

Tsunami vulnerability assessment in the Moratuwa Urban Council area in Sri Lanka

*Ranagalage Mahinda Manjula¹

1. Graduate School of Life and Environmental Sciences

26th December 2004 tsunami disaster has caused massive loss of life, damage to coastal infrastructure and disruption to economic activities in the coastal belt of Sri Lanka. Tsunami vulnerability assessment is a requirement for disaster risk and vulnerability reduction. It plays an important role in identifying the extent and level of vulnerabilities to disasters within the communities. The main objective of this study is to investigate tsunami vulnerability assessment of Moratuwa Urban Council area in Sri Lanka. We have used tsunami scenario with a maximum run-up 6 meters for 41,633 housing units located in Moratuwa Area. Building population estimation model and 2015 population data were employed to estimate night time population of all buildings located in the study area. LiDAR data were used to calculate the height and volume of the each building. The results of study expect to provide a clear picture of tsunami vulnerability. Outcomes of this analysis can be useful as an important tool for urban planners to assess the risk and extent of disaster risk reduction which could be achieved via suitable mitigation measures to manage the coastal belt in Sri Lanka.

Keywords: Western coastal belt, Tsunami vulnerability, GIS, LiDAR, Population estimation, Building Height

Tsunami vulnerability assessment in the Moratuwa Urban Council area in Sri Lanka***Manjula Ranagalage¹***

1. Division of Spatial Science, Graduate School of Life and Environmental Sciences, University of Tsukuba, Japan
Email: manjularanagalage@gmail.com

26th December 2004 tsunami disaster has caused massive loss of life, damage to coastal infrastructure and disruption to economic activities in the coastal belt of Sri Lanka. Tsunami vulnerability assessment is a requirement for disaster risk and vulnerability reduction. It plays an important role in identifying the extent and level of vulnerabilities to disasters within the communities. The main objective of this study is to investigate tsunami vulnerability assessment of Moratuwa Urban Council area in Sri Lanka. We have used tsunami scenario with a maximum run-up 6 meters for 41,633 housing units located in Moratuwa Area. Building population estimation model and 2015 population data were employed to estimate night time population of all buildings located in the study area. LiDAR data were used to calculate the height and volume of the each building. The results of study expect to provide a clear picture of tsunami vulnerability. Outcomes of this analysis can be useful as an important tool for urban planners to assess the risk and extent of disaster risk reduction which could be achieved via suitable mitigation measures to manage the coastal belt in Sri Lanka.

Keyword. Western coastal belt, Tsunami vulnerability. GIS, LiDAR, Population estimation. Building Height