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Ravines in Angola. Causes and restraint methods.

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The Earth we know today was not always so. Over millions of years have undergone significant changes brought about by numerous geological phenomena aimed at your balance, some internal order, creating new geological formations and other external order smoothing formations previously created. From the tectonic standpoint, Angola is located in a relatively stable area which gives it a certain privilege when compared with some Asian countries or even Americans where quite often occur earthquakes and volcanic eruptions.

However, the same cannot be said in relation to the occurrence of an external geodynamics phenomena, such as the ravines, which in recent years has taken shape in many provinces, especially due to anthropogenic activity, giving rise to geological hazards, increasing the risk of damage in buildings and others infrastructures, losses direct or indirect in economic activities and loss of human lives. We understand that the reducing of these risks starts, in particular, by their identification, for later take preventive measures.

This work is the result of some research work carried out by the authors through erosion courses of soil and stabilization of soils subject to erosion phenomena, carried out by Engineering Laboratory of Angola (LEA).

For the realization of this work, we resorted to cartographic data query, literature, listening to some of the provincial representatives and local residents, as well as the observation in loco of some affected areas.

The results allow us to infer that the main provinces affected by ravine phenomenon are located in Central and Northern highlands, as well as in the eastern region, and more recently in Cuando-Cubango province. Not ruling out, however, other regions, such as in Luanda and Cabinda [1].

Relatively the causes, we can say that the ravines in Angola are primarily due to the combination of three natural factors: climate, topography and type of soil [2]. When we add the anthropogenic activity, namely the execution of construction works, the drainage system obstruction, exploration of minerals, agriculture and fires, it is verified an increasing of the phenomenon, often requiring immediate action. These interventions can be done through structural or engineering measures and by the stabilization

measures on the degraded soil cover [3]. We present an example of stabilization measures through the deployment of a local vegetation called *Pennisetum purpureum*.

It is expected that the results may contribute to a better understanding of the causes of the ravine phenomenon in Angola and that the adopted stabilization method can be adapted in other affected provinces in order to prevent and making the contention of the ravines.

References:

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