

Urban River Management in Japan

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Outline of the Presentation

1.Characteristic of National Land and Rivers

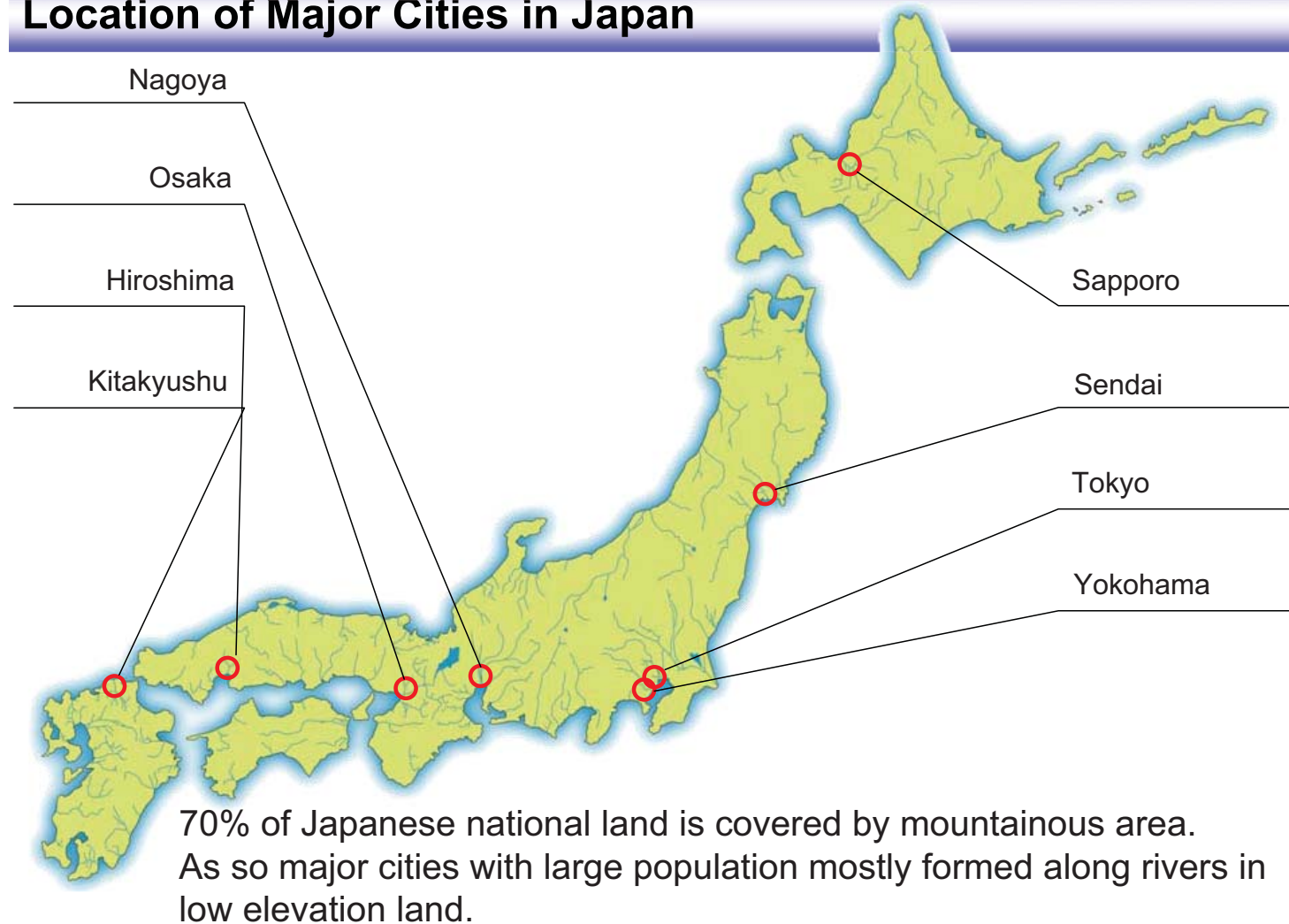
2.Previous River Management and its Side Effects

