World Academy of Science, Engineering and Technology
International Journal of Civil and Architectural Engineering
Vol:12, No:07, 2018

Lessons Learnt from Moment Magnitude 7.8 Gorkha, Nepal Earthquake

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Abstract : Nepal is highly prone to earthquakes and has witnessed at least one major earthquake in 80 to 90 years interval. The Gorkha earthquake, that measured 7.8 RS in magnitude and struck Nepal on 25th April 2015, after 81 years since Mw 8.3 Nepal Bihar earthquake in 1934, was the largest earthquake after Mw 8.3 Nepal Bihar earthquake. In this paper, an attempt has been made to highlight the lessons learnt from the MwW 7.8 Gorkha (Nepal) earthquake. Several types of damage patterns in buildings were observed for reinforced concrete buildings, as well as for unreinforced masonry and adobe houses in the earthquake of 25 April 2015. Many field visits in the affected areas were conducted, and thus, associated failure and damage patterns were identified and analyzed. Damage patterns in non-engineered buildings, middle and high-rise buildings, commercial complexes, administrative buildings, schools and other critical facilities are also included from the affected districts. For most buildings, the construction and structural deficiencies have been identified as the major causes of failure; however, topography, local soil amplification, foundation settlement, liquefaction associated damages and buildings built in hazard-prone areas were also significantly observed for the failure or damages to buildings and hence are reported. Finally, the lessons learnt from Mw 7.8 Gorkha (Nepal) earthquake are presented in order to mitigate impacts of future earthquakes in Nepal.

Keywords : Gorkha earthquake, reinforced concrete structure, Nepal, lesson learnt
Conference Title : ICERDC 2018 : International Conference on Earthquake-Resistant Design and Construction
Conference Location : London, United Kingdom
Conference Dates : July 26-27, 2018