Nitrogen in the Environment

NKnowledge® Technical Workshop

For

Environmental Technical, Research, Advisory, Science & Academic Professionals

By ENVIROKNOWLEDGE®

7-8 April, 2016 Hamilton, 11-12 April 2016 Palmerston North

And 14-15 April Christchurch

Seize the opportunity to revolutionise and advance your knowledge in *Nitrogen in the Environment* (N processes in soil, freshwater, marine water and wastewater) with a 2-full day technically intensive and interactive workshop (no assignments or tests).

The workshop contents and the extensive 100 page technical NKnowledge® manual researched and shared by Dr Selva Selvarajah (visit www.researchgate.net for profile) will be based on the most recent international research, challenging, of very high quality and technically complex yet extremely useful for all budding and well established and experienced Environmental Technical and Research/Science Professionals dealing with N in the environment (e.g. soil & water scientists, hydrogeologists, environmental consultants, wastewater engineers, fertiliser/nutrient management specialists, modellers and advisers, academics including postgraduate students and environmentalists).

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Unlike the conventional chemical and basic biological approach to N processes, the workshop takes a radical and sensible approach to deciphering complex N processes by analysing complex microbial processes in soil, water (fresh & marine) and wastewater. Two similar 3-day workshops held last year received excellent feedback. To attract busy professionals, it has been condensed now to 2-full days by retaining the full contents of the previous 3-day workshops.

Why should you know more about N in the environment?

- N is one of the most contentious water contaminants;
- Basic or textbook knowledge in N is no longer useful to manage, monitor or research water quality and soil-N effectively;
- Knowledge of N in a single medium (e.g. soil, groundwater or surface water) is not conducive to collaborative and effective research and management of N ;
- Poor decisions on N management or limits in consents and planning based on basic knowledge or poor source of information could cost the regions heavily;
- Advanced and comprehensive N knowledge will change technical experts' approach to investigating, researching, monitoring, teaching and reporting N process in soil and water;
- It will widen N knowledge of scientists and researchers who work in narrow disciplines (e.g. gaseous N losses, leaching, plant uptake, water quality);
- It will enable better understanding, appreciation and critical analysis of the quality of wider N research papers, technical reports, conference presentations and AEEs;
- It will enable understanding of the nutrient models, their limitations and applications better;
- It will be a confidence booster for field advisers in fertiliser/nutrient/pollution management

If you wish to explore/debate a refreshing approach to understanding N dynamics in the environment, please register your interest to attend with your full name, employer name and position by 23 March 2016 at sustain@enviroknowledge.co.nz .

Registration of interest closing date: **23 March 2016**
Workshop confirmation by ENVIROKNOWLEDGE®: **24 March 2016**
Daily workshop time: **9.00 am to 5.00 pm**
[1]Workshop fee/person: **$1175.00 (excl GST)**

Workshop	Hamilton	Palmerston North	Christchurch
Technical 2-Day	7-8 April 2016	11-12 April 2016	14-15 April 2016

[1]Workshop fee: Includes lunch, tea/coffee, hardcopy manual and 3-month clarification support on workshop contents. Reduced fee of $850 (excluding GST) for current postgraduate students.

Table of contents 2-Day Nitrogen in the Environment NKnolwedge® Workshop

10. Should we be satisfied by just quantifying biological N fixation?
    a. What is so unique about the N fixing enzyme nitrogenase?
    b. Does it have to be a legume to fix N in soils?
    c. What makes cyanobacteria the most successful N fixer?
11. Have soil scientists yet understood the driving force behind ammonia volatilisation?
12. Should we continue to ignore N deposition in NZ?
13. Are we on the right track in NO_3 leaching research?
    a. Charges in soil
    b. Soil water
    c. Sources of NO_3
    d. What is the biological probability for NO_3 leaching?
    e. Limitations to field leaching measurements and estimates
14. Is plant uptake of N taken for granted?
    a. Ammonium
    b. Nitrate
    c. Dissolved organic nitrogen
15. Do we know enough about algal blooms?
    a. Is chlorophyll *a* sufficient to manage algal blooms?
    b. Do cyanobacteria deserve better attention?
16. N:P ratios and their effects in water
17. Wetlands are efficient N mitigation tools but have limitations in attenuating or treating N
    a. Natural
    b. Constructed
18. Do riparian N processes deserve their profile in N mitigation?
19. Can organic farming be a good N mitigation tool?
20. How do other N mitigation tools such as wintering cows in barns stack up?
21. Is ^{15}N stable isotope a reliable tool in tracking sources of N pollution?
22. How much can we rely on existing NZ N models?
23. Should we blame the methods of assessing N processes or the way of reporting?
24. Are NZ scientific and technological research on N and regional council N monitoring on the right track?
    a. Can we continue to rely on NZ research to understand N dynamics properly?
    b. Is regional council monitoring of N in the environment sufficient?
    c. Should councils continue as an N monitoring agency or be involved in specific N research as well?
25. Are we publishing for the sake? - quality vs quantity.
    a. How can we produce better regional council SOE reports?
    b. Are all refereed journal scientific articles reliable?
    c. How to review refereed journal scientific articles critically and use the information sensibly?