



Resourcing Future Generations – Challenges for geoscience: a new IUGS initiative

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In a world with rapidly increasing population and technological development new space based remote sensing tools allowed for new discoveries and production of water, energy- and mineral-resources, including minerals, soils and construction materials. This has impact on politics, socio-economic development and thus calls for a strong involvement of geosciences because one of humanities biggest challenges will be, to rise living standards particularly in less developed countries. Any growth will lead to an increase of demand for natural resources. But especially for readily available mineral resources supply appears to be limited. Particularly demand for so called high-tech commodities - platinum group or rare earth elements – increased. This happened often faster than new discoveries were made. All this, while areas available for exploration decreased as the need for urban and agricultural use increased. Despite strong efforts in increasing efficiency of recycling, shortage in some commodities has to be expected. A major concern is that resources are not distributed evenly on our planet. Thus supplies depend on political stability, socio-economic standards and pricing.

In the light of these statements IUGS is scoping a new initiative, Resourcing Future Generations (RFG), which is predicated on the fact that mining will continue to be an essential activity to meet the needs of future generations. RFG is aimed at identifying and addressing key challenges involved in securing natural resources to meet global needs post-2030. We consider that mineral resources should be the initial focus, but energy, soils, water resources and land use should also be covered. Addressing the multi-generational needs for mineral and other natural resources requires data, research and actions under four general themes:

1. Comprehensive evaluation and quantification of 21st century supply and demand.
2. Enhanced understanding of subsurface as it relates to mineral (energy and groundwater) resources.
3. Evaluation of where additional natural resources are likely to be found.
4. Building additional capacity and other actions to facilitate delineation and responsible development of natural resources in less developed nations.

Of these, Themes 1 and 4 have been judged the most important for RFG. A goal of RFG is to be accepted as an independent, international 'honest broker', which can improve the ability of developing nations to create socioeconomically responsible world-class and regionally self-sufficient mining industries, circumventing potential concerns about the roles of some individual countries and organisations. This would be facilitated by IUGS' good links with UNESCO.

A high proportion of the mineral resources that will need to be mined in the future are in underexplored, less developed regions. Responsible production of natural resources needs to be accepted as a pathway to regional/national development. Holistic regional planning required for responsible mining in less developed regions has been commonly hampered by a general lack of infrastructure, governance, geological knowledge and trained workforce necessary to efforts that can responsibly and equitably supply future generations. There is a need to move beyond the paradigm of development aid, which has clearly not worked over the past 50 years, to partnerships based on specific needs. And ethical behaviour is required on all sides