
Preface

Notwithstanding the sessions and their respective contributions that have been collectively grouped under the rubric urban geology, sustainable planning and landscape exploitation (see below), in practical terms it is impossible and impractical to divorce the assembled topics from the broader relevance of engineering geology. Herein are contained a number of papers that cover the broadest facets and attributes of the discipline. Although individual papers often provide case study or site-specific examples for problem solving the implications resulting from the works are clearly widely applicable.

At its core, this thematic grouping of contributions touches on aspects that literally range from construction (aggregate/building stones) to destruction (hazards/risk) or from preservation (geo-heritage/mitigation) to obligation (planning/communication). The managing editors for these sessions had the privilege to administer the review of a diverse number of submissions representing an equally diverse geographical, sectoral and topical flavour.

Sustainability underlies a common thread within the sessions. As a start, we recognize that aggregate resources remain a paramount concern to the professional community. The clustered spurts in growth that development brings across the globe brings with it a relevance regarding the amount of materials needed and consumed, the technical viability and safety of the materials used, advances in the evaluation of aggregate suitability as well as the long-term history as defined by natural decay, recycling, waste and reuse. Comparable in many regards is the growing focus on building stones and ornamental rocks that lack the traits of abundance and accessibility more characteristic of basic aggregate. Dimension stone research and the associated technical assessment are of paramount importance to our concerns with heritage issues. Prospection, identification, inventory, assessment and proper resource use planning effectively crosscut these relationships.

Hazards and associated risks fundamentally touch on virtually all activities linked to engineering geology. Seismicity in all of its manifestations, whether direct in the form of ground movement (faulting/shaking) or indirect as evident in landslides, subsidence, liquefaction or tsunamis can never be underestimated. In this case, the role of engineering geology is well applied given the necessity by the professional community to identify threats, reduce risks and mitigate problems. Similarly, both urban and rural environments face challenges associated with flood and landslide-related hazards. Where people build and where people live are strongly affected by exposure to such geohazards. Knowing where the problems exist leads to proper and efficient monitoring whether remotely or in real-time.

The subsurface attracts special attention for engineering geologists. The importance of well-documented a priori mapping is the first step in allowing effective zonation practices to be applied. Concerns with karst topography and groundwater resources are just two examples of items that must be taken into account by engineering geologists as communities embark on full-scale underground development in the move towards new living environments.

Data compilation, information management, access to high quality and reliable results remains an obligation to practitioners. No matter how much fieldwork and how many laboratory studies are completed, the resulting information must reach those in a position to best utilize the conclusions. Proper communication of the objectives, work involved, implications

and conclusions of the engineering geology projects and studies need to be directed towards the proper audience. Uninterpretable maps or jargon-loaded reports do not serve the interests of society at large. Here, the true measure of success is weighed by the extent of use one's work eventually attains.

Broadly, the sessions under the three main topics of urban geology, sustainable planning and landscape exploitation can be grouped as follows:

- Urban geology
 - Analysis and control of ground deformations by remote monitoring
 - Remote sensing applications for the detection, monitoring, modelling and damage assessment of critical structures and complexes
 - Experiences and potentialities of data-driven modeling in earth science issues
 - Mapping urban subsurface for geohazard assessment and risk management
 - Complexity in hazard and risk assessment
 - Engineering problems in karst
 - Landslide and flood hazard in urban areas: assessment, monitoring and mitigation strategies
 - Off-fault co-seismic surface effects and their impact in urban areas
 - Surface fault-rupture hazard in urban areas
 - Seismic microzonation: input data, methodology and impact on planning
 - Geohazard in urban scenarios: forecasting and protective monitoring
- Sustainable planning
 - Communicating engineering geology with urban planners
 - Engineering geology in rural infrastructure planning
 - Underground urban development
 - Geohydrological risk and town and country planning
 - Urban and land planning versus risks resilient management
- Landscape exploitation
 - Construction materials
 - Aggregates—the most widely used raw material
 - Building stones and ornamental rocks—resource evaluation, technical assessment, heritage designation
 - Aquifer vulnerability and springs/wells protection zones
 - Excavation in potentially asbestos-bearing rocks: methodologies for risk evaluation and safety management

In summary, urban geology focuses on monitoring using remote sensing; data, mapping, and modelling; and geohazards in the urban environment. Sustainable planning covers communication (with planners); use of the subsurface; planning in rural areas; ground and surface water risks for planners; and the relationship between planning and risk management. Landscape exploitation is concerned with mineral extraction; groundwater exploitation; and, particularly, safety problems associated with the extraction of asbestos-bearing rocks. This is a varied range of topics but all are important to ensure the well-planned, sustainable and imaginative development of the areas where most of the world's people live.

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Exploitation

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