

Past and present approaches to river rehabilitation in Japan

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- Post-war Japan
- Nature Oriented River Works
- Example: Izumi River, Yokohama
- Review and new technical standards
- New initiatives for river rehabilitation
 - Nature restoration projects
- Challenges for the future

Post-war Japan

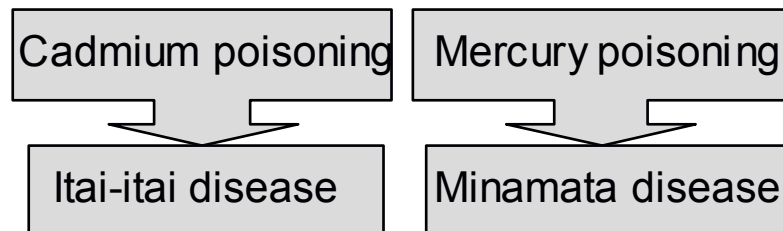


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- After the Second World War Japan experienced a period of rapid industrialisation and urbanisation, this caused serious pollution of many rivers.
- Some devastating typhoons led to the initiation of a massive flood control project with a boom of large dam constructions and river channelisation works.



Tama River, Tokyo, 1970s
Source: River Front Centre, Tokyo.



Many agricultural earth canals were built into concrete to rationalize the water usage. Source: W.W. Kelly, Japan Focus.

Post-war Japan

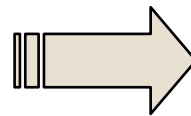


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- At least three endemic fish species have totally disappeared, and about 60 fish species are listed as endangered (Yoshimura 2005).
- The chemical water quality started to return to acceptable levels, but the physical condition remained poor, especially in lowland rivers.
- Huge demand for urban recreation space in the 1980s.



Vast number of young Yellowtail killed by red tide (1975)



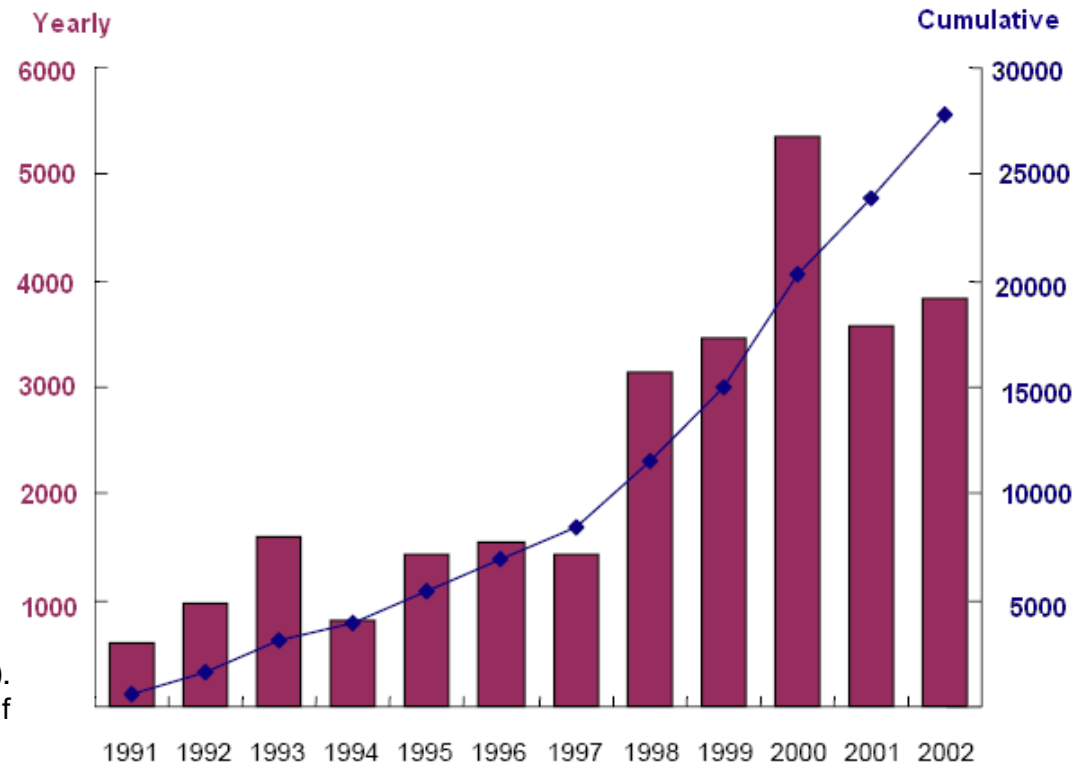
Furukawa River, eastern Tokyo, before and after construction of recreation space. Source: CTI Engineering.

