

River Basin Disaster Resilience and Sustainability by All

Japan's New Policy on Water-related Disaster Risk Reduction

Japan's new policy, River Basin Disaster Resilience and Sustainability by All, considers river basins as spaces that include the watershed and flood plain areas, and this policy takes comprehensive and multilayered actions as follows: 1) flood prevention, 2) exposure reduction, and 3) disaster resilience. The policy calls for all stakeholders in river basins, including the national government, prefectures, municipalities, private enterprises, residents and water users, to take actions for disaster resilience and sustainability. In 2020, after experiencing tragic water disasters in recent years, Japan's Ministry of Land, Infrastructure, Transport and Tourism greatly shifted its flood management policy to the new policy, River Basin Disaster Resilience and Sustainability by All.

BACKGROUND

Impacts of Climate Change

Water disasters will continue to intensify. It is necessary to enhance the methods of measures to improve safety quickly.



Typhoon Hagibis
(2019)



Floods in Japan
(2018)

Social Trends

With Japan facing a declining and aging population, it is necessary to achieve safe and secure Compact Plus Network urban planning to maintain regional vitality.

Technological Innovation

Remarkable progress is being made in technologies such as 5G, AI, Big Data, and IT. It is necessary to utilize these technologies in disaster risk reduction, including evacuation.

NEW POLICY FOR JAPAN

I. Transition to River Basin Disaster Resilience and Sustainability by All

- Measures to be implemented with the cooperation of all stakeholders in any kind of place around basins
- Accelerate preventive disaster risk reduction ("River Basin Disaster Resilience and Sustainability by All" Project)

II. Revise Plans for Flood Control

- Upgrade flood control plans considering the impacts of climate change

I. Transition to River Basin Disaster Resilience and Sustainability by All

CONVENTIONAL FLOOD CONTROL

■ Structural measures with clear role allocation

Mainly by administrators such as divisions of rivers, sewage, erosion and sediment control, and coasts

■ Measures implemented mainly in river areas and floodplains

Transition

RIVER BASIN DISASTER RESILIENCE AND SUSTAINABILITY BY ALL

■ Measures to be implemented with the cooperation of all stakeholders

including the national government, prefectures, municipalities, private enterprises, and residents

■ Measures to be implemented in any kind of place around basins

including not only river areas and floodplains but also catchments

1) Flood Prevention

2) Exposure Reduction

3) Disaster Resilience

IMAGE OF RIVER BASIN DISASTER RESILIENCE AND SUSTAINABILITY BY ALL

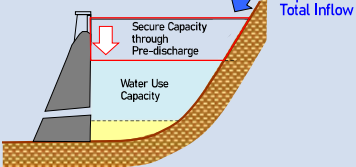
1) Examples of Flood Prevention

(Ex. 1) Development of Levees



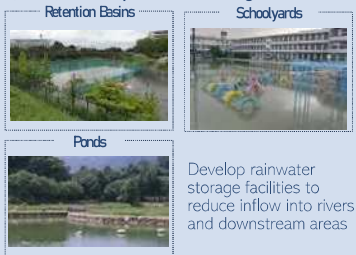
Heightening and strengthening of levees

(Ex. 2) Pre-Discharge from Water Utilization Dams



Discharge some of the service water capacity of existing dams, such as water utilization dams, in advance of floods, according to inflow expectations

(Ex. 3) Development of Storage Facilities



Develop rainwater storage facilities to reduce inflow into rivers and downstream areas

1) Flood Prevention

Catchments

- Improve rainwater storage functions <P / M / E / R>
Improve rainwater storage facilities and effectively use agricultural reservoirs for flood control

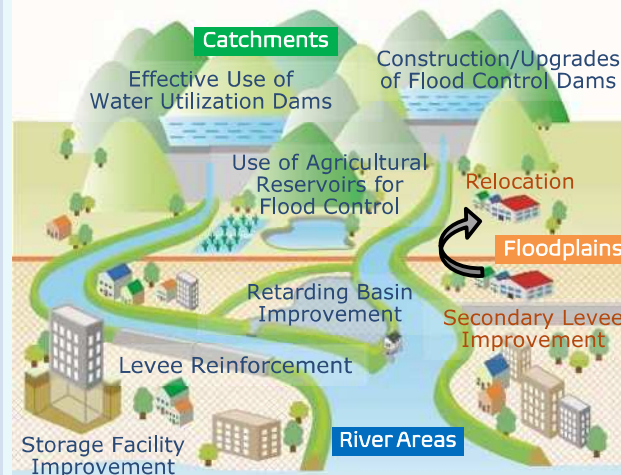
River Areas

- Store flowing water <N / P / M / W>
Construction, upgrades, effective use of dams, and pre-discharge in water utilization dams for flood control <N / P / M>
Upgrade retarding function integrally with land use
- Ensure and improve the discharge capacity of river channels <N / P / M>
Channel excavation, setting back levees, and improvement of erosion control dams and rainwater drain facilities
- Reduce overflow <N / P>
Strengthen levees to make them last a long time even when overlapping

