

Introduction

The Earth now has a population of six billion people. As early as 2043, nine years sooner than previously assumed, that number will probably have increased to nine billion, with more and more of them crowding into the cities. That is good reason to think about how to develop urban areas. It will be necessary to use not only the surface, but also underground construction space, for example for protection of the environment, protection of the cultural heritage, and for comfort and safety.



That means engineers and architects have to do more to develop the underground spaces. A new model is needed for spatial planning, to correct today's conditions and change the balance between new construction and consumption of landscape resources. It will be necessary to transfer facilities underground, e.g. transport, production, utilities and waste disposal systems, communication facilities, cultural, sport and shopping centres. That can make space for housing that is appropriate to people's needs, and conditions of life that conserve natural resources. At present we are using only a fraction of the potential for use of underground space. Priorities for the future include:

- ∅ To make use of the far reaching technical, commercial and environmental opportunities for the future, arising from use of underground spaces;
- ∅ To create the conditions for exchange of ideas and experience for scientists, engineers, industry representatives, architects, urban planners and environment experts in government;
- ∅ To encourage the decision makers in government to recognise and use underground construction space as a potential for urban development;
- ∅ To conduct research and development for underground construction.

Future research work should include technical, economic and environmental feasibility studies, to examine issues such as:

- ∅ Can geothermal energy systems can be used on a cost-effective and competitive basis to substitute for conventional energy resources, either now or in the foreseeable future?
- ∅ Can the current primary obstacle in drilling technology be overcome by using alternative methods, e.g. based on flame melting technology?
- ∅ Can greater drilling depths be used, with simultaneous solution of the search for a final repository for radioactive waste?

Expectations for the international conference in Košice, Slovakia are correspondingly high.

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