

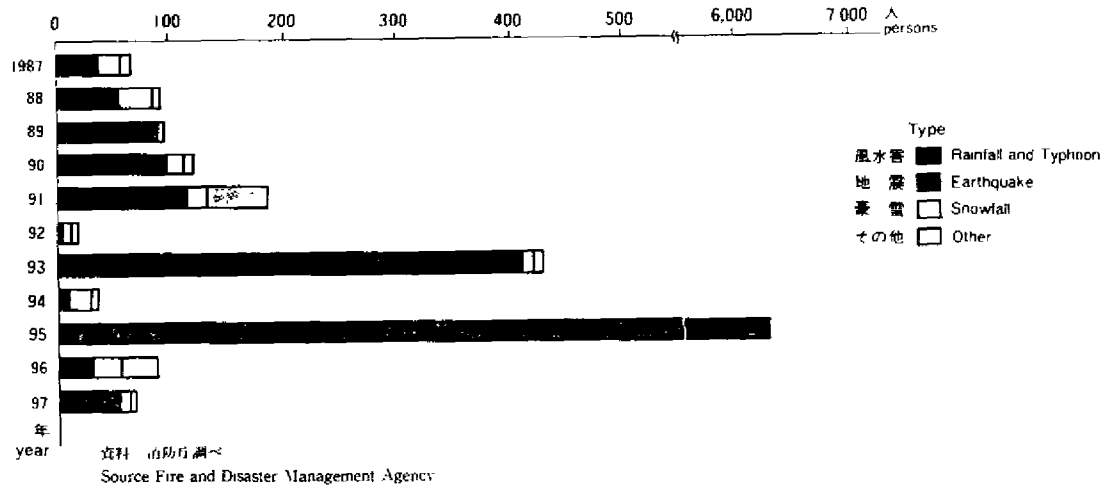
## II. OUTLINE OF COUNTERMEASURES FOR PREVENTION

### DISASTERS IN JAPAN

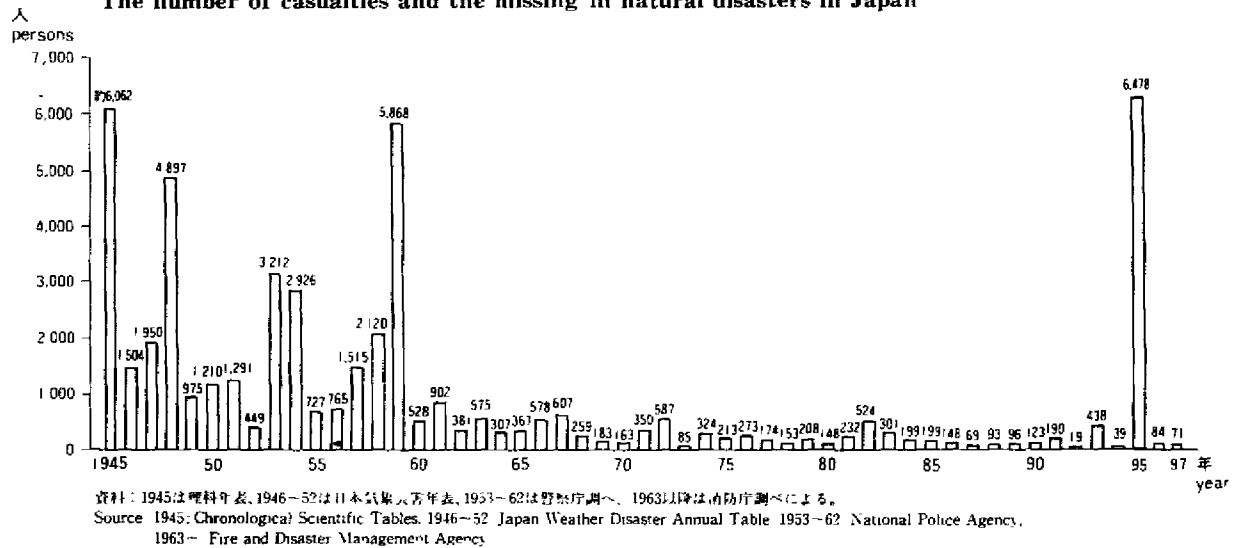
#### 1. Flood Control as part of Disaster Prevention Programs

