo River Check Dam No.4 Registration No.34-0078

Size : 3.3m tall, 31.5m wide
Structure : Stone Wall Embankment
Method of Construction : Right bank - Coursed, Layered Stone
Left bank/Spillway - Uncoursed Masonry
Year of Construction : Between 1700's and 1860's (est.)
Reconstruction conducted after 1868.

Although Dam No.4 is believed to have been constructed in the late Edo Period (between 1700' s and 1860' s), recorded proof has yet to be discovered. Like Check Dam No. 2, it is directly connected to a spillway with an apron at the base.

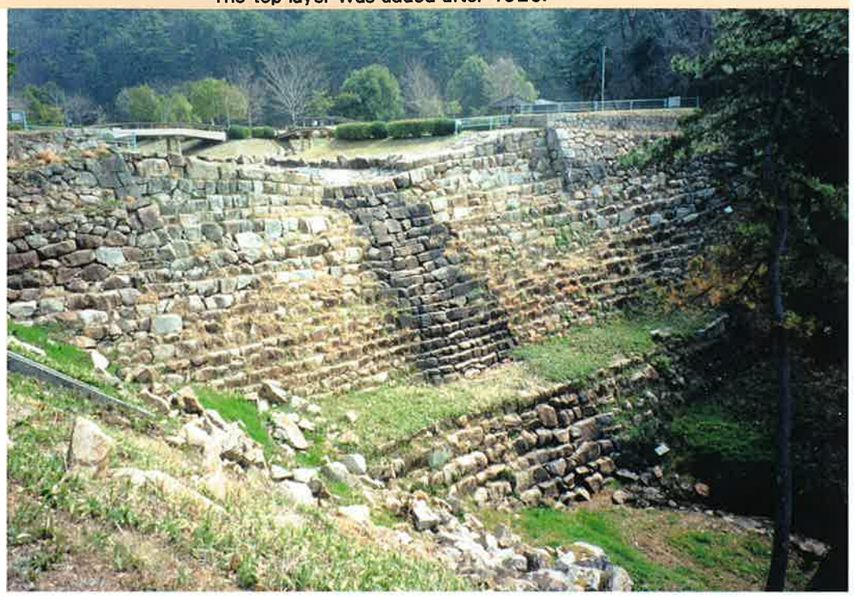
Dodo River Check Dam No.5 Registration No.34-0079

Size : 8.8m tall, 31.4m wide
Structure : Blocked-stone Embankment /Reclining Stone Retaining Wall
Method of Construction : Semi-layered Stone
Year of Construction : Between 1832-1835 (est.)
Top layer was expanded after 1926.

Although no records are available to determine the precise year of construction, the method and shape of the stonework seems to indicate that the No.5 check dam was constructed following the No.3 dam. Strong structural similarity is thought to exist between the No.5 and No.3 dams. Although initially the structure extended to the edge of the mountain, a portion of it was destroyed due to the road work, leading to its current form.

Dodo River Check Dam No.6 Registration No.34-0080

Size : 13.3m tall, 55.8m wide
Structure : Blocked-stone Embankment /Reclining Stone Retaining Wall
Method of Construction : Coursed, Layered Stone
Year of Construction : 1835 (est.)
The upper layer was heightened in 1872.
The top layer was added after 1926.



The entire structure is composed of the foundation layer, the lower layer, the middle layer, and the upper layer. Construction is believed to have started in 1835. "Tototani Yoteki" court records of 1893 state that "construction laborers for check dam have finally arrived." In addition, "Ohikata/Ogunagata/Murakata construction records" from Ana County, Shimogoryo Village, state that "construction work at the three rear check dams has been launched." One of these dams is believed to refer to the foundation layer.

Two short poems are inscribed on the surface of the "Tototani Yoteki" stone monument found in Dodo Park. They read:

"The Sea of Ana has turned to a sea of sand, The river is gone only to be buried by sand."

"Buried deeper and deeper every year, Who knows what will befall us in the future?"

The poems serve as a reminder of the hardships and struggles people here endured.