3.Latest Trend/Concept of River Management



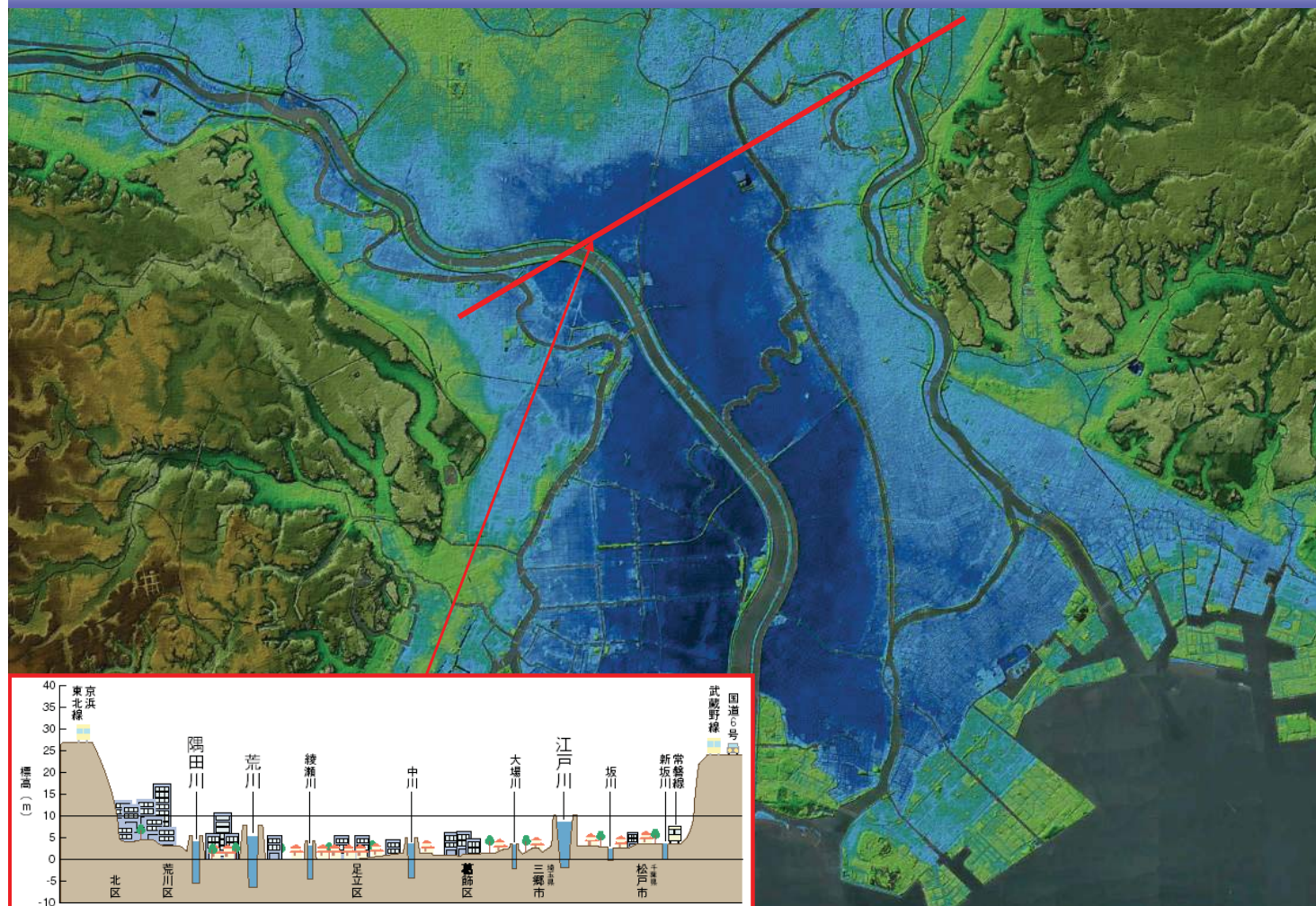
Characteristic of National Land and Rivers

