



Policy Vision on

Rebuilding Flood-Conscious Societies



MLIT

Ministry of Land, Infrastructure, Transport and Tourism, Japan

In September 2015, torrential rains in the Kanto-Tohoku area in Japan triggered a massive flood disaster, with over 10,000 houses inundated and over 4,000 people stranded by overtoppings and breaches of levees causing widespread flooding around the Kinu River.

Just after this, Minister of Land, Infrastructure, Transport and Tourism requested that the chair of the Council for Social Infrastructure Development study the prospect of flood control measures for flood disaster risk reduction against large-scale inundations, and on December 10th, 2015 the council produced a report entitled Prospect of Flood Control Measures to Reduce Flood Disaster Risk against Large-scale Inundations: Rebuilding Flood-Conscious Societies through Enhanced Public Awareness.

The report stressed building awareness of large-scale floods that are certain to happen at some time, exceeding the capacity of facilities, and the need for us to prepare for them as a whole society.

Then based on the report, the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) of Japan formulated a new policy vision on Rebuilding Flood-Conscious Societies, on December 11th, 2015.

In August 2016, a series of typhoons caused many human losses due to delayed evacuation and major economic damages induced by flood around small and medium rivers in Hokkaido and Tohoku. In the wake of the disasters and based on the report of the council, the MLIT partially amended the Flood Risk Management Act to include establishment of the Committee on Flood Risk Reduction against Large-scale Inundations and the like to accelerate initiatives of Rebuilding Flood-Conscious Societies around small and medium rivers nationwide, and implemented the Act on June 19th, 2017.

September 2015 Kanto-Tohoku Torrential Rain disaster



Large-scale flood is inevitable that exceeds the capacity of facilities

In September 2015, torrential rains in the Kanto-Tohoku region caused a levee breach along the Kinu River which led to extensive long-term inundation that destroyed and swept away houses near the levee, and stranded many people.



40 km², 10,000 houses, were inundated. It took around 10 days to drain the area.



Large numbers of houses were collapsed and swept away.

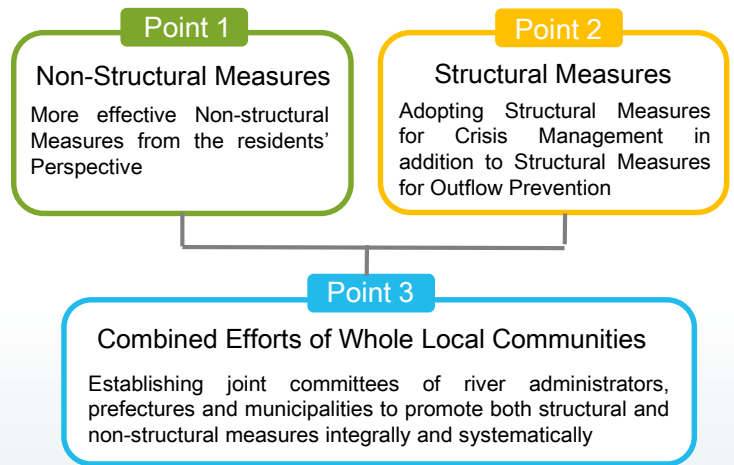


4,300 residents were rescued. Half of the 1,800 evacuees had to move to other cities.

WHAT'S new compared to conventional measures

- Large-scale flood is inevitable that exceeds the capacity of facilities -

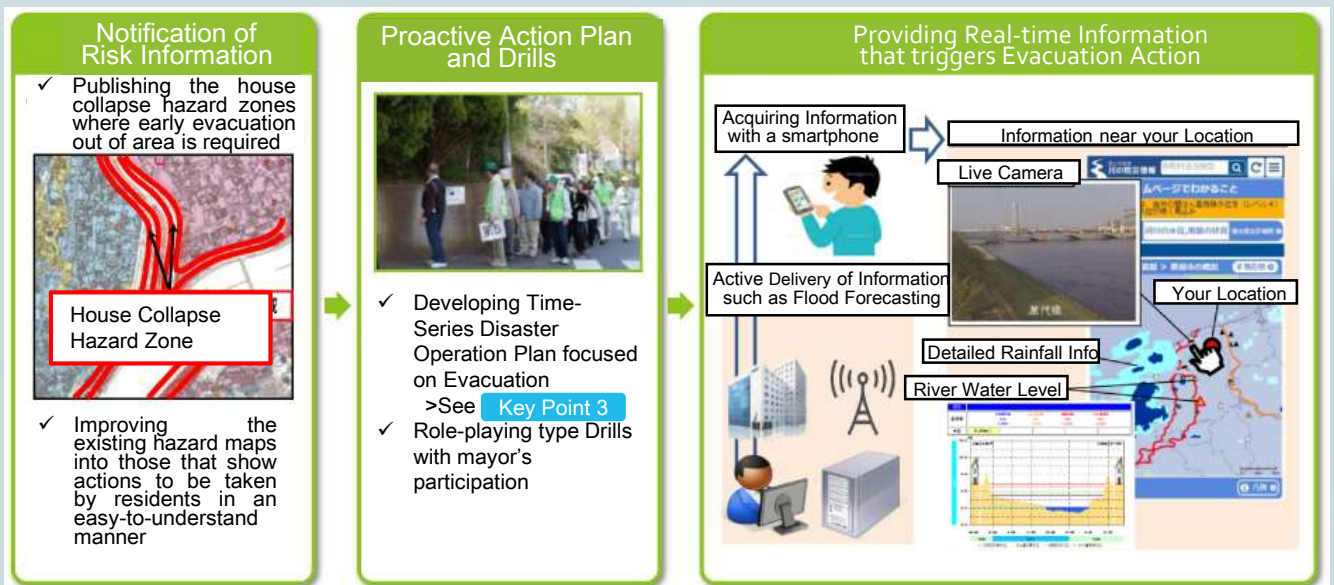
Conventional flood control measures focused on improvement of river facilities to prevent outflow. However, we must now assume that large-scale floods beyond the capacity of the facilities are inevitable. River administrators will promote measures for flood risk reduction throughout our whole society to eliminate delays in evacuation and minimize economic loss even when such large-scale flooding occurs.



