REGIONAL FLOOD FREQUENCY ANALYSIS IN THE LAKE CHILWA BASIN

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Floods are natural hazards that cause loss of life and property in many parts of the world. People need protection against flood disasters through accurate and reliable quantification of the frequency linked to a particular flood magnitude. Data for understanding flood behavior and frequency is however scarce in many parts of the world. Regional flood frequency analysis (RFFA) in the Lake Chilwa basin was undertaken to predict floods by evaluating river discharge characteristics as a key factor for flood estimation to support flood risk management using already verified procedures in data scarce regions. Annual maximum river discharge series at seven observation sites on Domasi, Mulunguzi, Likangala, Thondwe, Naisi, Namadzi and Phalombe in Lake Chilwa basin for the period 1970 – 2000 were analyzed using L-moments and flood index approach due to unavailability of consistent data for the other years. Discordancy measure (Di) was used to screen the data for site discordancy at each of the seven sites. Homogeneity of the region was tested using the heterogeneity measure (*H*). Extreme value distributions such as, the Generalized Logistic (GLO), Generalized Extreme Value (GEV), Generalized Normal (GNO), Pearson type III (PE3) and Generalized Pareto (GPA), were tested to find the most suitable distribution for the region under study. Based on the L-moment ratio diagram and Z*Dist*statistic, four out of the five distributions can be used in estimating floods in the basin. The study recommends that Generalized Normal (GNO) and Generalized Extreme Value (GEV) are the appropriate distribution models for the Lake Chilwa basin region.