

Georesources and public policy



This special issue of the *Estonian Journal of Earth Sciences* publishes some results of the 15th Meeting of the Association of European Geological Societies (MAEGS-15), held in Tallinn, Estonia, 16–20 September 2007. The topic of the meeting was “Georesources and public policy: research, management, environment”, covering various important or even acute subjects concerning useful minerals, environment, and human society. No doubt the topic is one of the cornerstones of the International Year of Planet Earth, which is revealed also in its subtitle “Earth sciences for society”. Therefore it is no surprise that the meeting attracted more than 80 participants from 17 countries. The scientific sessions included more than 50 presentations. The indoor meeting was followed by a 2-day geological excursion to northern and western Estonia.

We can publish in this issue only a fraction of conference papers, but the main trends of ideology, common thinking about the problems, and ways of decision-making are clearly visible. Several more papers that could not be accommodated here will appear in the next issue of the journal.

The opening paper by Michael G. Petterson (British Geological Survey) “Minerals sustainability, emerging economies, the developing world and the ‘truth’ behind the rhetoric” reviews the principles and applications of sustainable development as applied to minerals. The paper is in its own way a general introduction to the whole meeting, and discussion of problematic issues is not avoided. One of the author’s statements is that the foundations of the sustainable use of minerals are well known and include economic, community, environmental, and political considerations, whereas an ideal solution would be one that finds a balance between community benefit, economic development, profit, and minimal negative environmental and political impacts. At the same time he is aware that this is, of course, fine in theory but difficult to achieve in the “real world”. One crucial key element of a sustainable minerals approach is a mix between “hard” science and social science, and genuine consultation with stakeholders, especially impacted communities. The paper analyses several trends in global demand for different minerals and energy resources. Discussing the role of geoscientists, the author stresses their obligation to use their knowledge and position to explain clearly the benefits and disbenefits of mineral development to society. Excellent science should be at the heart of this dynamic process, involving also management, decision-making, community, economics, and environment.

Several papers consider the same problems in a regional context. Barbara Radwanek-Bąk (Polish Geological Institute) discusses the problems of sustainable management of mineral resources in Poland. She stresses that sustainable development requires a change in the attitude to ongoing activities as well as a new value hierarchy in which, instead of direct profit, improvement of the well-being of individuals and society comes into prominence. The future forecast shows the necessity of finding a reasonable compromise, which allows for the development of sustainable mining.

Rein Raudsep (Ministry of the Environment, Estonia) writes about the most important useful minerals of Estonia, which are remarkable also in the European context: oil shale (kukersite), shelly phosphorite, and peat. Unfortunately, for many years oil shale and phosphorite have been mined and industrially used in environmentally hazardous ways devastating large regions in northern and northeastern Estonia. The main problems related to the development of mining are technological, technical, environmental, economic, and social. The ministry, in cooperation with scientific institutions, industrial enterprises, and local administrations, is trying to find complex solutions to different problems related to mining and utilization of georesources.

Mall Orru and Hans Orru (Geological Survey of Estonia) describe the situation with peat deposits. A serious problem is that several abandoned production areas are not properly recultivated, which means that their CO₂ emission is considerable and peat turns unusable. The problem is well known also in some other countries and respective measures are being worked out.

Andrew A. McMillan and Ewan K. Hyslop (British Geological Survey) show clearly how the character of the UK’s built heritage has been largely determined by the country’s diverse geology. Indigenous natural stone forms a major component of the nation’s pre-1919 building stock. Their paper outlines the material requirements for the repair and maintenance of the stone-built heritage and illustrates a range of initiatives across the UK aimed at safeguarding and redeveloping indigenous resources.

Otilia Lintnerová, Peter Šottník, and Stanislav Šoltés (Comenius University Bratislava, Slovakia) used the abandoned Smolník mine waste area as a model to investigate the pollution of waters, stream sediments, and soils by metals and

other toxic elements. Major goals of their complex study were to document creek water transport of the main pollutants (Fe, sulphates, Cu, Al, As, etc.) in the form of suspended solids, and to analyse element mobility in common mine waste (rock and processing waste heaps and tailing impoundment) and in the soil on the basis of neutralization and leach experiments. Different methodologies and techniques were used to evaluate environmental risk of this abandoned mine area.

Toni T. Eerola (Namura Finland Oy) discusses challenges connected with uranium exploration, non-governmental organizations (NGOs), and local communities in Finland. The global warming and shortage of energy resources have returned nuclear power to the agenda and a new uranium exploration boom is going on in Finland. However, this has produced a strong anti-uranium campaign promoted by anti-nuclear movement, green and leftist parties, and environmental NGOs. The paper examines the origin, anatomy, and consequences of this challenge and how to deal with it. The picture presented by the author is based on his active participation in uranium exploration in Finland, discussions with other geologists and activists at the NGO meetings and elsewhere. The weak public awareness of geology and exploration is one of the causes of this situation. How to deal with the situation? The key word is openness, but also high-quality exploration and proper legal basis for mining activities are essential.

The Tallinn meeting of the AEGS and the papers published in this special issue clearly show that the discussed topic “Georesources and public policy: research, management, environment” is a complex one, needing besides excellency in Earth and engineering sciences also interdisciplinary cooperation with other fields of knowledge. The latter should be considered in a wide sense, including social sciences, environmental policy-making, wise public relations and all related aspects. Many of the corresponding key words were mentioned above, and the context where these appear convince that implementation of the sustainable mineral paradigm needs steady work for a longer period of time, not only a short campaign. On the other hand, an action like the International Year of Planet Earth is a superb possibility of rising public awareness of the local and global trends in the evolution of the ecosystem (human society included) of our home planet.

Dimitri Kaljo
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Participants in MAEGS-15 in front of the Estonian National Library made of traditional Tallinn building limestone (Middle Ordovician). Photo by G. Baranov.