Location of Major Cities in Japan

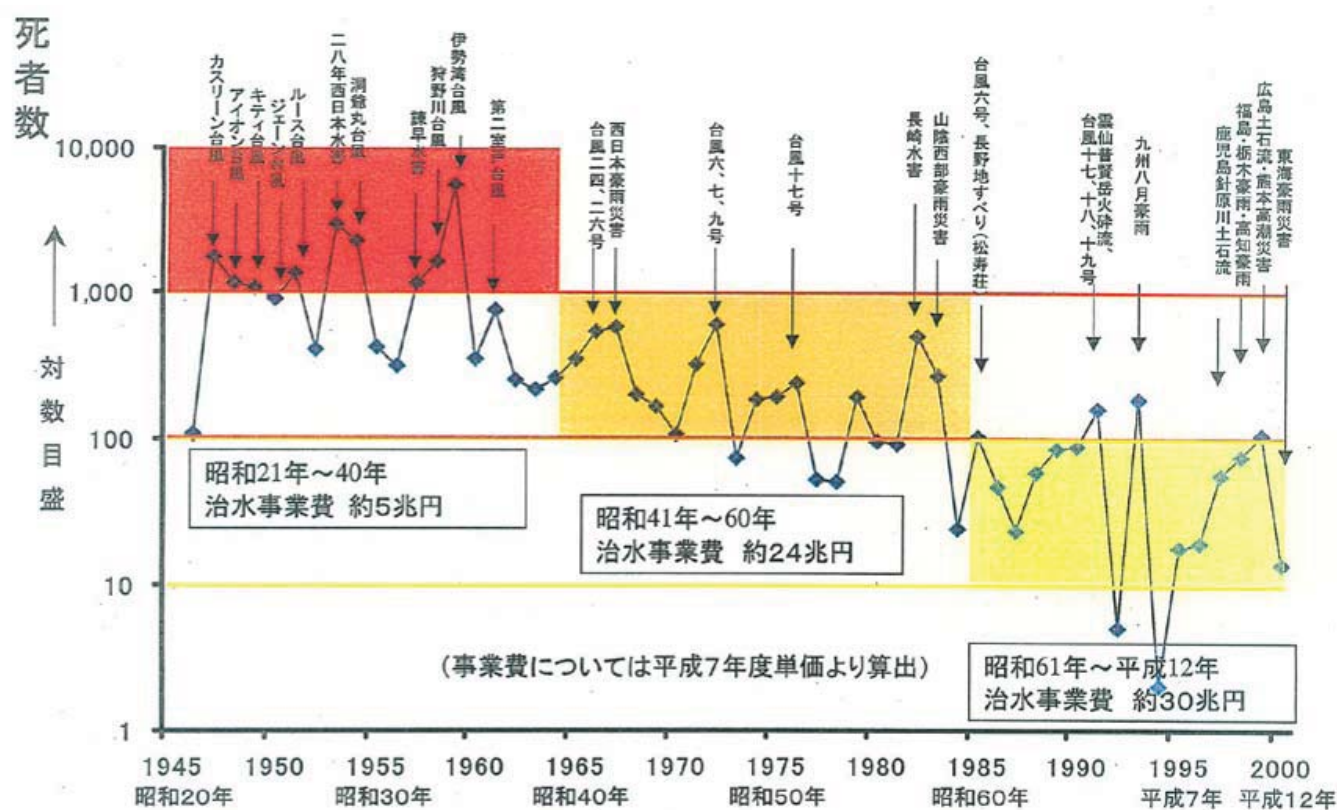


70% of Japanese national land is covered by mountainous area.
As so major cities with large population mostly formed along rivers in
low elevation land.

