

Landslides and landslide dams of great dimension in Ancash region

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ABSTRACT

The Ancash region, located in the western central sector of Peru, is one of the most active regions in the geodynamic context internal as much external. This is demonstrated by the innumerable mapped occurrences of slides, rock avalanches, avalanches and detritus flows ("alluviums"), of old age, many of which are historical and some of catastrophic character (ex. detritus avalanche-flow of Ranrahirca in 1962 and Yungay 1970).

The work of inventory and cartography of landslides in the two divides of the region, Santa, Pativilca, Huarmey, Fortaleza rivers, and others in the western side, Marañón and tributaries in the eastern side, allowed to identify great deposits of landslides with minor effect (landslide dams), in the recent geologic past and present, many of which last long until the present time.

The most susceptible areas to these events are associate to lithologic factors (Albian age shales, sandstones and cretaceous shales, precambrian schist, red cretaceous layers and rocks in the batholith contact of the Cordillera Blanca, mainly), structural factors, neotectonics and seismic activity (active faults: Cordillera Blanca and Quiches) and finally hydrometeorological factors associated to El Niño events, climatic factors change (deglaciation).

Between the identified sectors they are possible to be mentioned: complex avalanche events and detritus flows in the Callejón de Huaylas (Santa River), between Recuay and Yuracmarca, Tablachaca Valleys, Manta and tributaries (Corongo-Pallasca); landslides, avalanches, detritus flows and rock avalanches in the Conchucos Valley, between Chavin-San Marcos-Huari-Rahuapampa-Marañón River; Chacas Valleys, San Luis, Yanama, Pomabamba, Yauya and Piscobamba (Yanamayo), Sihuas-Rupac Valley, Huallanca Valley (Vizcarra River) and the same Marañón river (ex. In front of Huacaybamba).

Precise examples of great landslide dams are the one of the Marañón River, Chocchián sector; Jancas, Marcará, Carhuáz, between Huallanca and Huanzalá Mine, Mellizos sector (Aija), Vesubio River (Chacas), etc. With less frequency appear landslide dams

in the western side, Fortaleza Valleys and tributaries (detritus flows, rock avalanches), Pativilca (Chiquián and Huarmey (Aija sector) with landslides and rock avalanches.

Their identification in inventory maps, allows to know the areas where these events took place in the past, to be able to predict where they would be possible to be repeated, in the context of the knowledge of geologic dangers and management risks.