

## **Role and Importance of Geoscience to Environmental Management and Sustainable Development**

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As geoscience education and profession have traditionally focused on exploration and exploitation of minerals and energy, geoscientists have been unable to contribute meaningfully and significantly to environmental management and sustainable development (EMSD). This inability seriously limited the growth and development of the profession and marginalised the role of geoscience in EMSD. It is remarkable that geoscience has been largely overlooked in the sustainability debate when geology represents the most critical causal factor influencing the genesis and intrinsic properties of all natural resources. This limitation is further compounded by the fact that traditional (production) geoscience is facing profound challenges in terms of maintaining and/or developing wide interest in the discipline. Indeed, the long-term viability of geoscience profession and its relevance to modern societies are becoming increasingly doubtful. For instance, the geoscience profession in Australia is currently facing a grave employment crisis and a significant decline in tertiary geoscience education.

Given the above limitations, it is imperative that a paradigm shift in traditional geoscience is urgently needed. The paper discusses the, poorly understood, role and value of geoscience to EMSD and outlines concepts and strategies to make environmental geoscience a central element of the profession. This paradigm shift will revitalise the interest in the discipline, set the foundation for sustainable growth and development in geoscience education and employment and provide a much-needed input to EMSD. The author argues that sustainability is untenable without appropriate geoscientific inputs to the following fields:

- Natural hazards and risk management
- Sustainable land management
- Sustainable water resource management
- Environmental planning and management
- Sustainable rural and agricultural development
- Sustainable urban development.