

Use of  $^{137}\text{Cs}$  activity to investigate sediment movement and transport modeling in river coastal environment

#### Abstract

Conflicts between human and environment always triggered to sedimentation and erosion problems within the coastal areas, Therefore understanding sediment transport processes in a river estuary and coastal waters was important when studying sediment transport and mobility within the river coastal environment. This article aims to investigate the sediment transport and mobility of the Kemaman River estuary, Terengganu Malaysia. In this article, it was demonstrated that anthropogenic activities within a watershed, such as agriculture and urbanization affected the sediment yield from the watershed. Over four months observation (November 2008- February 2009), the delivery of suspended sediment from the Kemaman River to the Kemaman Estuary had increased by about 25%. Based on the in-situ measurement of  $^{137}\text{Cs}$  activity, the measure activity ranged between 5638-22421 cpm for backshore while for foreshore was between 2655-13354 cpm. The mean values for backshore and foreshore were 15153 and 6261 cpm respectively with suspended sediment concentration, recorded from 17 November to 10 February was between 110.5-218.8 mg L<sup>-1</sup>. Using flow and suspended sediment discharge data provided by the Drainage and Irrigation Department (DID) revealed were possible increasing trend in suspended sediment discharge and concentration, particularly during the monsoon season. Temporal analysis indicates that the trend of sediment yield was increased during the monsoon season resulting over sediment supply adjacent to the river mouth and causing difficulty for fisherman to navigate the boats. In a broader context, this study can underscores the need to address the anthropogenic impacts and flood monsoon on sediment yield in the Kemaman-Chendor estuary system..