

The History of Sediment Disasters and Sabo Projects in the Yomase River Basin, Nagano Prefecture, Japan

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INTRODUCTION

The Yomase River is a flashy devastated river that discharges a large amount of sediment from the Shiga Highlands, a plateau formed by the activities of an ancient volcano, with a catchment area of 117 km² and a total length of 26 km. It joins with the Chikuma River at Yanagisawa, Nakano City, Nagano Prefecture. The Yokoyu River and Kakuma River, which both start in the Shiga Highlands at a height of about 2000 m, join each other near the Yudanaka and Shibu Spa in Yamanouchi town. A vast alluvial cone, the Yomase River Fan, stretching for 6 km and covering an area of 25 km², is formed in the downstream area of the Yomase River.

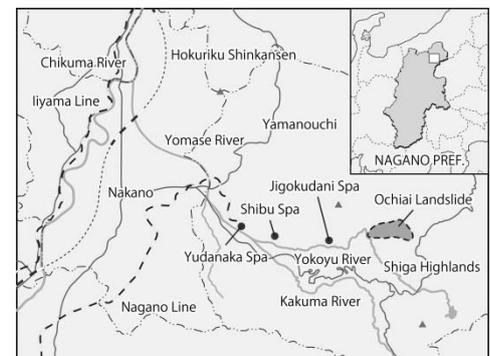


Fig. 1 Location map

The Nagano Prefectural Museum of History stores the large-scale survey maps prepared from actual measurements made from 1906 to 1911 and the documents related to the Yokoyu River sabo works (sediment control works).

In consideration of this background, we investigated the topographic and geologic conditions of the Yomase River and its history of sediment disasters and report in this paper the results of our investigation about their relationship with the sabo projects (sediment control projects).

PAST SEDIMENT DISASTERS IN THE YOMASE RIVER BASIN

The midstream area of the Yomase River, a popular spot used for hot-spring cure for many centuries, has repeatedly suffered damage by sediment disasters.

Table 1 Past sediment disasters in the Yomase River basin

| No. | Year | Description |
|-----|------|---|
| 1 | 1406 | A major flood changed the course of the Yomase River, which originally ran toward Entoku Paddy Field, to what it is today. |
| 2 | 1614 | Major landslides occurred in Mt. Kosha due to heavy rainfall. Two landslides ran down toward the Yomase River and crushed villages on the way. Flooding occurred in the river, and the damage to Entoku Paddy Field was particularly serious. |
| 3 | 1742 | An enormous flood (called Inu-no-Mansui) occurred in the Chikuma River and inundated the paddy and upland fields in the alluvial fan of the Yomase River. |
| 4 | 1757 | Heavy rainfall caused a flood, making the Yokoyu River overflow and washing away the Kawara-yu hot spring building. A major landslide occurred on the mountain behind Shibu Oyu hot spring. |
| 5 | 1847 | A major earthquake, the Zenkoji Earthquake, occurred, and there were major landslides from Mt. Iwakura, which dammed the Sai River. The vast landslide dam was breached and resulted in a big flood in Entoku Paddy Field. |
| 6 | 1910 | A major flood occurred in the Yomase River basin, washing away the sabo facilities that had been constructed previously. |
| 7 | 1950 | Heavy rainfall caused a major flood in the Yomase River. The overflowing water of the Kakuma River breached the levees and almost totally destroyed Honami Hot Spring. |