Nature Oriented River Works



- The River Bureau of the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) owns and manages all major (class A) rivers in Japan. Smaller rivers (class B and lower) are managed by the local prefectures and municipal governments.
- In 1990 the MLIT introduced its new policy of Nature Oriented River Works on some representative rivers.
- In 1997 the NORW policy became a requirement for all MLIT financed river works.

Number of NORW carried out in Japan between 1991 and 2002. Source: MLIT (2007). www.mlit.go.jp/hyouka/pdf/review/19/kasenkankyou.pdf



Nature Oriented River Works



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- All NORW are flood protection projects carried out according to a ‘greener’ policy, but they did not have any specific ecological goals.
- Most of these river works were small and reach based, carried out by local river managers with their own interpretation of the NORW concept. This led to huge differences in the quality of NORW.



Early attempts to green the banks of flood protection works. Source: Manual for Technical Standards, 2007.

Izumi River, Yokohama



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- One of these first pioneering rehabilitation projects was carried out on the Izumi River in Yokohama.
- Much effort was put into public participation, and the main aim of the project was to enhance the amenity and re-connect the river with its surroundings.
- A local river management group was formed to maintain the area and cut the grass around the river.



Photo: Yoshimura, Shinichi



Photo: Ulrika Åberg

Photo:
Higashiyama
Volunteer
Management
Group



Izumi River, Yokohama

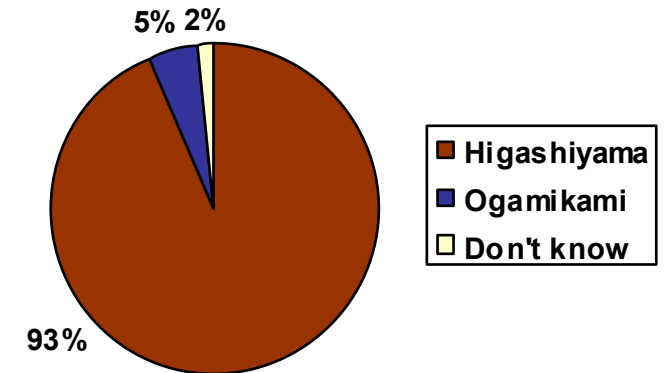
Higashiyama



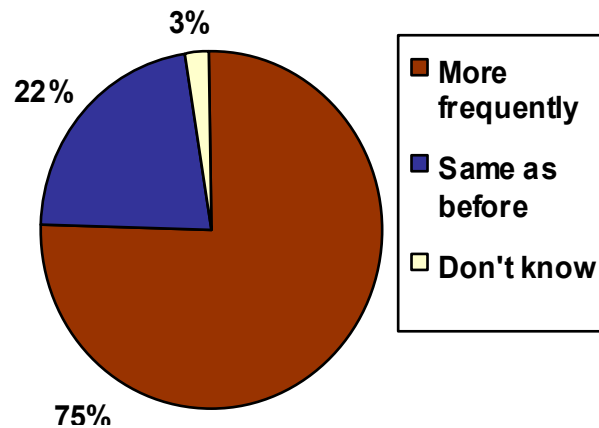
Ogamikami



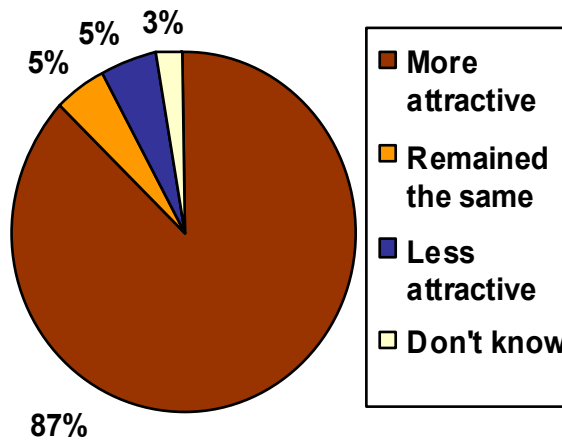
Preference between Higashiyama and Ogamikami



