
Editorial

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In this last IJEM issue for 2007, we present a wide range of topics that address the diversity of emergency management matters, from organisation to human behaviour and technology. This diversity of research and application fields is an answer to the growing complexity of disaster-prone situations in recent years.

The first two papers deal with the role of public bodies in emergency management.

The Falato *et al.* paper addresses the question of the balance between local and federal government in disaster preparedness. Owing to the fact that accidents and catastrophes generally start from small events occurring at the local scale, preparedness has traditionally been organised at the local government, with the aim of reacting rapidly and efficiently in order to avoid extension of the accident. Recently, large accidents that occurred in the USA and elsewhere have demonstrated that this scheme is no longer appropriate and federal bodies should be more involved in preparedness activities.

The paper by Wiig addresses the question of the efficiency of risk regulation in public emergency management. Regulation means providing a framework of action for prevention, protection and, more generally, the level of risk. It also associates audit processes, which means an analysis of the actions of municipalities for risk prevention and management. This authors focus their analysis on learning processes that emerge from these regulation loops.

The next three papers use case studies to address psychological aspects of human behaviour during emergencies.

The Smith *et al.* paper presents a case study on the evacuation of a residential area after an accident involving dangerous chemicals. From this analysis, the authors provide a series of conclusions that could improve evacuation efficiency in such situations. Recognising and addressing the psychological and physical effects that a disaster can have on a population is as equally important for the health of the community as keeping the community from physical harm. With a chemical disaster there are potential health hazards that the general public may either underestimate or exaggerate without clear and accurate information. Communication with the public may be as important before and after a crisis as it is during a crisis event.

The paper by Auboyer *et al.* addresses the question of accidents in road tunnels. Owing to the confined space and potential density of victims, tunnel accidents may cause a large number of fatalities. The main stream of studies on tunnel safety addresses technical aspects. It becomes clear when one analyses the behaviour of people during accident scenarios that their behaviour is far from the forecasted one used to set up

intervention and emergency plans. The authors have initiated a series of experiments on real accidents and simulations to assess people's behaviour in risky situations and use the results to improve emergency management processes.

The Walton *et al.* paper addresses the perceptions of people and how they depend on the source of information. This study uses a quasi-experimental design to examine individual perceptions of severity after a simulated earthquake. The authors use a large-scale experiment with three main variables: earthquake severity (moderate or severe), location at the time of the earthquake (home or office) and influence of media type (radio, television and internet). Among other results, statistical analysis of collected data reveals that people generally overestimate damage and that TV exerts a greater influence over perceptions of severity than the radio or the internet.

The last four papers address technological aspects of emergency management.

The Bowman *et al.* paper presents a mobile communication system to be used after disasters in rural areas. During an emergency, reliable communications can be a matter of life and death, but as seen in recent catastrophes, even the best trained and equipped first responders, emergency managers and relief workers may struggle to communicate during a crisis. The proposed system was tested during a series of on-site simulation exercises and demonstrated interesting features for practitioners. The paper presents field experiments and lessons learnt from the use of the system in realistic conditions.

The Kanchanasut *et al.* paper proposes another system designed to support emergency processes on site, in particular search and rescue operations and identification of victims in disaster-stricken situations. The use of a broadband geostationary satellite allows quick restoration to internet access from the disaster-affected sites as well as multimedia communications among the sites. The authors present a field experiment in a region of Thailand that was damaged by the 2004 tsunami, which is used to validate the system capabilities.

The Sauvagnargues *et al.* paper addresses the role of GIS applications in supporting real-time emergency management. A case study is presented on flash floods in the south of France in 2002 and 2003. GIS proved to be an efficient support in many situations, owing to its capabilities to handle critical information (location of endangered populations and emergency resources, road network, *etc.*), but achieving this mission requires resources to be set up, databases maintained all year round and permanent staff during emergencies to update information in real time. The paper presents how GIS applications are connected to emergency processes and some of the features provided during these flash flood events.

The Dandoulaki paper presents an innovative approach to supporting search and rescue operations in collapsed structures. The principle is to place autonomous devices in populated rooms, which store permanent information (building maps) and record information (video images and sounds) permanently, but transmit information only when a collapse occurs. By using these data, rescuers may have a clear view of the situation (people present in the room) just before the collapse and after (sound emitted by victims). The paper presents the architecture of such a system and first results obtained during simulation experiments.