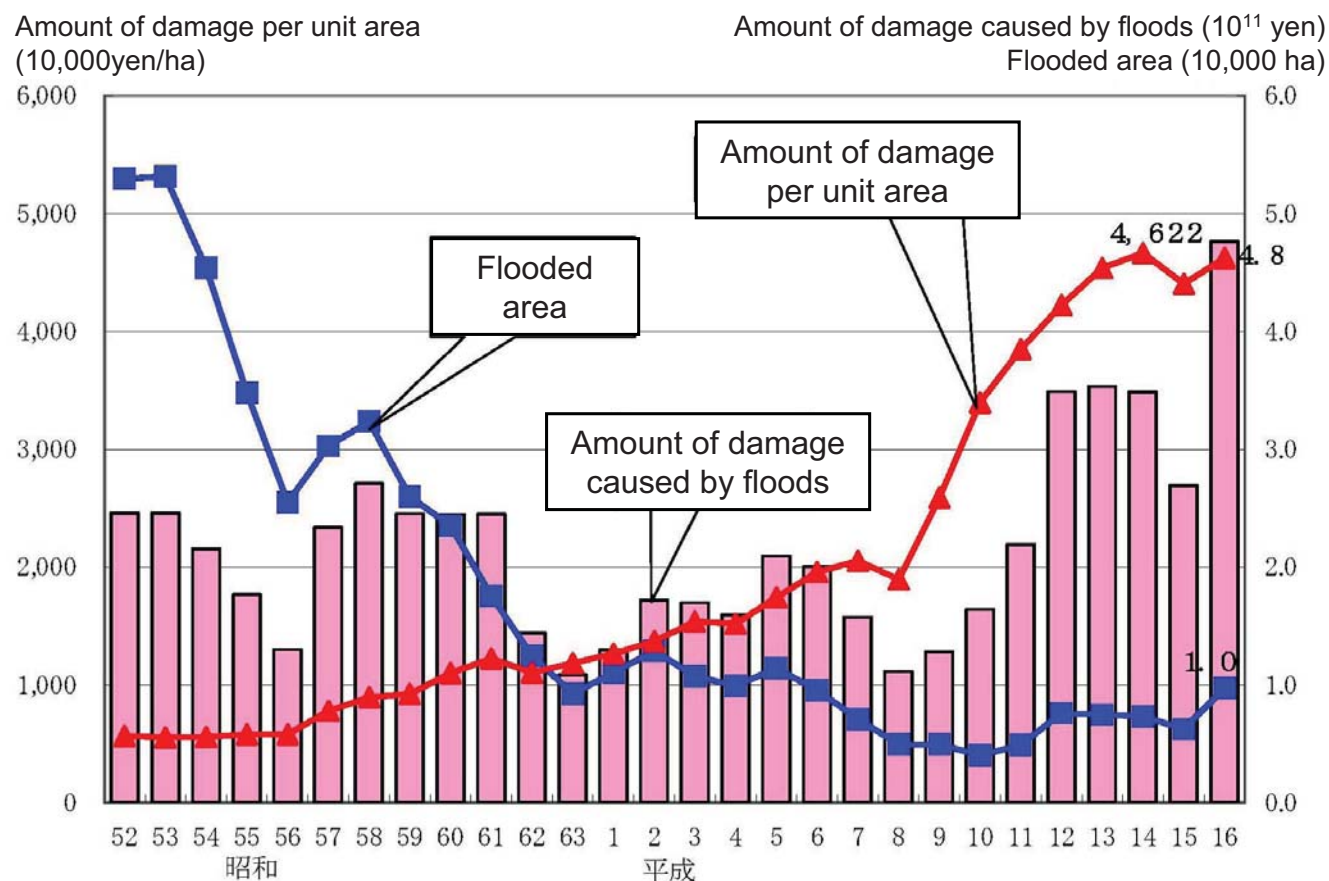
Urban Area Formed in Lower Elevation



Floods Death Toll



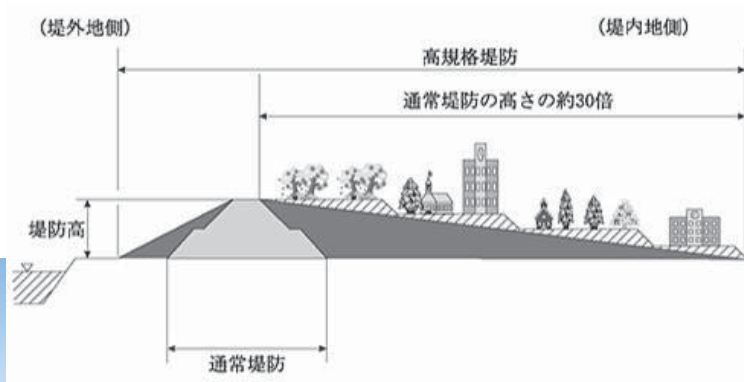
Amount of damage caused by floods



Flood Control Measures from the Perspective of Watershed



Flood Control Efforts on the Improvement of the Degree of Safety



Flood Control Efforts on the Improvement of the Degree of Safety

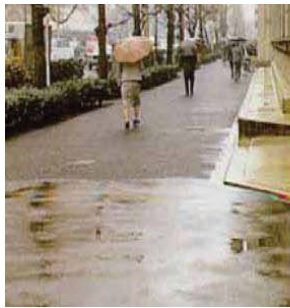
Installation of rainwater infiltration facilities

Capture rainwater on the school grounds.

Used as a multi-purpose facility



Improved paved surface of the road



set up a facility to house and housing complexes.



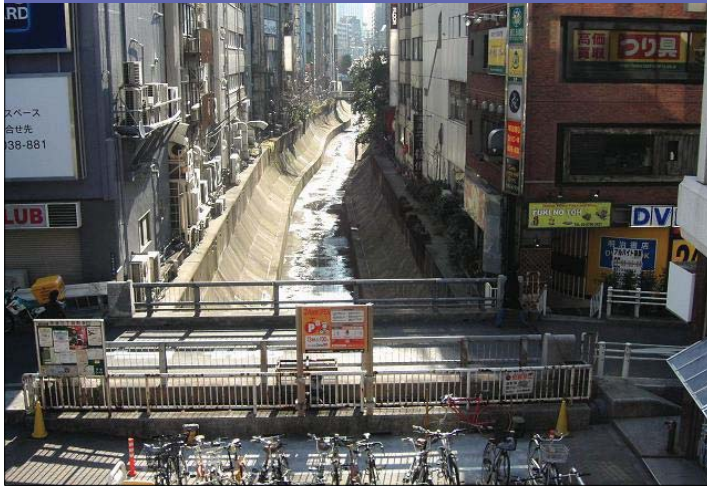
Flood Control Efforts on the Improvement of the Degree of Safety



the Metropolitan Area Outer Underground Discharge Channel



Flood Control Efforts on the Improvement of the Degree of Safety



Transition of River Law

1896

Birth of modern law for river improvement

Flood Control

1964

Systematic maintenance system for 2 contents

- Introduction of basin consistent management system
- Adjust the relation of 2 factors

Flood Control

Water Utilization

1997

The overall maintenance of 3 contents

- Maintenance and preservation of river environment
- Reflection of regional opinion
- Introduction of planning system

Flood Control

Water Utilization

River Environment

Purpose of River Policy.

- Improvement of flood control safety.
- Ensuring water essential to human life.
- Conservation and restoration of the natural environment of the river.
- River management that balances the above three.

Factors in Natural Rivers



Attempt of Making a Natural River



Attempt of Making a Natural River



Attempt of Making a Natural River





Latest Trend/Concept of River Management

Purpose for Nature-Oriented River Management

“Nature-Oriented River Management” is a basic policy of river improvement which utilizing the natural dynamics of the river.

Three considerations of “Nature-oriented River Management” is ...

to create or to conserve an original environment of river for habitats.



to form the harmony with cultural life and history of the region.



to create or to conserve a variety of river views.



