



Social dataset analysis and mapping tools for Risk Perception: resilience, people preparation and communication tools

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Perception has been identified as resource and part of the resilience of a community to disasters. Risk perception, if present, may determine the potential damage a household or community experience. Different levels of risk perception and preparedness can influence directly people's susceptibility and the way they might react in case of an emergency caused by natural hazards.

In spite of the profuse literature about risk perception, works to spatially portray this feature are really scarce. The spatial relationship to danger or hazard is being recognised as an important factor of the risk equation; it can be used as a powerful tool either for better knowledge or for operational reasons (e.g. management of preventive information). Risk perception and people's awareness when displayed in a spatial format can be useful for several actors in the risk management arena. Local authorities and civil protection can better address educational activities to increase the preparation of particularly vulnerable groups of clusters of households within a community. It can also be useful for the emergency personal in order to optimally direct the actions in case of an emergency.

In the framework of the Marie Curie Research Project, a Community Based Early Warning System (CBEWS) it's been developed in the Mountain Community Valtellina of Tirano, northern Italy. This community has been continuously exposed to different mass movements and floods, in particular, a large event in 1987 which affected a large portion of the valley and left 58 dead.

The actual emergency plan for the study area is composed by a real time, highly detailed, decision support system. This emergency plan contains detailed instructions for the rapid deployment of civil protection and other emergency personal in case of emergency, for risk scenarios previously defined. Especially in case of a large event, where timely reaction is crucial for reducing casualties, it is important for those in charge of emergency management, to know in advance the different levels of risk perception and preparedness existing among several sectors of the population. Knowing where the most vulnerable population is located may optimize the use of resources, better direct the initial efforts and organize the evacuation and attention procedures.

As part of the CBEWS, a comprehensive survey was applied in the study area to measure, among others features, the levels of risk perception, preparation and information received about natural hazards.

After a statistical and direct analysis on a complete social dataset recorded, a spatial information distribution is actually in progress. Based on boundaries features (municipalities and sub-districts) of Italian Institute of Statistics (ISTAT), a local scale background has been granted (a private address level is not accessible for privacy rules so the local districts-ID inside municipality has been the detail level performed) and a spatial location of the surveyed population has been completed. The geometric component has been defined and actually it is possible to create a local distribution of social parameters derived from perception questionnaires results. A lot of raw information and social-statistical analysis offer different mirror and "visual concept" of risk perception. For this reason a concrete complete GeoDB is under working for the complete organization of the dataset. By a technical point of view the environment for data sharing is based on a complete open source web-service environment, to offer manually-made and user-friendly interface to this kind of information. Final aim is to offer different switches of dataset, using the same scale prototype and data hierarchical structure, to provide and compare social location of risk perception in the most detailed level.