



Tsunami Risk and Inundation Damage Assessment for Istanbul

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The aim of the study is assessment of tsunami risk and estimation of associated flooding damages and losses along the European and Asian shores of Istanbul in connection with the EU-FP6 TRANSFER project.

The city is under the threat of earthquakes expected to originate from the Main Marmara branch of North Anatolian Fault System. Tsunami hazard has been estimated probabilistically and deterministically for M7+ scenario earthquakes. Important elements at risk exposed to tsunami hazard in Istanbul are population (17% and 13% of 12 million inhabitants, during day- and night-time respectively), buildings, infrastructures, critical facilities, historical structures and industrial facilities. For the development of the risk maps, inundation maps produced by OYO International Inc. for Istanbul Metropolitan Municipality have been used in combination with the unified GIS-based inventory of the physical elements at risk. As a result of this combination it has been possible to assess the level of exposure as well as direct physical tsunami losses in Istanbul deterministically and probabilistically. The study also enabled a generalized assessment of direct and indirect socio-economic impact and losses in Istanbul due to tsunamis.