[ID123] ROLE OF ALVEOLAR AND POLYGONAL GEOMORPHIC NETWORKS IN THE CONTROL OF RIVER FLOW IN THE MARROMEU COMPLEX, LOWER ZAMBEZI – INFLUENCE ON THE REGULATION OF FLOOD SURGES

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Abstract

The main ecoservices provided by the Lower Zambezi River Basin, in Mozambique, have a special focus on agriculture, forestry, ecotourism and sport hunting in the lands that comprise it. Also, in the lower part of the Basin, geomorphic devices of specific fluvial genesis were identified, which are attributed a critical role and decisive influence in the natural regulation of flows and attenuation of floods in both rural and urban environments. The main geomorphic devices are alveoli and polygons. The recurrent nature of floods is attributed to outbreaks of peculiar combinations between extreme climatological events and progressive to abrupt geomorphological evolution, in response to human activities and dynamics of population settlements that are both affected and also influence the historical records of maximum flood levels. The present study, based on remote structural analysis, geological interpretation of satellite photos, study of Quaternary sediments and analysis of flood records, devotes greater attention to the District of Marromeu and to the geology that sustains the ecosystems on the right bank of the Zambezi river, where the most extensive and complex geomorphic zonography is located: with the greatest diversity of geological forms, lithological types, deposition and sedimentation structures and impressive testimonies and indicators of retention and surface runoff in the Zambezi river system. Thus, it arises the concept of the Marromeu Complex, where it was possible to compartmentalize the riverside lands using the distribution of infiltration and drainage (geomorphic) devices that have a decisive influence on the maintenance of flows and functioning of the active riverbeds. The Marromeu Complex is registered by the Ramsar Convention (2004) as a set of conservation areas declared as a wetland of international importance, located in the district of Marromeu, in Mozambique. The zonography of geomorphic devices should be included in the conservation assets as a differentiated form of peri-deltaic drainage considering the services provided in what concerns the effective flood regulation. The correspondent and roughly estimated volume of water storage of 9 047 006 m3 in the north river bank must be preserved considering new envisaged land uses, for the altitude domains, 75 - 2m, where the alveolar and polygonal devices prevail.

Keywords | Zambezi river, flood surges, water retention, natural devices.