Positive changes in flood mitigation through sand dredging works at padas river and tributary based on HEC-RAS hydrological modelling

ABSTRACT

In the recent years, the impacts of floods have gained importance because of the increasing number of people who are affected by its adverse effects, especially in Beaufort area, Sabah, Malaysia. Flood destroyed critical infrastructures that are needed as shelter and also emergency relief for victim. This paper presents the findings of flood modelling undertaken to establish baseline and post mining flooding conditions during upstream storm and combination of upstream and downstream storm, respectively. A hydrologic model was established and calibrated based on 2014 flood. A structural approach by changing the physical dimension through dredging or sand mining between 2m to 3m is used for hydrology modelling is added into the existing floodgates and bunds. The outcome from sustainable sand is prevailing when it is able to reduce flood level for normal flow, upstream case, and both upstream and downstream case. Other findings are changes in velocity, shear and the significantly reduced power generated by the river during flooding.