



International Association of Hydrogeologists

Irish Group

***Technical Discussion Meeting***

**The David Burdon Memorial Lecture**

**“Medical Hydrogeology: lessons on groundwater and health from SE Asia”**

**Dr Adrian Butler,  
Imperial College, London**

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**Venue:** Geological Survey of Ireland, Beggars Bush, Dublin 4

**Date:** ***Wednesday*** 8<sup>th</sup> March, 2017

**Time:** Tea/Coffee 17.30  
Talk & discussion 18:00 – 19:30

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**IAH Meetings in April & May**

Tuesday – Wednesday 25th - 26th April

Annual IAH Conference: **“Developments in Irish Hydrogeology  
in a Changing Water Services and Planning Environment”**

Tuesday 9<sup>th</sup> May Open Hydrogeologist Forum – short talks

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### **Abstract**

Groundwater, a drinking water source for more than 70% of inhabitants living in Asian deltas, has received much attention because of its naturally occurring arsenic, and more recently from high salinities in coastal areas. But the linkage of toxicity with other water constituents has not generally been studied. In addition, although nutrients are generally provided by food, in underdeveloped rural settings, where people subsist on low nutrient diets, drinking-water-nutrients may supply quantities vital to human health thereby preventing disease. Based on recent work by Hoque & Butler (2016), the lecture will show, using augmented datasets from three Asian deltas (Bengal, Mekong, and Red River), that the chemical content of groundwater is such that in some areas individuals obtain up to 50% or more of the recommended daily intake (RDI) of some nutrients (e.g., calcium, magnesium, iron) from just two litres of drinking water. It will also show some indications of a spatial association of groundwater nutrients and health outcome using demographic health data from Bangladesh. It will be suggested that an understanding of the association of non-communicable disease and poor nutrition cannot be developed, particularly in areas with high levels of dissolved solids in water sources, without considering the contribution of drinking water to nutrient and mineral supply.

*Hoque, M. A., & Butler, A. P. (2016). Medical Hydrogeology of Asian Deltas: Status of Groundwater Toxicants and Nutrients, and Implications for Human Health. Int. J. Env. Res. & Public Health, 13(1), doi:10.3390/ijerph13010081.*

### **Biography:**

Dr Adrian Butler is Reader in Subsurface Hydrology in the Department of Civil and Environmental Engineering at Imperial College London. He is also Course Director of the Department's Masters degree in Hydrology and Water Resources Management, which has now been running for over 60 years. His current research interests include water quantity and quality in the Chalk aquifer of southern England and the impacts of groundwater quality on health in Bangladesh and SE Asia. He is also Chair of the Hydrogeological Group of the Geological Society of London.