

**Sustainable Development and the Precautionary Principle:  
implications for acid rock drainage regulations in Nova Scotia**

Joanna C. Spencer Brown<sup>1</sup> and Don Fox<sup>2</sup>

<sup>1</sup>*School for Resource and Environmental Studies, Dalhousie University, Halifax, Nova Scotia B3H 3J5, Canada*

<sup>2</sup>*Department of Earth Sciences, Dalhousie University, Halifax, Nova Scotia B3H 3J5, Canada*

Sustainable Development is defined by Brundtland as "...development which meets the needs of the present without compromising the ability of future generations to meet their own needs". This definition is vague and is clarified by describing principles which guide development in a sustainable fashion. The Precautionary Principle can be used in this capacity, stating that in cases of potentially serious environmental damage, a precautionary or anticipatory approach should be taken "even in the absence of scientific certainty". These concepts will influence the development

of environmental legislation, and pose a challenge to the practice of geoscience.

The Precautionary Principle is explicitly mentioned in the **Nova Scotia Environment Act** (SNS.1994-95, c.1) as a guiding principle of Sustainable Development, and as an overall goal. The **Sulphide Bearing Materials Disposal Regulations** (NS Reg. 296/95) were enacted under the Act in response to the threat of acid rock drainage (ARD) from Halifax Formation (now Halifax Group) slates. The regulations state that anyone excavating a stated volume of slate

which is sulphide-bearing must obtain approval before excavation can begin. Proponents requesting approval must prove that their plans for excavation/disposal of slate will be consistent with the notification, screening, sampling, analysis and disposal procedures for acid generating materials outlined in the regulations.

The Precautionary Principle could substantially change the way in which sulphide bearing minerals are managed by promoting an anticipatory approach, thus deterring the disturbance of slates before any damage to the surrounding environment occurs. For this type of approach to be effi-

ciently used, a major effort must be made in understanding the factors and processes involved in the context of each geological/mineralogical situation in order to improve predictive criteria. If these scientific improvements are not achieved the Precautionary Principle could, alternatively, impede safe development or aggravate the lack of confidence the public has developed for scientific opinion. Scientists and policy makers must cooperate and share information and experience if the Precautionary Principle is to be used effectively in the management of sulphide-bearing materials.