Preface for special issue: Geochemistry for sustainable development

34th International Conference for the Society for Environmental Geochemistry and Health, Victoria Falls, Livingstone, Zambia

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These are exciting times for African development across many sectors, including rapid technological advancement in information technology and communications, agriculture, public health, mining and infrastructure development, alongside rapid urbanisation. The diverse range of scientific fields represented by SEGH are facing challenges and many opportunities to provide scientific information to the general public, government, industry and donor stakeholders. The 34th SEGH International conference themes were therefore organised around four topics under the banner of ‘Geochemistry for Sustainable Development’—Urban and Industrial development, Agriculture, Health and Technology.

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The conference was held in July 2018 in Livingstone, Zambia, alongside Victoria Falls, locally known as Mosi Oa Tunya—‘The Smoke that Thunders’. Many memorable experiences were made from the gusto with which nearly all delegates participated in the traditional dancing through to making new friends and expanding or renewing networks. In particular, the scientific programme and enthusiasm of the presenters were outstanding, and the warm and friendly African atmosphere encouraged a good exchange between disciplines and between established and early career researchers. An African section was set up alongside the European, Americas and Asia/Pacific sections (www.segh.net) and is now going strong with an active network helping to forge the future of SEGH, many of whom were able to attend the 35th International conference in the UK in 2019.

This special issue provides a snapshot of the conference proceedings, comprised of thought provoking short communications, a review paper appraising the challenges to monitoring and measuring the impact of mine tailings on agricultural soils, and scientific investigations. The diversity of SEGH and EGAH is demonstrated with papers on drinking water and air pollution, fisheries, antimicrobial resistance in the aquatic environment, biomonitoring to monitor health for nutritional deficiency or exposure to potentially harmful elements and laboratory method development.

Order of papers for special issue, with Short communications at either end.

1. Middleton et al. Short communication: environmental geochemistry and cancer: exploring the link.
2. Kaininga et al. Review: mine tailings in an African tropical environment—mechanisms for the bioavailability of heavy metals in soils.
3. Watts et al. Iodine status in Western Kenya: urinary iodine concentrations.
4. Lukundo et al. Using human hair and nails as biomarkers to assess exposure of potentially harmful elements to populations living near mine waste dumps.
5. Olatunji et al. Assessment of Pb contamination of soils, sediments and road dusts of the City of Lagos, Nigeria.
6. Brown et al. A scoping study of component-specific toxicity of mercury in urban road dusts from three international locations.
7. Brown et al. Air pollution: the journey from single particle characterization to in vitro fate.
8. Rodgers et al. Can legacy pollution influence antimicrobial resistance in estuarine sediments? The geochemical role.
9. Marriott et al. Aquaculture and food security versus food safety in West Bengal, India.
10. Nganje et al. Level of contamination of pipeborne, surface and groundwater quality and potential exposure risk to human health in Kumba metropolis, south west region Cameroon.
11. Gowing et al. Developing a liquid scintillation counting method for measuring radon-222 activity in groundwater.
12. Stewart et al. Short communication: people and profit in mining: well-being and wealth.