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Seismic Microzoning Studies After Flooding Hazard in Selimpasa (Istanbul)

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On September 7-8, 2009, heavy climatic (rain) conditions caused a flooding hazard and loss of life in many districts of Istanbul and the town of Tekirdag (in Turkey). One of these districts, namely Silivri was suffered very extensive damage due to this flooding hazard. Especially life and property losses occurred in some sites in Selimpaşa where there are holiday buildings. Settlement in this area have consists of a very dense population. Due to the presence of the current river bed (alluvial sediments, soft soil sediments) in the region, soft soil-structure interaction during earthquakes are carried out by a series of geophysical and geotechnical studies to solve several soil problems, especially soil amplification. The study area may locally be divided into 4 sub-regions. These are Selimpaşa Center, Kavakli, Ortaköy and Kadikoy. In the region, there geotechnically are at 80+ boreholes (with SPT and laboratory tests) and geophysical (MASW-MAM) measurements at 100+ sites. All these data are evaluated to obtain the soil classification and soil amplification and finally to obtain the microzonation map. According to the Eurocode soil classification system; there are D, B and C types of soils. In the final microzonation map, the study area is divided into 3 sub-regions as A sub-region (higher than 420 m / s), B sub-region (Vs velocities are between in 360 to 420 m/s) and C sub-region (Vs velocities are lower than 360 m/s).