

Niigata Flood in 2004 as a Flood of

Teruko Sato[1]

[1] NIED

<http://www.bosai.go.jp/>

A major flood disaster occurred in Niigata Prefecture on 13 July 2004 as a result of heavy rainfall that exceeded the design scale of the river infrastructure. Flood waters breached the levees in downstream urban areas, causing tremendous damage. Examining the flood, we observe the following specific characteristics:

1) The flood was of a low probability but high consequences (LPHC) type; that is, an event that rarely occurs, but results in catastrophic damages when it does occur.

2) Factors contributing to increased flood hazard were (1) levee failure due to flood waters far exceeding the design scales of the rivers, which increased the force and volume of the flood waters, (2) development of a narrow valley plain without considering the potential for LPHC-type flooding, and (3) flood waters from the levee breached site into the area enclosed by hillside and natural levee on three sides was blocked by artificial structures in the form of line or the road. As the results, inundation depth and detention period increased.

3) Flood prone areas changed from paddy field to urban area without flood mitigation measures, And private sector economic losses per hectare in Sanjo reached 170,000yen / hectare, which exceed that in the Tokai flood that devastated urban areas of Nagoya in 2000.

In terms of human suffering, a large number of the casualties were elderly. This could be seen as a reflection of the aging of Japanese society.

4) Regional disaster prevention plans and flood prevention plans created by local governments consider the possibility that levees might fail in the event of a major flood. However, local officials in charge of flood-disaster management had no true sense that such an event might actually occur, so advance measures and preparations were insufficient. Local residents also showed little awareness of the danger of LPHC type flooding, and almost none had made any advanced preparations.

5) Locally organized Flood Brigades played a major role in efforts involving large numbers of people mobilized to undertake rescue and recovery activities, on the scene almost immediately after the flood occurred.