Road Damage and the Lessons from 2004 Indian Ocean Tsunami

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ABSTRACT

At 08:07 a.m. local time on December 26, 2004, a large-scale earthquake with magnitude 9.0 occurred at the western coast of Northern Sumatra Island, Indonesia, which was the forth largest earthquake since 1900. The earthquake generated the tsunami with wave height exceeding 20 m. The tsunami affected the whole Indian Ocean area, and the damage became one of the heaviest natural disasters in human history with casualty more than 200,000 people as well as destructive damage to houses/buildings and transportation systems and other infrastructures. The author went to investigate the damage to the city of Banda Aceh, North of Sumatra Island, as a member of the Japan Society of Civil Engineers (JSCE) Reconnaissance Team in March 2005, which was about two months later after the earthquake.

This paper presents the damage to the roads and bridges caused by the earthquake. The significant damage including complete washout of bridge superstructures and road embankment were caused by tsunami waves. Although more detailed investigation and careful review of the damage is still needed, based on the investigation, the lessons learned form the damage investigation are also presented.

Keywords: Indian Ocean Tsunami, Sumatra, Banda Aceh, Roads, Damage, Lessons

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