



## EAG-GS Outreach Program 2013



### Seminar Abstract:

### Global water quality issues

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Poor water quality is a major challenge that humanity is facing in this century. Surface waters and groundwaters are at risk from different human activities such as mining, pesticide and fertilizer use in agriculture, and release of sewage from settlements and from industrial sources. By adopting a geochemical perspective we will discuss two main problem areas and together with potential solutions. The first part of the seminar will start with an overview of mining activities which are critical pollution sources worldwide. Specifically, gold mining is accompanied by a large consumption of water and the use of toxic chemicals such as cyanide and mercury. Alternative extraction techniques have been developed but they are adopted only slowly so far. In the second part we look at pollution loads from diffuse sources: Nitrogen and



phosphorus use in agriculture allow increasing yields but both elements lead to eutrophication of continental and coastal waters. Nutrient recycling via technologies such as struvite precipitation are cost-effective and safe methods to increase production while minimizing environmental impacts. Combining such approaches with ecological sanitation can also reduce the risks for water-borne diseases.

Gold mining requires large quantities of water and toxic chemicals (iStockphoto)

Schwarzenbach, R. P., Egli T., Hofstetter T.B., von Guten U., Wehrli B. 2010. Global Water pollution and human health. *Annu. Rev. Environ. Resources.* 35, 109-136.