

A Societal duty for Geoscientists of our Times: Communicating Experience and Innovation towards Improving Society's Resilience to Natural Hazards

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The open access Journal of Geology & Geosciences (JGG), which is published by OMICS Publishing Group (OPG), declares, among others, that it “provides an open forum to share on the titled sciences around the globe with a mission to influence, encourage and assist scientists that enables the dissemination of research articles to the international community”.

Since I strongly believe that scientific knowledge should be shared among all interested members of global human society and it has to be a freely distributed public good, I have been personally touched by the above statement (I came across to it through the Internet) which comprises, as I noticed, a part of a broader, written and open access declaration made by OPG. Hence, I consider it both an honour and a challenge to be chosen as a new Editorial Board member of the JG&G and within this context my sincere intention and assiduous effort is to contribute towards the optimal fulfillment of the declared journal's mission.

Furthermore, the Journal states, that it encourages, among others, the study on Geologic Hazards and I argue that science of Geology and Geo-sciences in general consist the prevailing, in importance, factor for the in depth appreciation of the functioning not only of Geo-hazards but of all natural hazards and the severity of their impacts on the earthen ecosystems and particularly man, either directly or not. At this point, it must be noted that poor or ineffective communication is one of the main barriers to the effective use of Geo-hazards research by society. Besides, the research results need access to wider audience apart from that of the, peer reviewed, scientific journals. Hence, Geoscientists need to take responsibility for broadly communicating their research to the public and the policy makers through mass media and other appropriate means. Since, if they do not accept responsibility for communicating their own work it will either not be communicated at all or it will be communicated by someone who understands less than they do and in both cases the public (citizens) or/and the politicians (decision makers) will not get the proper as far as the quality and/or the quantity, information which might be resulting in deficient protective measures and thus, potentially, the engaged (to the particular research results) community to a disaster. Thus, at this point, I argue that Geoscientists need to be educated in mass media relations and in Social science research in natural hazards through appropriate education and information channels.

The fundamental societal interest and concern, on a global basis, regarding Geo and water related natural hazards is revealed from the relevant, existing statistical data reported on systematic basis by various official sources. I personally consider, in accordance to many other colleagues' scientists and NGO members that the integrated management of the Risk associated to Geo-hazards and in general all natural hazards, must be taken as a first priority task by all people worldwide. By saying all, let me make clear that I do refer not only to the related and the broader scientific community (who propose the risk's mitigation measures) and the politicians (who are the decision makers for the measures to be taken), but by the global human community of citizens as a whole who are suffering, directly or indirectly, from

the risk mismanagement approaches. I believe, as a result of my (direct and indirect) experience, that an efficient treatment of this risk requires a *multi-inter-scientific, multi-dimensional* and *multi-scaling* approach. In this context and given the inherent natural and social complexity both of the natural hazards and their implications to the natural and the man-made environment, the key-words (being scientific terms) which should characterise the behaviour and guide the actions of the many actors-stakeholders engaged/involved (directly or not) in the risk management “game”, should be: *cooperation, collaboration, coordination, systemization, case-adaptation, and convergence*. In fact, risk management practice must be based on a holistic approach combining all the available instruments and possibilities from risk prevention and preparedness to land use planning, crisis management and recovery activities. I share the view that, in particular, spatial and land use planning represent the basis of a risk reduction and mitigation strategy. Within the context of planning this strategy, a critical point is the appreciation by the scientists-stakeholders of the particularities of each case of reference: i.e. hazard and engaged area. Each case necessitates a certain combination of “soft” (policies), having the priority, and unavoidable “hard” (engineering) measures to be chosen from a list of given alternatives (through multicriteria analysis instruments) for managing, in the optimal way, the known three phases of the potential disaster engaged to a particular hazard's risk in a particular geographical region/area.

Referring to the *integrated management* of natural hazards I would like to stress the crucial role of its transboundary dimension. In particular, it is well known that the most devastating water related hazards, as floods and droughts, are mostly encountered in transboundary river basins. Being a Greek citizen and scientist let me stress the well, perhaps, known fact that in the Balkans (SE Europe) and the Mediterranean regions this is, by far, the case. Since, in these geographical units surface water and groundwater are transboundary in more than 80%. Besides due to the increased demand for water in the coming years and the impact of climate change with exacerbation of drought and floods, the bet in the 21st century is how to ensure cooperation between neighbouring countries sharing transboundary waters in order to avoid the tragedy of the conflict because of water shortage in all sectors of the economy, such as water supply, tourism, agriculture, energy, industry and the environment protection as well

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as the conflict due to the mismanagement of flooding waters and the engaged to them direct and indirect losses/damages which are unequally allocated in the territories of the co-riparian countries. In these cases the best means in coping with the hazards is through sound cooperation within an integrated management process and on the basis of a “win-win” approach.

Society is increasingly demanding for absolute safety as far as the natural hazards are concerned, while individual responsibility (either as citizens or states) is increasingly denied. But it is known that higher demands for higher safety standards will lead to an increased pressure to public finances. With or without the effects of climate changes on natural hazards, the challenges to natural hazards and their risk management practice are enormous. Some of the many needed tasks could not be faced by a single institution alone (country level) or a country alone (international level); solutions must follow a common strategy either on a state or on a regional, transboundary basis. The development of a strategic vision for confronting these challenges and setting the framework for implementing these strategies could be made only within a collaborative framework. I think it is worthwhile noting here that in the Alpine region there exist, on a strategic level, a very promising paradigm: the Platform on Natural Hazards of the Alpine Convention (PLANALP) with very fruitful results so far. The exchange of information and experiences on the level of research institutions and regional authorities is made via the International

Research Society INTERPRAEVENT. The common development of innovative approaches and the harmonization of practices and data standards are made on the level of transnational projects with funding by the EU.

Ultimately hazards and potential disasters are about people however, and one of the key stakeholder groups is the *community at risk*. Perhaps the single largest challenge is engaging this particular group to play a major role in contributing to the effective working out of all three stages of the Natural Disaster Risk Management Cycle.

Finally, let me end this editorial by referring to a statement made by the Geological Society of America in 2005, which, I do believe that it is still expressing a truth of vital importance: “If we are to build up our resilience and effectively reduce the devastating effects of natural hazards, geoscientists must coordinate their efforts with engineers, emergency management professionals, policy makers, builders, investors, insurers, news media, educators, relief organizations, and the public, as well as other scientists.”

Let us, execute in the optimal way our duty, as geoscientists and citizens of the world, to care and collaborate for the sustainability of the natural and the man made environment of our neighbourhood, our country and our planet!

Towards this goal, let us provide and share on a systematic and cooperative basis our most valuable experiences and innovative ideas!