##### a. Flood damage Prevention

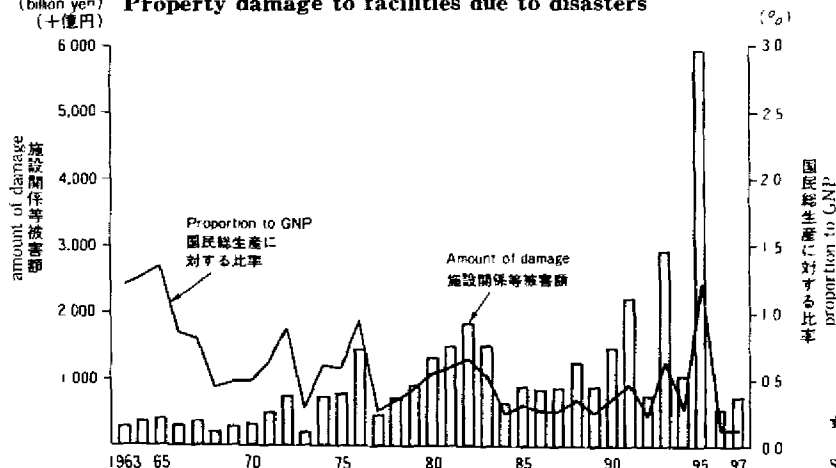
The number of casualties and the missing by type of disasters



The number of casualties and the missing in natural disasters in Japan



Property damage to facilities due to disasters

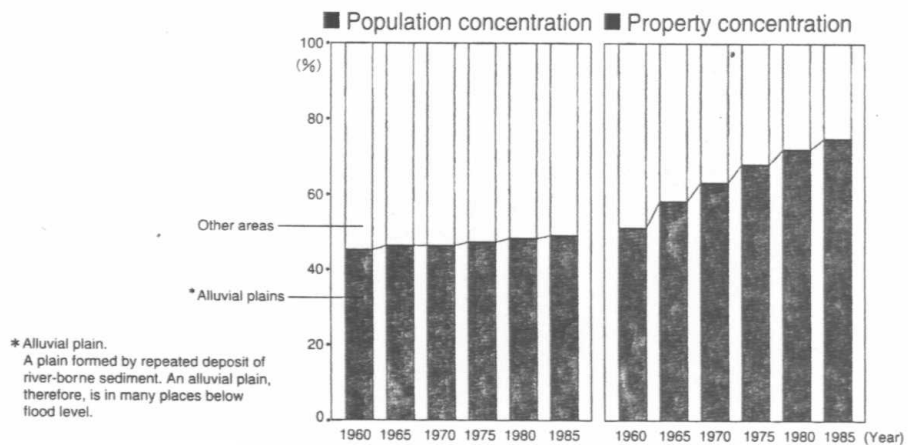
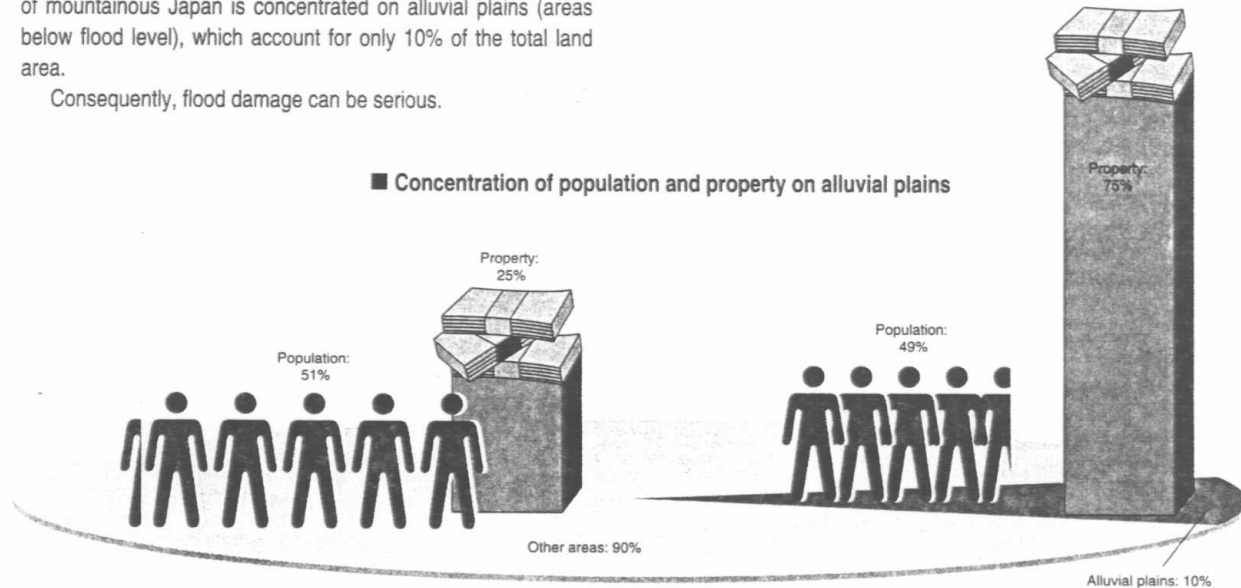


## *b. Urbanization and Flood Damage*

**Japanese cities are quite susceptible to floods. Most population and property, and therefore most flood damage, concentrate on alluvial plains.**

About 50% of the population and about 75% of the real estate of mountainous Japan is concentrated on alluvial plains (areas below flood level), which account for only 10% of the total land area.