2) Exposure Reduction

Floodplains

- Guide residents to lower risk areas / Promote safer ways of living <M / E / R>
Consider land use restrictions, encourage relocation, provide flood risk information in real estate transactions, and improve financial tools
- Localize inundation areas <N / P / M>
Install banking structures and utilize existing facilities, which play the role of secondary levees



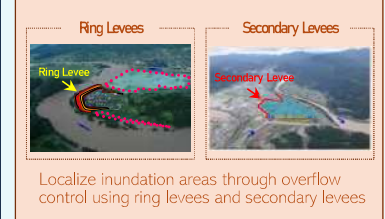
< >: Expected to be implemented by
N: National Government, P: Prefectures, M: Municipalities,
E: Private Enterprises, R: Residents, W: Water Users

3) Disaster Resilience

Floodplains

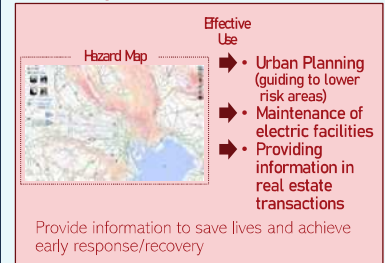
- Improve risk information on land <N / P>
Promote the designation of probable inundation zones so there is sufficient area covered by risk information
- Reinforce evacuation systems <N / P / M>
Develop long-term prediction technologies and acquire real-time inundation and breach detection technologies
- Minimize economic damages <E / R>
Prepare anti-inundation measures in factories and buildings and develop BCPs
- Promote safer ways of living <E / R>
Provide flood risk information in real estate transactions and promote anti-inundation preparedness through financial tools
- Improve technical support systems for affected local governments <N / E>
Strengthen TEC-FORCE (Technical Emergency Control Force, managed by MLIT)
- Eliminate inundation promptly <N / P / M etc.>
Improve sluice gates

2) Example of Exposure Reduction



Localize inundation areas through overflow control using ring levees and secondary levees

3) Example of Disaster Resilience



Provide information to save lives and achieve early response/recovery

Cooperation of Every Stakeholder



(Deciding on project details)

II. Revise Plans

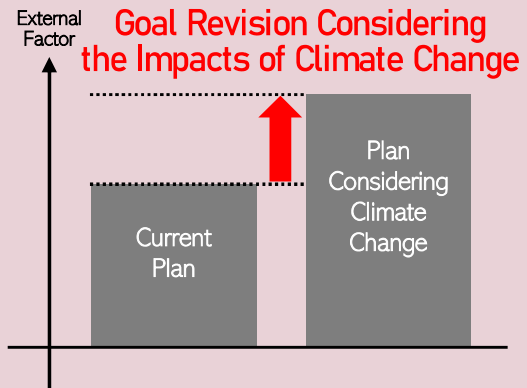
CURRENTLY

Current defense plans against floods, inland floods, landslides, storm surges, and high tides were developed based on past precipitation and tide level records.

FOR THE FUTURE

Revise the plans considering impacts of climate change such as rainfall increase* and tide level rise

*In the scenario of global temperature rise below 2°C (target scenario of the Paris Agreement on Climate Change), precipitation is likely to increase by a factor of 1.1.



Frequently Asked Questions (FAQ)

■ What is the Role of River Administrators in Japan?

River management requires the prevention of disasters due to floods and storm surges and proper implementation so as to equitably maintain public safety. Japan's River Law states that a river administrator shall have the authority and duty for river management. Class A rivers are administrated by the Minister of Land, Infrastructure, Transport and Tourism, Class B rivers by prefectural governors and other smaller rivers by municipal mayors. River administrators formulate plans for flood control, water use and environmental improvement, and also handle construction, and operation and maintenance of facilities.

■ How are River Implementation Plans formulated in Japan?

River administrators establish Basic River Management Policies, then formulate River Implementation Plans to provide the target and the measures to be implemented within a few decades. The opinions of academic experts, municipalities, and residents are reflected in the formulation of these plans.

■ Will conventional river development measures such as dam construction continue?

Yes, they will continue.

All possible methods, whether they are innovative new measures or conventional measures such as dam construction, should be considered for water-related disaster risk reduction, based on consensus among all stakeholders. It's important to accelerate preventive disaster risk reduction as effectively as possible, including measures based on current river implementation plans that are still in progress.

Contact



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(Water and Disaster Management Bureau)

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