Nature-oriented river works
Nuki River (Nuki River System, Kitakyushu City, Fukouka Prefecture, works carried out in 1992)

The improvement of the Nuki River re-established riparian vegetation and restored natural river flow with a variety of flow condition by adopting ripraps of natural stones for protecting the banks of the low-water channel and placing stones along the waterline.

In the Nuki River with an ample supply of sediment from upstream, vegetation has grown in the sediment deposited in the gaps among the ripraps or in the surrounding areas, creating natural water space.

23 months after construction (July 1995)
Sediment was deposited on which vegetation grew, creating a natural water space
Before construction (October 1991)
Immediately after construction (August 1993)
Hikichi River (Hikchi River System, Yamato City, Kanagawa Prefecture, works carried out in 1992)

In the Hikichi River, improved in 1977 into a channel covered by concrete on all faces, a good old stream was restored by utilizing sloped greenway and park areas left along the river.

The river course and the low-water channel were made to meander to create riffles and pools. Adoption of a method providing for the growth of riparian vegetation resulted in the flourishing of vegetation. Various types of small fish now live in riparian standing pools. Children gathers for bathing of crayfishing. Thus a country stream has been restored.

30 months after construction (October 1995) – Green water space was restored
Before construction (December 1992)
Three months after construction (June 1993)
Before construction (July 1992)
Shojin River (Ishikari River System, Sapporo City, Hokkaido, works carried out in the 1992 – 1995 period)

In the Shojin River that runs through the urban areas of Sapporo, existing revetments were removed in an attempt to restore the natural river flow, and nature-oriented river works were carried out to maintain harmony between the rivers and the parks and residential areas in the city. Various efforts were made during the improvement of the Shojin River such as in-depth lectures for contractors.

As a result of the river works, vegetation was rooted along the river and natural riverfront was created.

28 months after construction (July 1995)
Deep-rooted vegetation is prospering, and a country river is being restored
Immediately after construction (May 1993)
Before construction (July 1992)
28 months after construction (July 1995)
Vegetation proposed in the timber crib on the right bank
Immediately after construction (April 1993)
Hattoh River (chiyo River System, Wakasa0cho, Tottori Prefecture, works carried out in 1991)

For the section of the Hattoh River, a site of nature-oriented river development project, a decision was made to divert flood-waters to increase flood control capacity by using the former river course cleared for farming. During the project implementation, a river with the diversity of the natural environment was restored.

Pools were restored where they used to exist, based on the information obtained from local elders. Riffles were re-created by placing stones.

In the Hattoh River that has regained flow, habitat for fish including sweetfish and Oncorhynchus masou masou has been created, and riparian plants such as Japanese pussy willows and phragmites japonica are prospering in river banks. There now flows a natural river as if it had been running a long time.

30 months after construction (October 1994)
A clear stream was restored in the mountain village
Before construction (October 1990)
Pool restored based on the knowledge of elders
Immediately after construction (April 1992)
Kyu – Toshino River (Yoshino River System, Kitajima-cho, Tokushima Prefecture, works carried out in 1995)

Before construction, the waterline was monotonous with steep revetments. A decision made to restore riparian reed field by improving the block masonry that had been crumbling.

In order to improve the riparian zone considering the natural environment and habitat on the Kyu-Yoshino River basin where urbanization had been proceeding, a method was adopted of recycling materials obtained at construction sites such as mud and crushed concrete. Then soil covering and reed transplanting were carried out.

Mud was put in special bags that could dewater and consolidate the mud and the packed mud was used for fill material. Crushed concrete was put in bags for use for foot protection. Reeds were transplanted by planting seedlings in pots. Various types of vegetation including reeds flourish along the waterline. Immature carp and gonies have been recognized in the reed zone and in areas of packed blocks respectively.

18 months after construction (September 1997)
Reeds have grown, and a natural riparian zone has been reborn
Before construction (march 1995)
Immediately after construction (March 1996)
Koyoshi River (Koyoshi River System, Honjo City, Akita Prefecture, works carried out in 1994)

In the Koyoshi River that had had its bank scour by flood of melted snow, a group of spur dykes were installed to change flow direction toward the center of the river course. For spur dykes, ripraps were laid on foot protection blocks to enable the growth of vegetation.

A group of spur dykes covered with vegetation such as sagebrushes and water peppers and the preserved riparian forest have created a beautiful landscape. Standing pools and deep pools around the spur dykes have produced environmental diversities.

27 months after construction (June 1997)
Vegetation mainly consisting of sagebrushes and water peppers exits on the spur dykes. The preserved riparian forest highlights the landscape.
Three months after construction (June 1995)
Yodo River (Yodo River System, Osaka City, Osaka Prefecture, works carried out in 1989)

The Yodo River has a group of wands (still water areas) which are habitat for Acheilognatus longipinnis designated as a protected species. A wand preservation plan was established in 1981.

Heisei Wand 79 months after construction (October 1996)
Bird’s-eye view of the Heisei Wand
The wand consist of triangle and square ponds

Dry stone masonry was used to facilitate water circulation.
Chikuma River (Shinano River System, Nagano City, Nagano Prefecture, works carried out in 1992)

During sediment excavation in the Chikuma River for increasing the cross-sectional area, a riparian forest that land grown for about 20 years was left as an island. The bed was excavated so as to provide diversities unlike conventional works creating flat river beds. The objective was to provide habitat for more diverse life.

30 months after construction (September 1995)
An island was left in the channel to preserve the mainstream of the Chikuma River and the riparian forest
Before construction (November 1984)
16 months after construction (July 1994)
Nagara River (Kiso River System, Hashima City, Gifu Prefecture, works carried out in 1991-1994 period)

In the Nagara River, the low-water channel alignments was reviewed to protect an existing wand. In order to preserve the vegetation in the flood channel, the flood channel was left intact and hidden revetments were adopted to preserve the existing riparian zone.

Use of field top soil to cover the revetments promoted the restoration of local vegetation, creating a landscape that maintains harmony with the surrounding natural environment. The preserved wand and flood channel created habitat for diverse life including riparian vegetation, fish and shellfish and avian species.

Before construction (February 1992)

Immediately after construction (April 1992)
Before construction (January 1994)

During construction (March 1994) – Backfilling with the earth available at the after installation of revetments
Preserved wand 40 months after construction (August 1995)
16 months after construction (October 1995)
Vegetation has grown and the original state has been restored
River development through partnership with local communities

Local river conservation movement has been thriving for the Itabitsu River in Kitakyushu City, Fukuoka Prefecture. The people organized a “riverside council” and have been involved in river development while maintaining compatibility with community planning. In the river sections adjacent to elementary schools in particular, children’s ideas have been incorporated into river planning or educational programs have been implemented in the river as part of school activities based on the results of joint efforts of school, region and the organizations involved in river improvement.

In the spots selected from among the locations of nature-oriented river works, post-construction follow-up studies have been carried out to verify habitat or other conditions. In Lake Shinji where nature-oriented levees were built using natural stones and wood posts, in-depth follow-up studies have been carried out about use, water quality, and fish, plant and avian species.

Fish and shellfish investigations have confirmed increases of species and population in the construction sites. Especially, gobies increased. Juvenile shell of Corbicula japonica, not found before construction, has been recognized.
One month after construction (October 1996)
Nature oriented levee on the shore of Lake Shinji
For information on nature-oriented river works, please feel free to contact the following organizations.

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