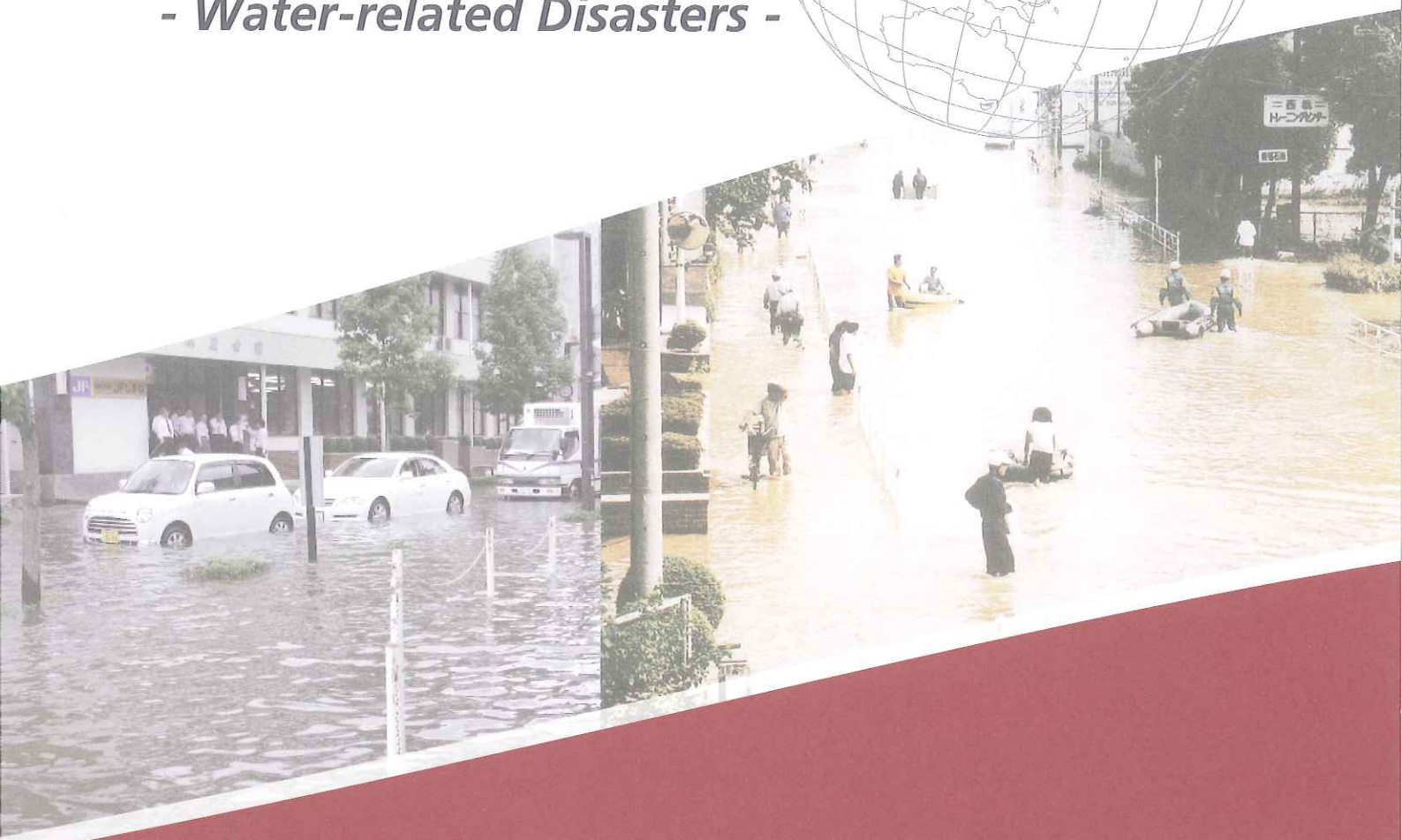


Practical Guideline on Strategic Climate Change Adaptation Planning *- Water-related Disasters -*



Our Concept in Developing the Guideline

Japan is situated in the Asian Monsoon region and has overcome its severe geographical, climate and social conditions. Therefore, Japan's expertise and experience can contribute to the prevention of harsh water-related disasters caused by possible extreme climate events and can help guide the development of a strategic climate change adaptation planning for sustainable development.

1 point *Importance and Urgency of a Strategic Adaptation Planning*

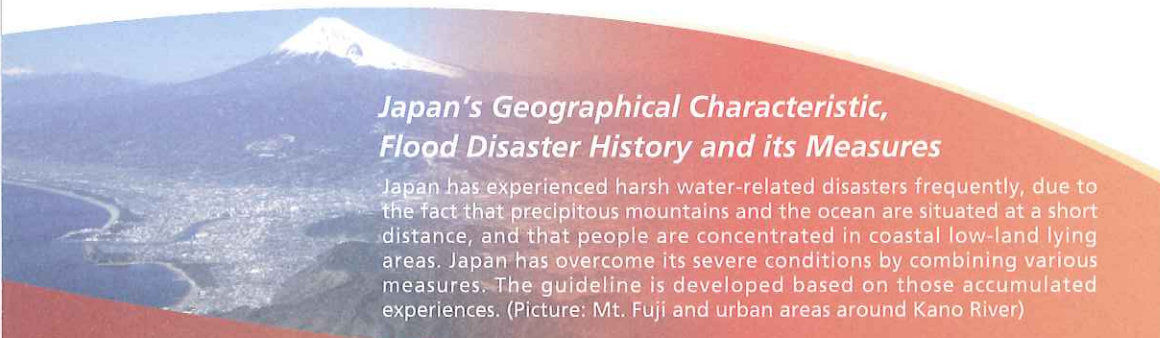
Climate changes that accompany anthropogenic global warming are a serious issue as they are projected to cause grave and large-scale adverse impacts, including some that may also threaten the foundation of people's lives. The impacts affect a wide range of areas, especially in low-lying areas, as both the frequency and scale of water-related disasters are projected to increase due to sea level rise, frequent heavy precipitation events, and intensified typhoons. Therefore, prompt and accurate actions are essential.