Other Check Dams on the Dodo River

Photos Taken in October 1994

Tobigasako Check Dam Registration No.34-0081

Uchihiro Check Dam Registration No.34-0082

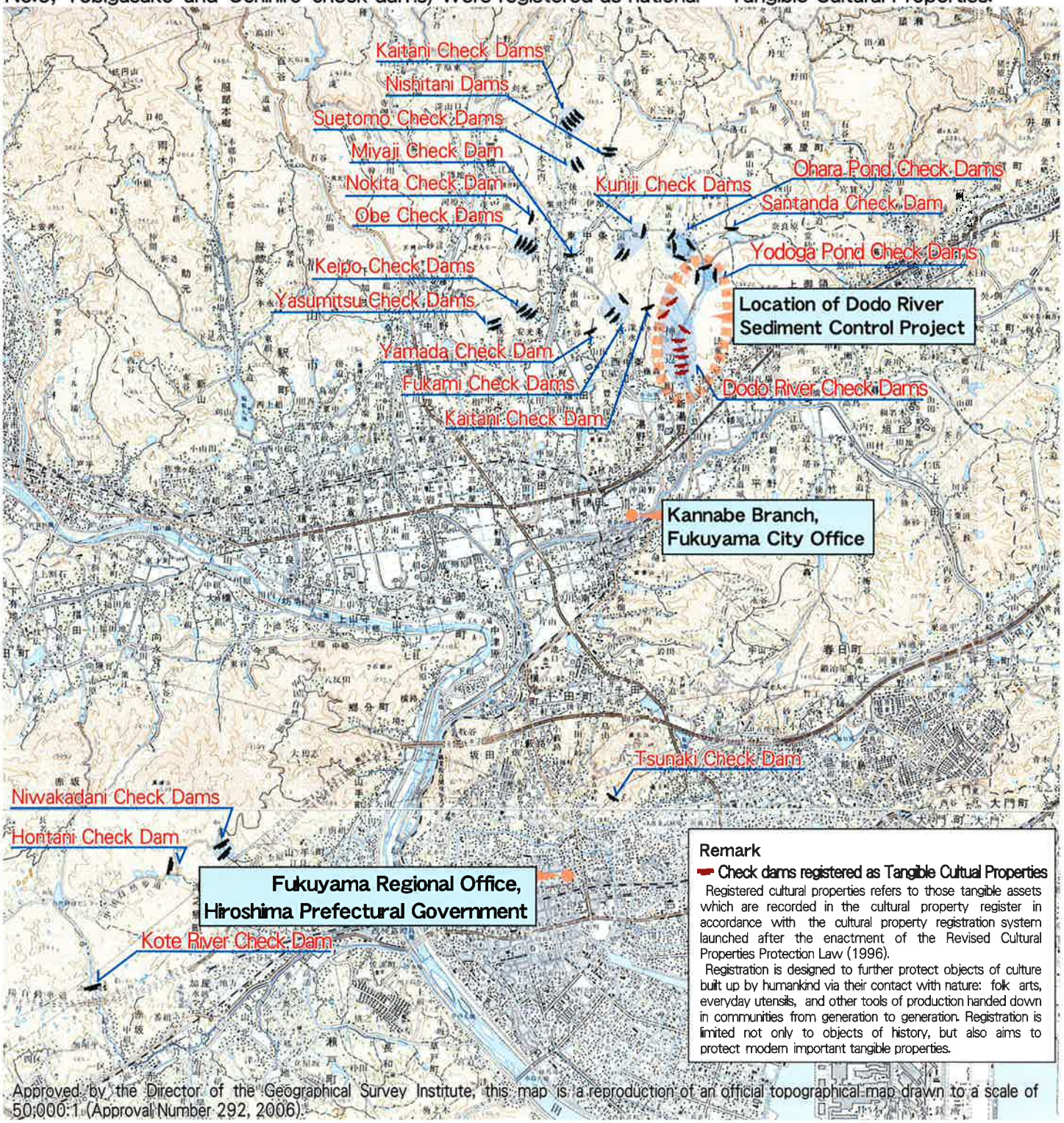
Yodoga Pond Higashi Check Dam

Yodoga Pond Heheri-touge-shita Check Dam

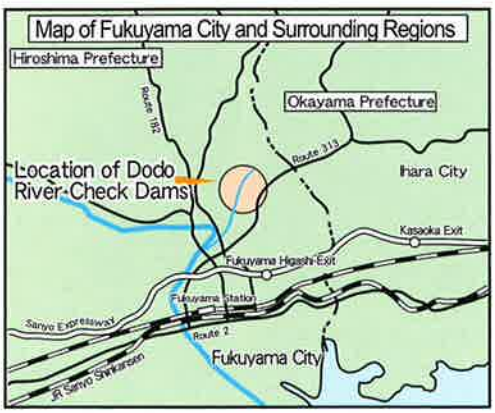
Yodoga Pond Shishi-watari-shita Check Dam

■Check Dams in the Fukuyama Domain during the Edo Period (1603-1868)

Check dams built by the Fukuyama Domain can still be found in Fukuyama City today. Repeatedly heightened and expanded, many of them are still in use. Of these, in 2006 the Dodo River check dams (No.1 ~ No.6, Tobigasako and Uchihiro check dams) were registered as national "Tangible Cultural Properties."



Approved by the Director of the Geographical Survey Institute, this map is a reproduction of an official topographical map drawn to a scale of 50,000:1 (Approval Number 292, 2006).



■Sediment Control Office Civil Engineering Department Hiroshima Prefectural Government

10-52 Motomachi, Naka-ku, Hiroshima 730-8511
TEL+81 - 82 - 513 - 3942(direct number) FAX+81 - 82 - 223 - 2443

■Construction Bureau Fukuyama Regional Office Hiroshima Prefectural Government

1-1-1 Miyoshi-cho, Fukuyama City, Hiroshima 720-8511
TEL+81 - 84 - 921 - 1311(main number) FAX+81 - 84 - 931 - 9236

Cover Photos the top (from the left) : No.1 Check Dam No.2 Check Dam No.3 Check Dam No.4 Check Dam No.5 Check Dam the bottom : No.6 Check Dam

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