



Large Scale Land Acquisition as a driver of slope instability

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Forests play a key role in preventing shallow landslides and deforestation has been analyzed as one of the main causes of increased mass wasting in hillslopes undergoing land cover change. In the last few years vast tracts of lands have been acquired by foreign investors to satisfy an increasing demand for agricultural products. Large Scale Land Acquisitions (LSLA) often entail the conversion of forested landscapes into agricultural fields. Mozambique has been a major target of LSLAs and there is evidence that many of the acquired land have recently undergone forest clearing. The Zambezia Province in Mozambique has lost more than 500000ha of forest from 2000 to 2014; 25.4% of them were in areas acquired by large scale land investors. According to Land Matrix, an open-source database of reported land deals, there are currently 123 intended and confirmed deals in Mozambique; collectively, they account for 2.34million ha, the majority of which are located in forested areas. This study analyses the relationship between deforestation taking place inside LSLA areas(usually for agricultural purpose) and the likelihood of landslides occurrence in the Zambezia province in Mozambique. To this aim we use a spatially distributed and physically based model that couples slope stability analysis with a hillslope scale hydrological model and we compare the change in slope stability associated the forest loss documented by satellite imagery.