



Diffuse phosphorus input to surface waters - new concepts in removal, recycling and management (P-TRAP)

Thilo Behrends and Sylvia Walter

Department of Earth Sciences, Utrecht University, Utrecht, The Netherlands (t.behrends@uu.nl)

In March 2019 the new EU Marie Skłodowska-Curie Innovative Training Network P-TRAP has been launched. The project is targeting the diffuse flux of phosphate (P) into surface waters. Flux of phosphate from agricultural areas to surface waters is wasting a resource which is becoming scarce and is in conflict with the principles of a circular economy. Enhanced loading of surface water with P is the main cause for eutrophication and presents a key challenge in meeting the objectives of the EU Water Framework Directive. P-TRAP targets both problems and develops new methods and approaches to trap P in drained agricultural areas and in the sediments of eutrophic lakes. Trapping of P involves the application of iron(Fe)-containing by-products from drinking water treatment. P-TRAP aspires the ideas of a circular economy and aims at recovering the retained P in agricultural systems. Novel microbial technologies will be developed to convert P-loaded Fe-minerals into marketable fertilizers whose suitability will be evaluated. The new P-TRAP technologies have in common that they rely on the naturally strong connection between P and Fe and the innovative P-TRAP strategies will be underpinned by process-orientated investigations on the behavior of P during the transformation of Fe minerals. The latter are key in trapping and recycling of P in agricultural systems and lakes. P-TRAP establishes a framework of partners from multiple science and engineering disciplines. Integration of nonacademic partners from various stakeholder groups into the P-TRAP consortium paves the way for direct implementation of the acquired knowledge. P-TRAP provides Early Stage Researchers (ESRs) an environment for conducting innovative scientific research by using state-of-the-art methodology. Training through P-TRAP increases the ESRs' mobility between sectors, cultures, and nations and strengthens their responsibility to exploiting scientific results for societal and economical benefit. P-TRAP will offer ESRs an excellent starting point for a career of leadership in a number of environmental and sustainable business sectors, academia, and public administration. The poster will present the structure and the planned research of the project and is also intended to inform students who might be interested in applying for an ESR position.