

## **SUSTAINABILITY AND RAPID GEOLOGICAL CHANGE: A CAUTIONARY NOTE**

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The concept of sustainability, whether applied to environments, management or development, is now central to policy making and public discourse worldwide. Sustain means to endure, keep going, strengthen, resist change. To this the Brundtland Commission added the dimension of equality, fairness and sharing, so that sustainable systems must meet the needs of present and future generations. So pervasive has the term become that it often seems that sustainability is the only worthwhile goal. Yet there is a fundamental contradiction with the reality of nature, that change is the rule, that thriving ecosystems have checks and balances but no equilibria, and that evolution has been a response to changing environmental conditions. There are many ways in which earth processes change landscapes on time-scales rapid enough to affect individual lives and socio-economic conditions. As expressed in the geoindicator framework, these include slope failure, seismicity, volcanic unrest, streamflow and channel morphology, shoreline position, lake levels, and karst and frozen ground activity. Geoscientists need to remind environmental planners and the general public of the dynamic aspects of nature, and to persuade management of the need to monitor landscape change in geological as well as hydrological or biological terms. If baseline conditions can be established and trends of change identified, we should have a better chance of attaining an environment that is safer and more equitable, if not indefinitely lasting.

We can and must work to make renewable resources such as water, crops, and wildlife last longer, but when it comes to non-renewable resources there is no possibility of indefinite, continuous usage. Climate changes, soils and coastlines erode, fossil groundwater when abstracted is diminished in volume, and the day a mine is born it begins to die. To argue otherwise is to mislead through false promises.