2 point *Targeting Future High-Risk Water-related Disaster Areas*

This guideline describes the standard procedure for developing the adaptation measures for water-related disasters caused by climate changes based on the experiences, strategies, and technologies accumulated in Japan. The guideline mainly targets the countries which face the conditions; 1) socio-economic development and urbanization due to population growth are expected 2) basis for living and production is situated in alluvial plain, and 3) flood control measures is underdeveloped. (Ex. Countries in Asia-Pacific Region etc).

3 point *Practical Guideline for Developing a Strategic Adaptation Planning*

The guideline gives possible policy options for policy makers in various basin settings and is expected to be used when practitioners develop concrete strategic adaptation planning. Therefore, useful tools and good practices are planned to be elaborated in the guideline.



Japan's Geographical Characteristic, Flood Disaster History and its Measures

Japan has experienced harsh water-related disasters frequently, due to the fact that precipitous mountains and the ocean are situated at a short distance, and that people are concentrated in coastal low-land lying areas. Japan has overcome its severe conditions by combining various measures. The guideline is developed based on those accumulated experiences. (Picture: Mt. Fuji and urban areas around Kano River)



Kathleen (1947): Large-scale floods frequently occurred after World War 2. Serious damages occurred in high-risk flood disaster city, Tokyo



Vera (1959): More than 5,000 fatalities due to tidal wave and other related disasters



Flood damage is mitigated by decreasing peak discharge at structures such as dams and discharge channels



Gilda (1974): Un... rainfall

1. Basic Concept of Adaptation Plan Development



2. Understanding of Climate Change and its Impacts

2.1 Collection and Sorting of Precipitation Data

2.2 Precipitation Projection

- Setting global Warming Scenarios
- Selection of Climate Change Model
- Downscaling
- Statistical Analysis of Precipitation
- Assessment of Uncertainty
- Setting Meteorological External Forces

2.3 Projecting Sea Level Rise

2.4 Collection and Sorting of Basin Data and Other Data

2.5 Risk Identification



3. Adaptation Plan Development

3.1 Goal Setting for Flood Management

3.2 Optimal Combination of Adaptation Measures

- Planning and Assessment of Adaptation Measure Combination
- Determination of Adaptation Options

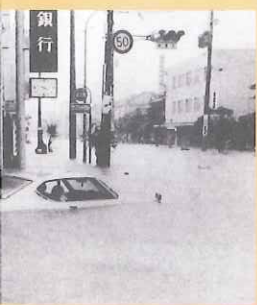
3.3 Development of Implementation Procedure of Adaptation Measures

- Planning and Assessment of Implementation Procedure
- Decision of Implementation Procedure (Road Map Development)



4. Monitoring

Diverse measures are implemented in a multilayered way



Urban flood due to torrential



Catastrophic Flood in Tokai Region (2000): Urban-type flood damage in mega cities around Nagoya



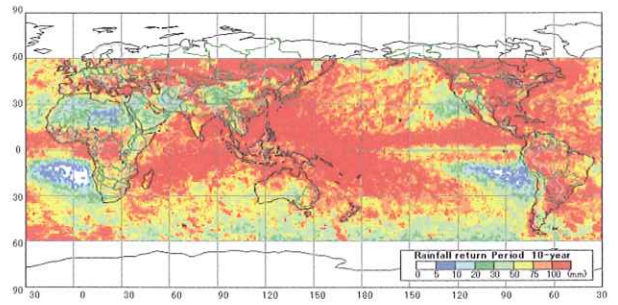
Tennis court with flood control function. Flood damage is mitigated by controlling runoff into river at storage and infiltration facilities (Ex. School, park etc.)



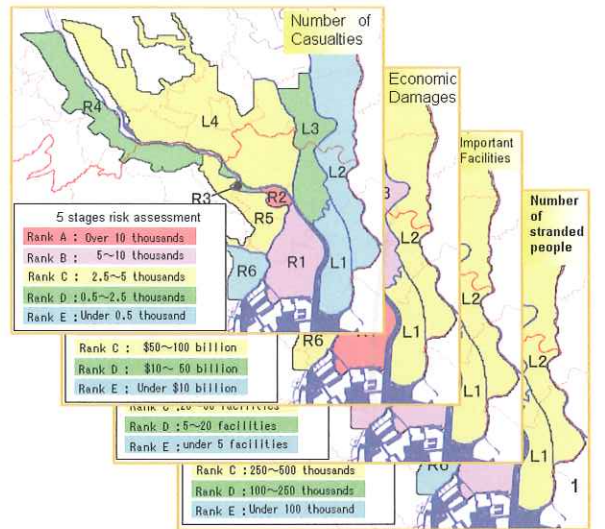
Publication of flood information map (flooded area, flooded depth) promotes prompt evacuation actions during times of flooding. Precipitation and water level information delivery in real time through mobile phones and internet encourage early-warning mechanism. These measures can contribute to flood damage mitigation.



Piloti-type structure for flooded damage mitigation.



Considering the uncertainty, meteorological external forces are set by downscaling the Global Climate Model (GCM) and others.



Optimal combination of adaptation measures and their implementation procedures are selected by analyzing diverse risks, such as economic damage, human damage, and damage to important facilities against various magnitude floods.

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