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Tsunami Evacuation Map in Padang, West Sumatra for Disaster Risk Mitigation

Based on historical earthquake, West Sumatra had occurred destructive earthquake in 1833 with estimation moment magnitude (M_w) 8.8 – 9.2. Theoretically, large earthquake has return period and possibility to occur in future. Therefore, for reducing the earthquake impact, we made tsunami evacuation map in Padang city, West Sumatra. We choose this city as our research because it has dense population. We made tsunami evacuation map based on tsunami inundation modelling. In our tsunami simulation scenario, we used not only 1833 event parameter but also potential earthquake in seismic gap around Sunda strait (M_w 8.7). The final inundation is composite between both of those scenarios. We used ComMIT software from NOAA to simulate tsunami propagation and inundation. The detailed bathymetry and topography data from BIG (resampling grid 1 arc sec) was used in this research. We applied QGIS software to make tsunami evacuation map in detailed. Our results show that the inundation distance reach around 1.5 km. To anticipate error of tsunami modelling we applied buffer 100 meters in our results. We made clustering of population and considering demographic condition to make evacuation route and evacuation shelter.

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