Preface

In the age of human activities, Engineering Geology plays a key role in the sustainable development of our societies: scientists, regulators, and practitioners of Engineering Geology are called to confront themselves with the purposes, methods, limitations, and findings of their works.

In this perspective, topic seven of the XII Congress of IAEG in Torino on 2014 was an opportunity to illustrate a wide-angle vision on several inter-related issues: the role of Engineering Geologists within the geoengineering profession; the best practice in professional ethics and communication in a changing world; the education and modern development of Engineering Geology profession and its professionals; resource use and reuse in managing risk prevention and impaction a complex framework; engineering our geological responsibility in an uncertain environment; Engineering Geology at tertiary level.

Five part topics were activated, presenting a total of 54 chapters, contributing to:

- stimulating the debate on professional responsibilities of engineering geologists,
- analyzing the interactions of engineering geologists with other professionals,
- evaluating the recognition of the engineering geological profession and its peculiar contribution to society, culture, and economy, and
- reporting examples of the empowerment of research groups and management activities by using web 2.0/3.0 technologies, thus enabling cooperation, knowledge sharing, and collaboration at all levels.

They highlighted implications for the use of the education of engineering geologists at tertiary level and in further education schemes. They also highlighted the importance of having the professionals organized into national groups which stimulate advances in Engineering Geology in their countries.

"Engineering Geological Models" (Part I) discussed the use of engineering geological models within the framework of the total geological approach (Fookes et al. 2000; Baynes et al. 2005; IAEG Commission 25). Such models allow the understanding and prediction of engineering geological conditions and processes, aiming at reducing uncertainties and their impact on our societies. The authors presented examples on innovative use of engineering geological models for different engineering projects, and for different geological and geomorphological environments, envisaging new perspectives and operational outcomes.

"Fifty-Year-Long History of IAEG in Events and Personalities" (Part V) focused on relevant facts and events (congresses, conferences, symposia) of the 50-year-long IAEG history, where many outstanding personalities played a fundamental role as founders of our association. Amongst those who participated in the IAEG work, since its early beginning, some gave great and acknowledged contribution to the development of engineering geology on a world scale. Many witnesses of the events that took place during 50 years, and there are still colleagues and disciples of the remarkable founders of IAEG, keep their historical memory. This part highlighted our duty to share this heritage, passing up the baton to the new young generation of geoscientists. In the 50th Anniversary Book which will be distributed to all participants in the Congress, parts are devoted to the birth of the IAEG and the relevant role of its founders, to the main events organized along the 50 years, to its outstanding

activity all over the world, and to the awards that have been established to pay a tribute to those who most contributed to the development of our discipline. The book also includes a History of Engineering Geology which starts with its heritage and reports its evolution and the main achievements until today.

"Geoethics and Natural Hazards: Communication, Education and the Science-Policy-Practice Interface" (Part II) analyzed the critical ethical issues faced by Geoscientists and Engineers in relation to natural hazards (e.g., earthquake, volcano, landslide, and flood events) and risks, and their increasing death toll and social costs owing to population growth, occupation of marginal/unsafe land, and abandon or misuse of land. Sharing and communicating our knowledge more effectively, involving private and public stakeholders, could contribute to a sustainable development of human society and economic activities. In the Anthropocene, Geosciences represent the "connective tissue" of a wider multidisciplinary approach, to build a shared responsibility on the effects of human actions, and to better cope with uncertainties. This part highlighted many natural disasters could be prevented and/or their impact reduced, raising awareness and fostering a true interdisciplinary collaboration that could fulfill ethical obligations of the scientific community as a whole. This shows the growing importance of environment in the practice of engineering geology and also the need for its cooperation with other engineering and social subjects and professionals.

"Resilience Two Citizens and Citizens Four Resilience" (Part III) focused on how engineering geology could benefit from knowledge sharing of natural hazards and collaborative risk management. As natural risks are part of our reality, the authors highlighted how preparedness, as an interdisciplinary issue, could envisage a more effective disaster resilience. The "common and shared knowledge" approach empowered by web 2.0/3.0 technologies, embodies the idea of citizen sciences and the purpose to build a new people-centred resilience: Crowdsourcing and VGI, citizens engagement and participatory practices are a new frontier and a matter of fact. Despite any critics, they have the merit to arouse a debate on cooperation, knowledge sharing, and collaboration at all levels. This part faces, out from the crowd, applicability, opportunity, and constraints of these new approaches, procedures, and technologies for preparedness actions: (A) The "web 2.0 wave": threat or opportunity for disaster resilience? (B) Two-way emergency communications: empower or menace for governmental organizations. (C) ICT laws and regulations: dinosaurs in a glass store? (D) Is research ready for Open Data and Open Knowledge (E) Cultural vs. technological challenges in disaster resilience (E) Web and mobile technologies: experiences and tools.

"Standards, Guidelines and Best Practices for Engineering Geology" (Part IV) offered to professionals an overview of specialized documentation on Engineering Geology: the best practice case studies and compilations, recommended technical procedures in more formal guidelines, rigid regulatory, or prescriptive standards that are legally binding. Such documentation resulted appropriate for a variety of topics relevant to the engineering geology community, and for a suite of topics, including construction materials studies, landslide risk management and land planning, subsurface mining, infrastructure construction, and groundwater extraction. An international open exchange of ideas and knowledge was gained by this part, where authors illustrated their personal, national, or specialized experiences, lessons learned, successes, and failures with fellow professionals. The authors provided much needed guidance and structure to practicing engineering geologists and they underlay our professional obligations to ensure the health, safety, and well-being of society. In the IAEG, this has been best achieved through publication in the Bulletin which was created in 1970 and is today a reference journal in the area, as well as the work produced by the IAEG Commissions.

Interesting points emerged from the IAEG 2014-Topic 7 on "Education, Professional Ethics and Public Recognition of Engineering Geology." A comprehensive view of the proposed contributions fosters the idea of engineering geologists playing the role of acknowledged "interface" between man and nature. They are not only scientists and professionals able to "interpret" both the environmental and the territorial processes, but they

also have attitudes and capabilities to communicate information to the general public and to develop guidelines for the correct and safe use of land, namely for the social welfare and economic development of society. The issues proposed by the Topic's sessions, and the way they were discussed within the proposed contributions also highlighted the important role Engineering Geologists can play in disaster resilience. As a conclusion, interesting discussions have been stimulated on the relationships between ethic, science, politics, and citizenship.

Reference

Fookes PG, Baynes FJ, Hutchinson JN (2000) Total geological history: A model approach to the anticipation, observation and understanding of site conditions, Invited Paper, Geoeng 2000 Conference, Melbourne Australia, published in Ground Engineering 34(3): 42–47

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