Initial cases aimed to improve river environment



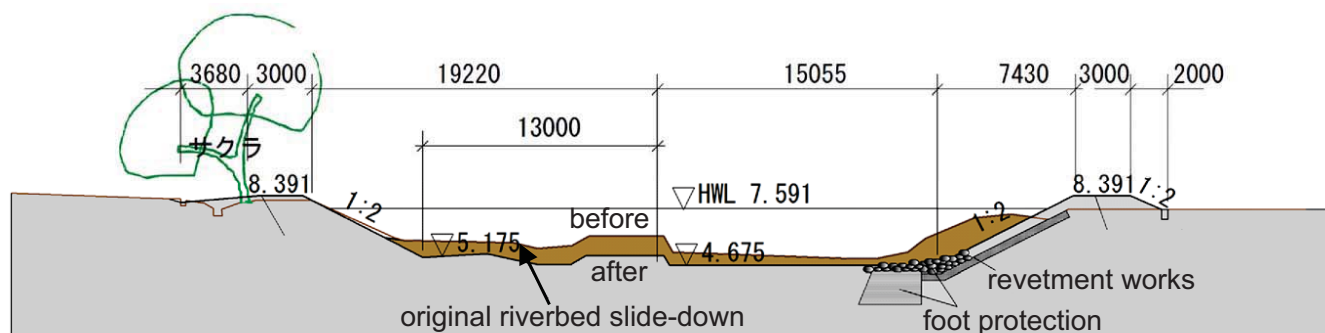
It Used to be the river with poor habitat, which river banks are covered in steel sheet pile



The results of extending river width, devised a revetment on shore, shallows and pools are formed. And the stagnation of the border plant has become a habitat for fish.

Initial cases aim to improve river environment

The riverbed excavation traces an original riverbed -



Basic Direction of River Improvement

Planar

- The river improvement planning is more likely to plan spatially as to ensure natural and linear width or meandering channel.

Cross-section

- The channel cross-section is more likely to widen as to ensure natural and linear width to accept flood dynamism.

