1. **Area of Flooded Land**

The area of flooded land has shown a tendency to decrease in recent years. The annual average area of land flooded during the five years from 1983-1987 was about 268 thousand ha, while that for the period from 1982-1986 was approximately 370 thousand ha, one-third that of the former. Thirty-six thousand ha correspond to approximately 1.2% of the total flooded area of Japan.

Flood damage is mainly caused by heavy rains, localized torrential rains caused by typhoons, low atmospheric pressure and floods. In addition, it may also result from tsunamis which occur after earthquakes and high tides caused by typhoons. The most common area in the area of flooded land is due to the fact that the larger-than-average typhoons approached Japan and also to technical developments in weather forecasting and the implementation of other natural disasters prevention facilities. However, although the total area of flooded land is decreasing, the total amount of damage per unit area of flooded land is not, due to the expansion of built-up areas on the land and an increase in inland water overflow.

**[Subject Points of the Legend and Map Completion]**

The area of flooded land shown on the map is the total area of land flooded during the ten-year period from 1979-1987, classified by S. Matsuzawa and N. Kambara.

2. **Distribution of Landslides**

Landslides generally refer to phenomena whereby soil or a slope moves downslope. However, landslides are used in a narrow sense to mean the phenomena whereby the upper layer of soil on a slope, slowly slides, differs from collapse, a phenomenon of sudden soil movement.

**CHANGES IN VALUE AND DENSITY OF FLOOD DAMAGE**

**AREA OF FLOODED LAND**

**VALUE OF DISASTER RESTORATION FOR PUBLIC NO-MAINTENANCE**

**TOTAL AREA OF FLOODED LAND (1978-1987)**

Concerning the relationship between geology and landslides, in Japan, landslides occur most frequently in areas where the Nagato System is located. The land slips occur in the central Japanese islands, especially in the central part of the Kii Peninsula. They also occur near the coast westwards and southwards. Landslides also occur on the coast near the city. They also occur near the coastal areas. However, they may also occur in coastal areas, where they are caused by tsunamis which occur after earthquakes. The most common area in the area of flooded land is due to the fact that the larger-than-average typhoons approached Japan and also to technical developments in weather forecasting and the implementation of other natural disasters prevention facilities. However, although the total area of flooded land is decreasing, the total amount of damage per unit area of flooded land is not, due to the expansion of built-up areas on the land and an increase in inland water overflow.

**[Subject Points of the Legend and Map Completion]**

The area of flooded land shown on the map is the total area of land flooded during the ten-year period from 1979-1987, classified by S. Matsuzawa and N. Kambara.

3. **Distribution of Steep Slopes**

Japan has many mountains, and hills with steep slopes throughout the country. In the rainy season and during typhoons, Japan experiences the torrential rains which cause slope failures. Of the total number of people who are killed or go missing in natural disasters every year, 20-70% are the result of slope failures. If the soil of a slope is rich in localized torrential rain after it has been saturated for long periods of heavy rainfall, such as that occurring in the rainy season, or on autumn rains, the slope collapse easily resulting in a debris flow.

Recently, due to the expansion of built-up areas, houses are built in areas in areas with a danger of slope failures, and the number of housing areas with steep slopes behind them is increasing. In order to ensure safety in these areas, the Act Concerning Prevention of Disasters Due to Steep Slope Failures was passed in 1984. Areas with a danger of slope failures were designed to prevent dangerous activities, conservation work carried out to prevent slope collapse, and improvements made in the warning and evacuation system.

**[Subject Points of the Legend and Map Completion]**

Every single designated area is indicated by a dot on this map (except densely distributed areas).

4. **Major Earthquakes and Tsunamis**

Japan and the surrounding area frequently experience earthquakes. Approximately one thousand earthquakes which can be felt occur annually, with major earthquakes occurring several times. In addition to causing direct damage to buildings, earthquakes may also cause landslides, landslides, tsunami, fires and damage to 'Villas' such as electricity, gas, and water supplies.

Tsunamis are often generated when a large earthquake occurs at the bottom of the sea. Tsunamis originating in the open sea around South America or off the coast of Alaska may cause damage to areas reaching the coast of Japan. A few coast areas, such as the Sanriku coast, are subject to prolonged damage from tsunamis as they become especially high in the heart of the bay.

Eight special earthquake observation areas and two temporary observation areas in Tarukawa and Minamisakamoto have been designated in order to promote the prediction of earthquakes through observation and research.

**[Subject Points of the Legend and Map Completion]**

The epistem, time of occurrence and magnitude of major earthquakes which happened prior to 1940 are according to Usami (1933), while those which occurred after 1940 are according to the Gifu Research Geological Survey. Areas damaged by tsunami are according to Watanabe (1985) and indicates tsunami with a height of 1m. Resistant areas classified by the National Highway and Environment Agency classified by the Japan Meteorological Agency and Ministry of Construction.

5. **Distribution of Intensity of Major Earthquakes**

The seismic intensity scale used in Japan was determined by the Japan Meteorological Agency based on煲煲 sensation and the degree of damage caused. On this scale, an earthquake causing damage will have an intensity of 3 or over.

**[Subject Points of the Legend and Map Completion]**

Nine major earthquakes which have occurred since 1940 and caused great damage were selected, and the epicenter and distribution of intensity on the Japan Meteorological Agency scale indicated.

**[Seismotectonic Areas]**

8. Ministry of Agriculture, Forestry and Fisheries Data.
10. Preferential data.
DISTRIBUTION OF STEEP SLOPES

(1987)

Areas with a danger of steep slope collapses

Status as of the end of March, 1987

1 : 4,000,000

Japan Sea

NORTH PACIFIC OCEAN