Copacabana Metro Construction, Rio de Janeiro, Brazil, and the Natural Instability of Slopes. An Example.

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Technical surveys of slope stability and investigation by drilling in rocky massifs made previously, led to measures designed to reduce instability risks by the construction of containing walls, drainage channels, and the cleaning of the surface under the influence of vibration in underground engineering works.

Accidents occurring in the Southern Zone of the city near Lagoa Rodrigo de Freitas; at the Santa Leocádia Condominium / Emílio Berta (10/06/89); in the Rua Pompeu Loureiro; and in Block 281 in the Rua Santa Clara (02/10/89), as well as subsequent accidents of varied causes (soil, rock and land-fill slides), are not related to the civil works of the Metro. Moreover, these are attributed to very heavy seasonal rains, in addition to problems caused by the occupation of the *morros* (slums, excavations and deforestation) along the path of the line.

There was a suggestion to stop excavation in tunnels driven into rock, in the event that instrument readings on the slopes (seismograph, inclinometer and piezometer; drainage and the position settling pins) showed anomalous values, and if the rainfall intensity index and soil saturation were to exceed permitted levels.