

## **Mediterranean Storms: An Integrated Approach of Risk Management**

H. Karageorgou (1), E. Riza (1), A. Linos (1), and D. Papanikolaou (2)

(1) Dept Hygiene, Epidemiology & Medical Statistics University of Athens Medical School 75 Mikras Asias 75 115 27 Goudi, Athens Greece , (2) Dept Dynamic-Tectonic-Applied Geology, Faculty of Geology & Geoenvironment University of Athens Science School Panepistimioupoli, Zografou GR - 157 84 Athens, Greece

Disaster by UN definition is “a serious disruption of the functioning of a community or a society, involving widespread human, material, economic, or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using only its own resources”. Mediterranean storms induce flash floods caused by excessive amounts of rainfall within a short lasting period of time. The intensity and duration of precipitation, region geomorphology, urbanization and different governmental emergency management structures trigger different consequences between Mediterranean countries. The integrated approach in management of storm risk represents a holistic perspective including interactions between government, science and technology institutions, developing agencies, private sector, NGOs and public.

Local authorities and national government are responsible for the design, preparation and decision on storm risk management policies and strategies considering scientific risk identifying, assessing and understanding. Efficient governance management requires satisfied response to early warning systems, functionality of the affected systems upon which society depends and appropriate focus on variable interest, beliefs, values and ideologies between social groups. Also an appropriate balancing of benefits and costs in an efficient and equitable manner is important for the governance risk management.

Natural sciences in corporation with the engineering science have developed effective early prediction, warning and monitoring systems on storm and flood risk. The health sciences use prediction systems for health related hazards and consequences and the social sciences research estimates the human resilience during disasters and the factors which affect and determine the human behavior. Also social sciences survey the response of public to early warning messages, the appropriate communicative methods to distributing messages and mechanisms to improve public response. The available and applied science and technology in prediction and early warning systems rely on the close collaboration between scientists and policy makers to achieve effective disaster prevention of human life and mitigation of damages.

Developing agencies approach risk management as an integral part of development and encourage activities and measures to reduce the exposure and vulnerability to natural hazards through early warning systems, building codes, land use plans and disaster sensitive development plans. The human settlement and investment in high risk floodplains place greater numbers of people and economic assets in danger of being affected by storms and floods. Disasters and development are highly inter-related. Recurrent disasters and frequent localized disasters erode development and conversely the development processes can reduce disaster risk, or create new risks.

The private sector participation in risk reduction efforts can help local communities mitigate disasters and increases the benefits of the businesses. The private insurance sector is highly involved in the prevention of disaster caused by natural hazards especially storms and floods. The collaboration between academic community and the insurance sector indicates the linkages between the mutual insurance actions and risk culture. Also tourism industry and private critical infrastructure sector get involved in prevention measures and activities against storm and flood risks to build sustainable functionality and keep public trust.

NGOs focus on social, cultural, environmental, educational, or health issues in disaster management and their members are educated and experienced on their area of operations. The staff of local and national NGOs is familiar with culture, languages, governance structures, social networks, climate and geography of the affected area and holds a unique understanding of the specific problems of the affected population. Additionally, NGO's operations do not suffer from bureaucracy and therefore are able to deploy on very short notice.

The public awareness, behavior and response to disasters depend on the knowledge about the risk, the understanding of the information and the translation of what it means in their own particular circumstances. The majority of people judges the information to be credible and discusses the meaning of information with trusted family members, friends and colleagues to decide the next action. Well educated people, efficient management of previous experiences, successful communication methods and trust on government and authorities contribute towards efficient public response on disasters.