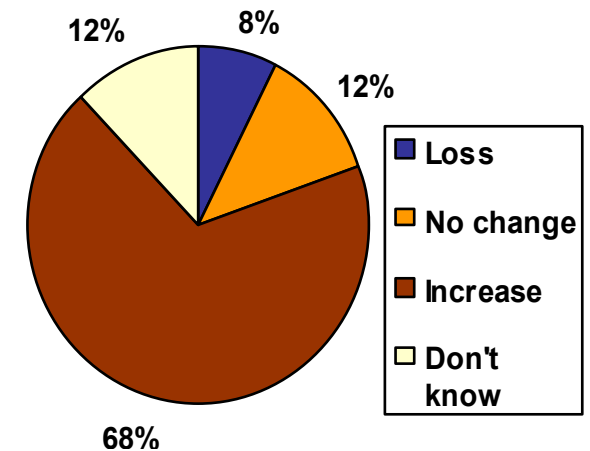
Frequency of visit



Attractiveness



Change in wildlife



Izumi River, Yokohama



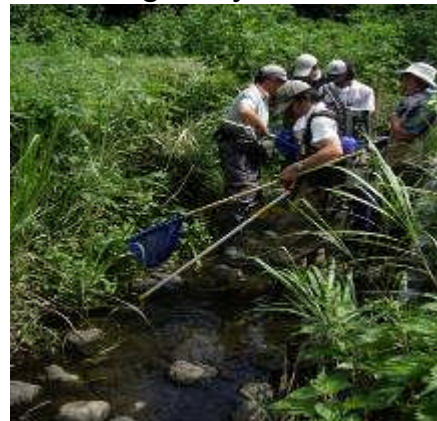
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Fish species	Teranowaki	Sekigahara	Higashiyama	Futatsubashi	Concrete
Freshwater minnow	115	224	125	29	0
Japanese fat minnow	128	71	46	83	1
Common carp	4	0	13	0	0
Asian pond loach	12	9	2	2	2
Field gudgeon	1	2	2	3	0
Freshwater goby	2	1	1	0	0
Eight-barbel loach	1	0	0	1	0
Topmouth minnow	1	7	2	0	0

Teranowaki



Higashiyama



Futatsubashi



Concrete

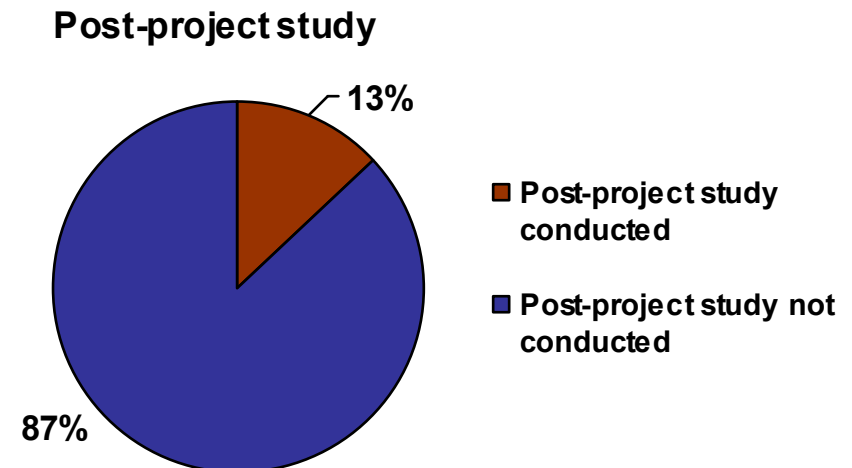
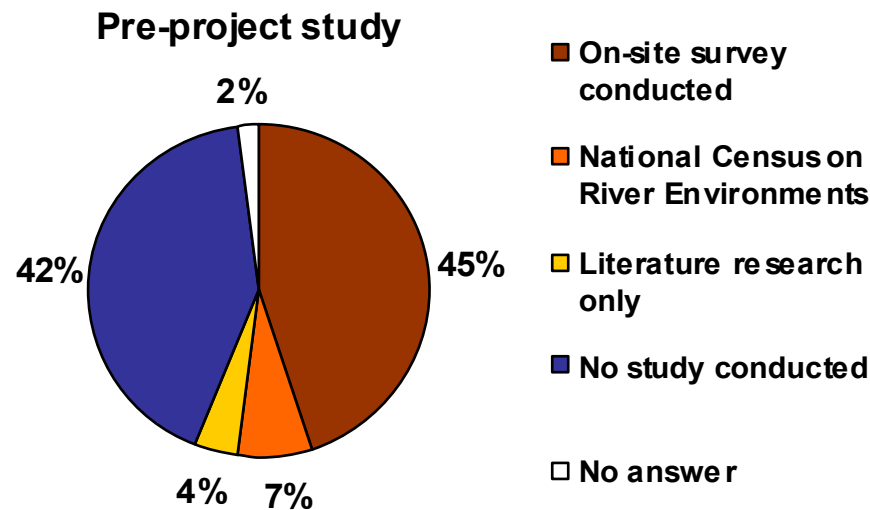


Review and new technical standards



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- In 2005 the MLIT set up a committee to review the past years of NORW.
- The report showed that 42% of all projects lack any kind of pre-project monitoring and 87% lack any kind of post-project monitoring.



