

Losses from Barra Mansa Landslide (Brazil)

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The Landslide Inventory of Rio de Janeiro (Brazil) was established in 1997 with the support of Geological Survey of Brazil, The Catholic University of Rio de Janeiro (PUC-Rio) and State Geotechnical Department. Besides retrieving former landslide reports, the inventory's team has inspected in detail the most hazardous landslide accidents that occurred in the last three years.

The Barra Mansa landslide occurred on March 25th 1999 at Nove de Abril Town, which is located in one of Paraíba Valley's slope. The landslide extended from a total length of 60m, 35m of width and 8m of thickness with a total volume of 25.000m³. It affected a well-developed weathering profile of migmatite rocks, with two sets of tectonic joints (NE and NW).

The event caused no deaths but destroyed 50 houses. There has been no historic large landslide activity reported at the town. No rain event may be indicated as a factor in the Barra Mansa disaster, in the previous week no precipitation has been reported.

There's still considerable uncertainty about failure mechanism, the scientific team collected samples to investigate the soil strength parameters, but it believes that pore pressure elevation due to sewage disposal together with slope cuts have been used as the most important triggering landslide factors.

The disaster was produced by the combination of conditions (man made actions and natural soil properties) which exist in the whole surrounding area, so Barra Mansa represent today a landslide risk area and no abnormal rainfall episode is necessary to trigger new disasters.