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Collection, management and analysis of building damage information in the urban environment through Web-GIS

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Natural disasters have a considerable effect in human, infrastructure and economy. In the case of a catastrophic earthquake that happens and affects the urban environment, immediate and efficient actions are required which ensure the minimization of the damage and loss of human lives. Local and national authorities should respond in order to meet the above objective. However, in order to secure a successful restoration campaign, it is necessary to conduct as accurate as possible the assessment of the damage caused to the urban area. The above process is a precondition in order the population to return to its normal life. Nowadays, one of the most appropriate tools for this purpose are the Web-based Geographic Information Systems (GIS). Such a system, named SyNaRMa (Information System for Natural Risk Management in the Mediterranean), has been developed and among others facilitates the collection, management and analysis of building damage information. In the frame of the SyNaRMa system, a prototype database was developed and provides the recording and evaluation of damage caused to a building due to an earthquake event. This database is accessed through the on-line system and may be used in-situ for post seismic building inspections. Moreover, another on-line accessible database has been incorporated within the system aiming at the pre-seismic assessment of the vulnerability of a building. The aforementioned system has been evaluated in the city of Grevena in north-western Greece.