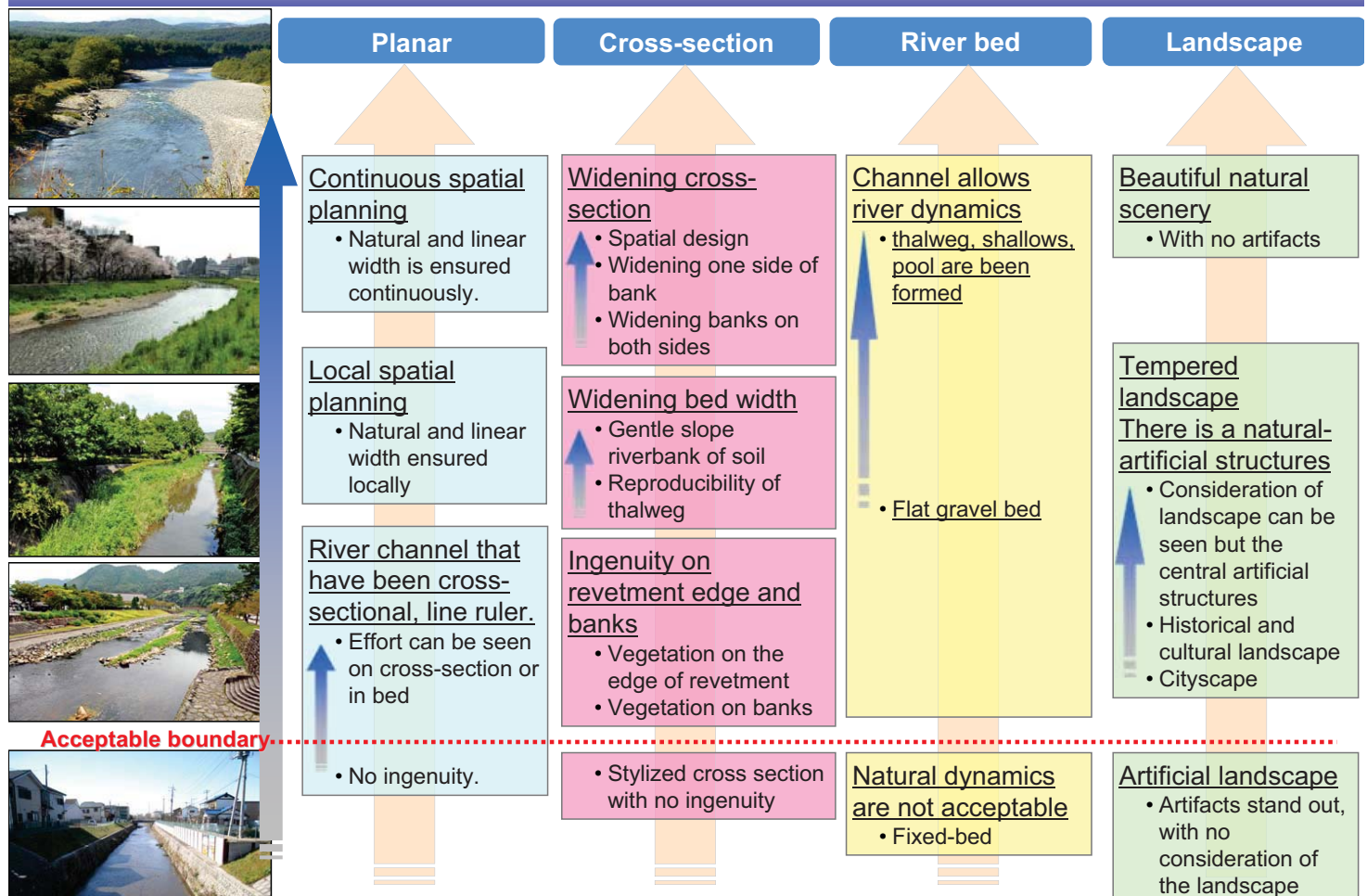
River bed

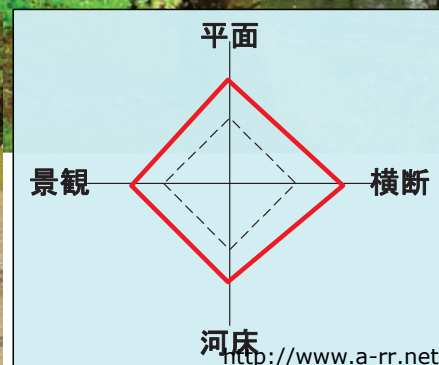
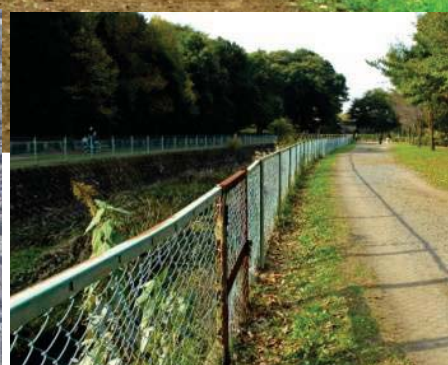
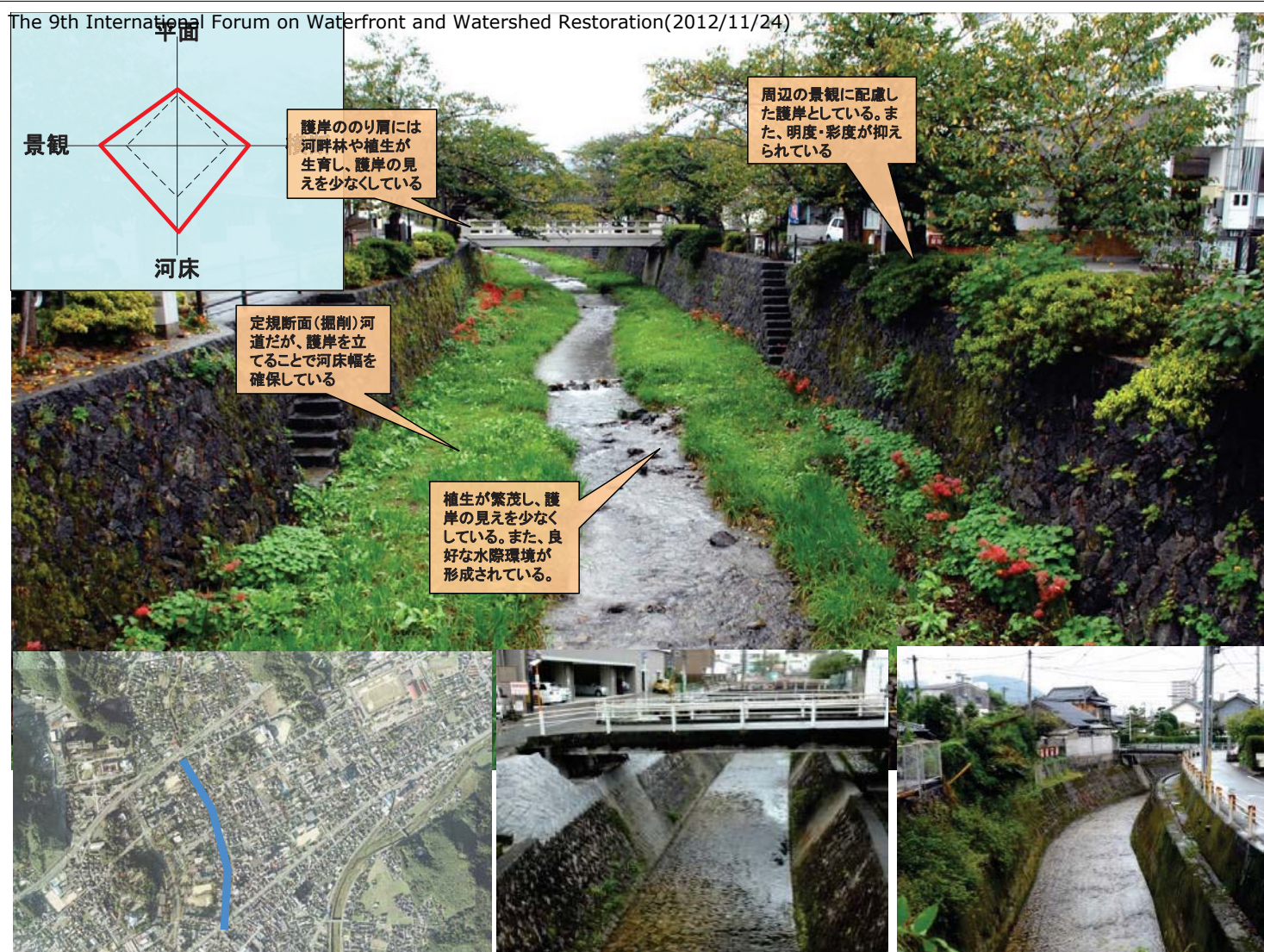
- The bed is more likely to be covered by natural materials, as channel allows river dynamics to form thalweg, shallows, pools.

