

## **Deaggregation of probabilistic ground motions in the Kota Kinabalu and Lahad Datu towns of Sabah, Malaysia**

### **ABSTRACT**

Sabah has witnessed an increase in low to moderate seismic activities due to a few active fault lines. According to the historical records ranging between 1900 and 2017, the region already experienced a devastating earthquake with a size MW 5.8 in Lahad Datu and just last two years with a size MW 6.0 in Ranau. Over the years, more than 400 with size ranging from MW 2.9 to 6.0 are known to have occurred. There are three tectonic features that affected Sabah namely; subduction zone, strike-slip earthquake and local background seismicity zone. The effects of the earthquakes should be anticipated in order to mitigate the catastrophic failure of structures. Therefore, seismic hazard analysis, such as probabilistic seismic hazard analysis (PSHA) is required. This study deaggregated the PSHA results of 2% and 10% probability of exceedance in 50 years. The deaggregation of selected cities in Sabah such as Kota Kinabalu and Lahad Datu to help understand the relative control of local fault sources in terms of distances and magnitudes. The contribution to hazard indicated that the distance from the earthquake which contributes most to the hazard at each city is mainly controlled by shaking by near seismic area sources.