

## THE MT. TUMBINE (MOZAMBIQUE) LANDSLIDE - CAUSES AND EFFECTS

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On the 19th, January, 1998, a landslide has occurred in Mt. Tumbine, (overlooking Milange town, in central Mozambique), killing approximately 200 people and causing the destruction of some 200 huts and of 1,000 hectare of arable land. About 4,000 people lost their personal assets. On map Mt. Tumbine is sub-circular (diameter ~8 km), its highest point (1,548 m) about 900 m above the surrounding area. Slopes are smooth, but locally they may be steep (up to 60°). Drainage pattern is radial. Some river valleys seem to be fault controlled. Faults and fracture lines are abundant. The mount corresponds to a Mesozoic oval-shaped alkaline syenite intrusion into Precambrian gneiss and granulite. Regolith may reach 10 m in depth. Soil with clayey, reddish, plastic and friable, brownish horizons and abundant colluvial material of variable sizes, including boulders and blocks, are very common. Land use has been mostly related to subsistence agriculture. During the 1980's the area received thousands of people fleeing from war and settlements were established on the base of the mount. The slopes were used to grow maize, sorghum, etc., replacing the original wooden cover. The landslide occurred after five days of heavy rain soaking through the regolith mass. There were more than 40 swift radial muddy debris flows mostly along steep slopes and starting apparently at elevations close to the geologic contact.

Practical measures are suggested to mitigate the risk of renewed mass wasting, authorities facing now reluctant local inhabitants who do not want to leave the area.