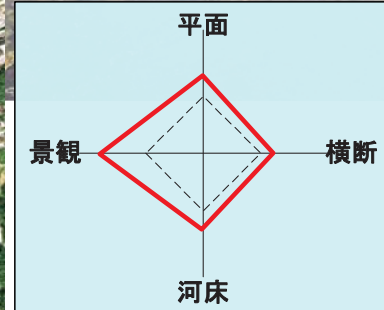
Landscape

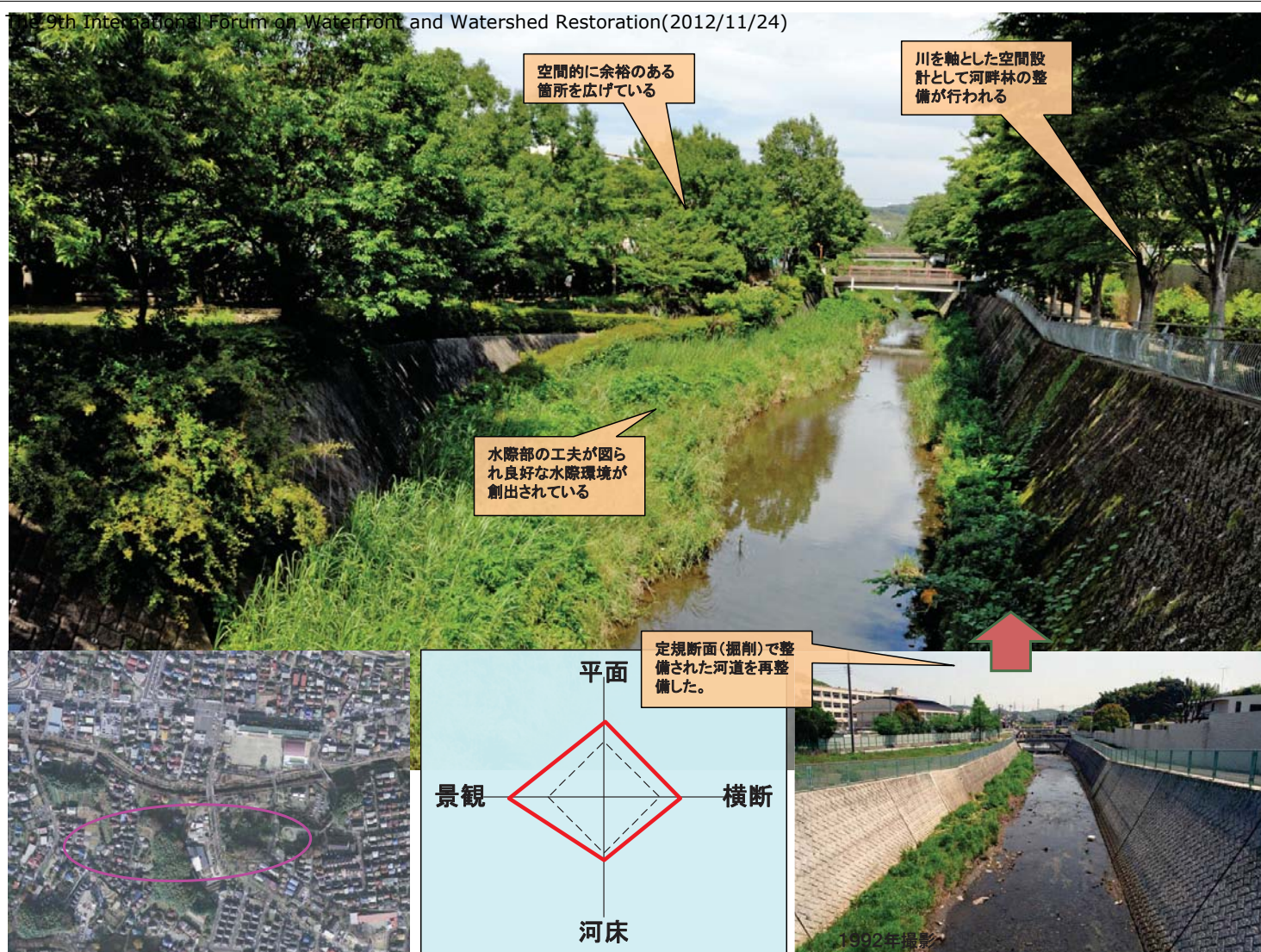
- More likely to preserve or restore beautiful natural scenery with no artifacts

