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Mechanism of Landslide in response to the West Sumatra Earthquake of September 30, 2009.

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Earthquake induced landslides has occurred in response to the West Sumatra earthquake of September 30, 2009 with the magnitude of 6,7. This disaster caused more than hundred people burried in Tandikek Village, in Pariaman Regency and 200 family should be relocated from Nagari Tanjungsani in Agam Regency. In Tandikek Village the landslides initially occurred as earth slides of tufaceous sand-clay at the steep slope of 40o to 50o inclination, which then developed to become massive debris flows due to the heavy rainfall, and such flow was deposited as landslide dam. The dam is still very potential to cause debris flood during the rainy season. Meanwhile, the landslide in Tanjungsani village initially occurred in many isolated sites with sliding and falling mechanism from the steep volcanic crater of andesite, then those developed as rock and debris flows induced by the rainfall.

Accordingly, geological investigation was conducted to analyse the mechanism of landslides and to predict the potential impacts & consequences. It was found that the landslide mechanism was mainly dictated by the integrated control of morphological conditions (especially the slope inclination and morphological pattern), structural geology and the rock types. In Tandikek village the earth slide mechanism was more controlled by the existence of structural geology, i.e. fault and lineament pattern, which create relatively weak and steep tufaceous sand-clay slope, meanwhile the rock slide and fall occured in Tanjungsani village mainly due to the control of discontinuities planes (join plane) on the steep slope of andesite.