Consequently, flood damage can be serious.



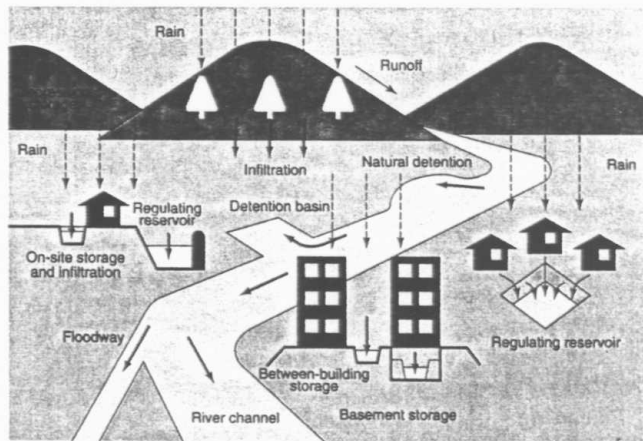
### c. Integrated Flood Control Measures

## Japan is in need of Integrated flood control to cope with rapid urbanization.

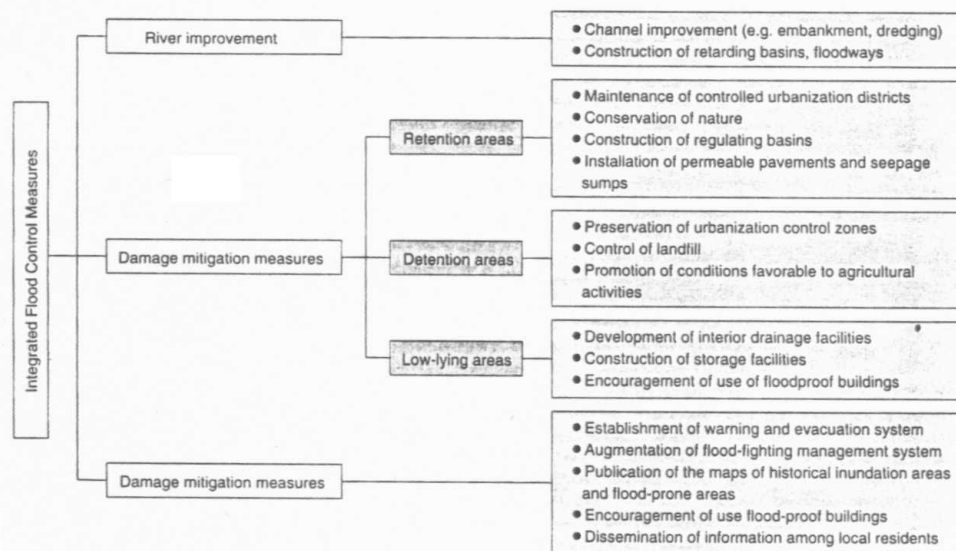
One consequence of rapid urbanization is the growing concentration of population and property in low-lying lands which have historically been subject to flooding. This trend is aggravating flood damage.

Conventional river improvement that relies on levees and detention basins is not enough. There is an urgent need for a comprehensive approach that combines (1) river basin measures, such as the construction of facilities designed to preserve and enhance the retention and detention capabilities of river basins and the development of land uses and buildings that are highly resistant to floods, and (2) damage mitigation measures, such as the establishment of warning and evacuation systems.

#### ■ Concept of comprehensive flood control



#### ■ Integrated of flood control measures



## 2. Forest Conservation and Erosion Control

### a. Forest Conservation Projects

### b. Sediment Control Projects

#### 4-1 Promotion of Disaster Free National Lands Development

The terrain of Japan is susceptible to certain natural disasters due to its unique climate, topography, and geology. Furthermore, changes in land use patterns and the rapid suburbanization of mountain regions induce danger of intermediate disasters. To cope with these situations, the following measures have been drawn in order to establish safe and comfortable public lands.

1. Restoration and improvement of devastated mountain forest lands and mountain streams
2. Development of forests to aid in prevention of sand or dust-storms, damage from salt-laden ocean winds, and avalanches
3. Forest conservation for enhancement of protection forest functions
4. Employment of landslide-prevention projects
5. Installation of disaster precaution or alarm systems for evacuation purposes
6. Improvement of road system to facilitate the effective and systematic management of projects and protection forests

