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Title: Microorganic pollutants (PFAS) in soil and crops due to wastewater irrigation

Contact

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Note: 2-5 ksek stipendium is available for the student.

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Problem description: Kampala, capital city of Uganda, is an example for uncontrolled use Perfluorinated Alkylated Substances (PFAS) and chlorinated compounds, pesticides and heavy metals. These chemicals are discharged in wastewater stream from both domestic and industrial activities in kampala, end in Nakivubo channel which in turns ends in Lake Victoria. Lake Victoria water is the sole source for drinking water and fishing. Whilst, Nakivubo water is used for production of sugar cane, maize, and root crop “Yam”. The unknown contamination of Perfluorinated Alkylated Substances (PFAS) is a concern as these micro organic pollutants might end in food chain (e.g. fish and plants) and in soils irrigated with contaminated water in wetlands surrounding Nakivubo in Kampala.

Objective: The objective of this thesis work is to assess the status of PFAS pollution in Lake Victoria and Nakivubo wetlands in Kampala/ Uganda. Specifically, the project aims at determining the concentrations of different types PFAS in water, soil and plants in wetlands surrounding to Nakivubo channel which contains wastewater from Kampala wastewater treatment plants.

Work description: The main focus in this thesis work is to determine the concentrations of PFAS in different matrices: soil and plant collected from Nakivubo wetland in Kampala, and water (from Lake Victoria and Nakivubo channel). In addition the work will include writing a thesis in which the result of the analysis are synthesized, presented and discussed. Techniques for removal of PFAS from wastewater should be included in the discussion. Solid-phase extraction followed by analytical determination using high performance liquid chromatography (HPLC) will be used. All the samples have been already collected, frozen and transported to Sweden for analysis.