Key Point 1

Non-Structural Measures from the Residents' Perspective

The relevant organizations will focus on non-structural measures from the perspective of residents, especially in high-flood-risk areas, whereby residents can be alerted to danger and evacuate spontaneously, using measures such as an active information service through smartphones.



Key Point 2

Structural Measures

The MLIT will promote structural measures for crisis management to minimize damages when flooding occurs, in addition to structural measures for outflow prevention.

Structural Measures for Outflow Prevention

The MLIT will continue to work on Structural Measures for Outflow Prevention to enhance safety against seepage and erosion and increase discharge capacity.

Self-imposed Time Limit

The MLIT will accomplish measures in about 5 years by 2020.

Levee Heightening

Present Situation

Insufficient Size

No Levee

After Improvement (Both the height and width of the levee meet the planned size)

Prioritized sections: approximately 1,200 km

Seepage Prevention and Erosion Protection

Toe drain, revetment and impervious sheet installation for securing safety against seepage and erosion

Installation Example of Toe Drain, Revetment, and Shielding Sheet

Structural Measures for Crisis Management

For the section at high risk where levee improvement cannot be conducted while keeping an up-and-downstream balance, the MLIT will promote reinforcements to prolong the time before a levee is breached.

Self-imposed Time Limit

The MLIT will promote reinforcements in about 5 years by 2020.

Levee Crest Protection (approximately 1,310 km)

In order to prolong the time before a levee breach occurs, the levee crest will be covered with asphalt to prevent rainwater seepage into the levee and to slow down levee erosion when overtopping happens.

In the case of levees whose crest is protected with asphalt or others, the material remains for a certain time.

Material such as Asphalt

Prioritized sections: approximately 1,800 km

Rear Slope Toe Reinforcement (approximately 630 km)

In order to prolong the time before a levee breach occurs, the MLIT will promote rear slope toe reinforcements using blocks to slow down deep scouring when overtopping happens.

Rear Slope Toe Reinforcement with Blocks

Note: Detail design is under consideration

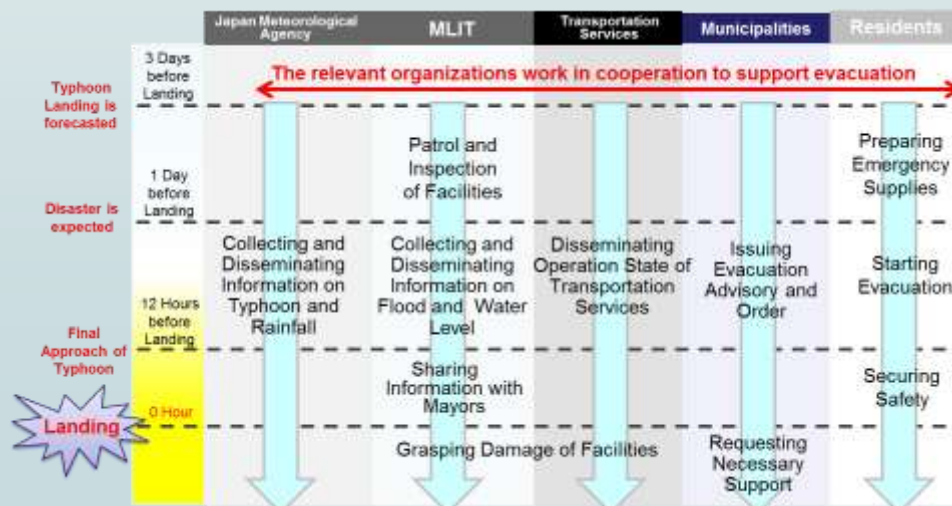
Key Point 3

Combined Efforts of Whole Local Communities

Promoting both structural and non-structural measures integrally and systematically by establishing joint committees of river administrators, prefectures and municipalities

The MLIT as the river administrator, municipalities and other relevant organizations responsible for flood defense activities and issuance of evacuation orders will establish a Joint Committee to share information on current flood risks as well as DRR actions; set objectives to be attained within around 5 years; and draw up a practical local action plan based on the characteristics of the region. Through their activity, “Time-Series Disaster Operation Plans” have been developed in relevant municipalities.

The Joint Committee will also follow-up on the progress annually in order to enhance flood-consciousness. Accordingly, all relevant organizations will proceed with their actions, involving residents, and check progress regularly in order to rebuild flood-conscious societies throughout whole local communities.



Simplified image of “Time-Series Disaster Operation Plan”

Contact

Ministry of Land, Infrastructure, Transport and Tourism
2-1-3 Kasumigaseki, Chiyoda-ku, Tokyo 100-8918
Tel: +81-3-5253-8444

Water and Disaster Management Bureau

<http://www.mlit.go.jp/en/mizukokudo/index.html>

Policy Vision on “Rebuilding Flood-Conscious Societies”

http://www.mlit.go.jp/river/mizubousaivision/index_e.html