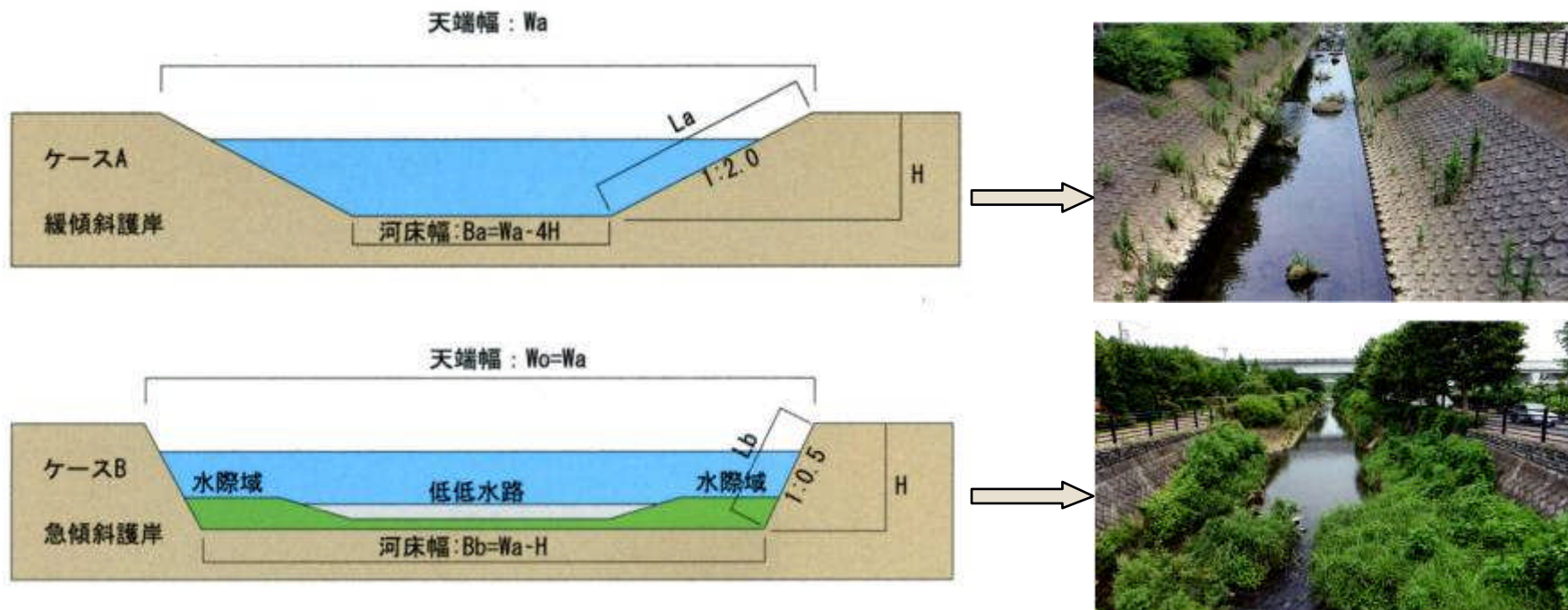
Source: MLIT (2008)

Review and new technical standards



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- The review resulted in the publication of new technical standards.
- One important part of the new guidelines is how to make space for water.
- If the banks are steepened, some space is created for in-stream constructions, such as vegetated banks.



Source: Manual for Technical Standards, 2007.

Nature restoration projects



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- From 2002 the MLIT has initiated 35 river restoration projects, these are all large catchment scale projects. Compared to the NORW these projects are not undertaken as part of flood control or water abstraction projects.
- In 2003 the Ministry of Environment implemented a new nature restoration promotion law.
- The most famous of the nature restoration projects under the promotion law is probably the restoration of the Kushiro mire in Hokkaido.

Restorations plans of
Kushiro mire, Hokkaido.
Source: River Front
Centre, Tokyo.



Challenges for the future



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- On average, about 100 people are still killed by floods in Japan every year, and annual costs of flood damage are the highest worldwide. It is a big challenge to compromise between flood protection and nature conservation or restoration.
- The new guidelines for NORW published in August 2008 are going to be mandatory to follow for all NORW financed by the MLIT.
- The 35 ongoing nature regeneration projects of this scale are not insignificant considering that Japan only has 109 major river systems.



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THANK YOU

