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FLOOD ANALYSIS AND MITIGATION ON LAKE ALBERT, UGANDA

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In 1961 and 1962 the flood plains of Lake Albert were greatly inundated to such an extent that Butiaba Inland Port was destroyed. The local inhabitants were forced to leave the Rift Valley floor, which constitute the lake flood plains and migrate to higher ground. Very little information however, was available to planners on the trends of floods in this basin. This study was therefore carried out to provide knowledge for proper water resources planning, based on the statistical analysis and mathematical modeling.

Major rivers contributing to the inflow and outflow of the lake were identified and their respective flow data acquired from the Water Resources Management Department. Missing data was in filled using the normal ratio method and the ARMA model was used to extend the data. The annual maximum and minimum flow series were extracted from the data and modeled using the EV1 distribution.

Because of its regular cross sectional area, Lake Albert was also considered as a channel and therefore both reservoir and channel routing techniques were applied. The data sets considered were the maximum and minimum inflows, maximum and minimum outflows and an average year, in order to simulate Lake Albert's behavior in attending flood peaks.

The reservoir routing model provided good simulation results and the channel routing provided comparable results for the average year. This gives a basis for flood forecasting.

Recommendations made for flood mitigation, include; deployment of an early warning system; establishment of a sensitization programme targeted at the inhabitants of the highly prone areas and creation of land use and management policy for the areas vulnerable to flooding.