AQUASCIENCE – A PRACTICAL TOOLKIT: MONITORING OF FRESHWATER SYSTEMS

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Assessing the health of our rivers and lakes

Keeping our freshwaters healthy and clean is vitally important and freshwater security depends on healthy aquatic ecosystems. This toolkit focuses on monitoring freshwater systems, like river and lakes, using physiochemical and biological assessment techniques. This monitoring and assessment are important as the freshwater systems can be affected by various sources of pollution including effluent from industries (oil and toxic chemicals), non-direct source of pollution such as leakages, sewage, combined sewer overflows, runoff from roads, and agricultural activities (fertilisers and pesticides). Other causes of damage to rivers and lakes can also be attributed to increased urbanization and the construction of dams and canals which increase water flow[1].

This toolkit consists of 3 lecture videos (videos, powerpoint slides and transcripts are provided), one detailed practical handbook (as Word document and PDF) and these brief tutor notes. It was designed to take place over 2 days where participants travel to different local rivers/streams and lakes to take *in situ* physical measurements and collect benthic invertebrates, phytoplankton and zooplankton. These biological specimens are then brought back to the laboratory to collate and identify. The nutrient levels of phosphate, nitrate and ammonia are measured in the water samples.

The practical handbook is a key resource for both tutors and participants and gives the academic background to the various assessments, the methods used in the different activities, identification sheets and data tables to complete. The toolkit is a simplified version of full assessment of an aquatic system and is suitable for those with no previous experience.

Aquascience Resources

- Lecture 1 – Introduction to Freshwater Systems and Physiochemical Monitoring
- Lecture 2 – Biological Monitoring of Freshwater Systems
- Lecture 3 – Introduction to the Practical sessions
- Practical Handbook
- Tutor notes

[1] Matthews, N (2016) People and Fresh Water Ecosystems: Pressures, Responses and Resilience, Aquatic Procedia, Volume 6, Pages 99-105,