Indicators to Evaluate Urban River Improvement

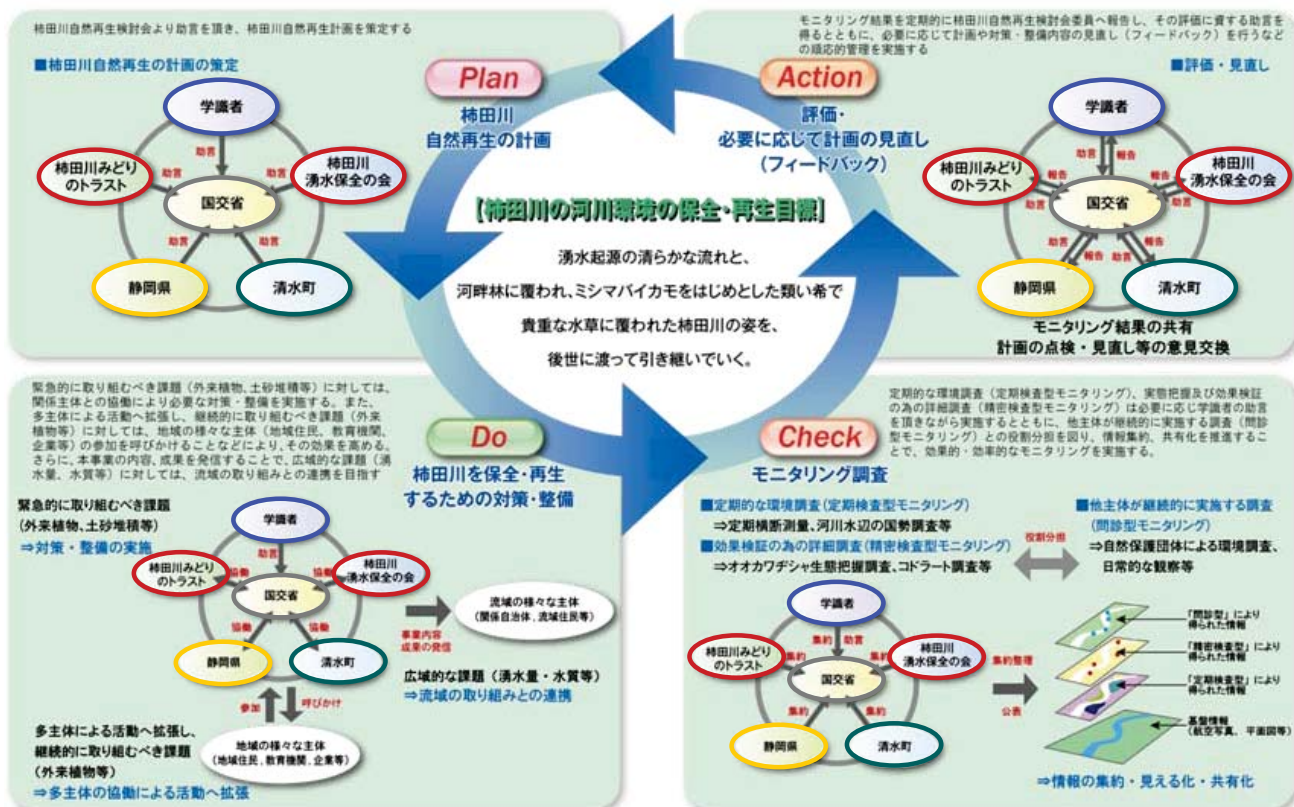








PDCA cycle scheme: Maintenance of the recycling system



Efforts for Sustainable River Environment



Various Programs to Support River Improvement

Support programs of river development plan for consideration

Nature Oriented River Management Adviser Program

- River development support program for river administrators managed by the Ministry of Land, Infrastructure and Transport.
- Upon restoration of rivers affected by the disaster, sent experts of river development, advise the planning of river development suit for the local condition.

Nature Oriented River Management Support Center

- River development inquiry counter managed by the Japan River Research centre.
- Activities that target all stakeholders such as citizens, the private sector and government agencies.
- Contents is in wide range, such as sent lecture, hold study sessions, give advice to river development plan, etc...

River administrator Lecture Program for citizen

- Lecturers program targeting mainly NGOs, which according to the river environment.
- Program is managed by the Ministry of Land, Infrastructure and Transport.

Various Programs to Support River Improvement

Programs on the sharing of river information

Japan River Restoration Network

- A non political network for exchanging knowledge and technical information on the restoration of rivers and watersheds in Japan and Asia.
- It aims to enrich the participants' knowledge and scientific technology through mutual and multilateral cooperation, and JRRN also contributes to creation of rich river environment in Japan.

Nice-River / Nice-River Development Workshop & Symposium

- Debriefing of the river conservation activities of the people, by the people, for the people, with cooperation of academics and river administrator.
- Symposium for people to learn the latest technology protection activities from government officials rivers or from academics.

Knowledge of stream ecology – database

- Website managed by National Institute for Land and Infrastructure Management.
- Provide aggregated information centrally in the Journal of Research on the ecology and related academic research was carried out in rivers of the individual rivers so far, and the results of the study in the other rivers.



Thank you