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The natural release of arsenic from geological or anthropogenic sources into groundwater poses a global public health risk for approximately 57 million people. Ground water abstraction can permit arsenic to enter the food chain via irrigation, food preparation and cooking. Long-term arsenic exposure is associated with the development of skin lesions, various types of cancer, developmental



effects, cardiovascular disease, neurotoxicity and diabetes. Arsenic in water, food and soil exists in many different chemical and biological forms and arsenic toxicity of these forms varies significantly. The combined contribution of food and water and the influence of different arsenic species on human health have been poorly evaluated. This PhD project is aimed to better evaluate the sources of water and food together and the impact of different arsenic species by an integrated human health risk assessment approach. The project includes water, food and biomarkers sampling, field data collection, laboratory analysis including speciation and risk assessment modelling.

The study objective is to use advance tools to assess attributes of arsenic towards development of various health complications by conducting sampling of water and food for multiple levels of arsenic exposures, evaluation of biomarkers, collection of water and food intake data and use of exposure risk assessment modelling approach.

The outcome of the analytical results in terms of inorganic arsenic speciation and associated metabolites will determine quantified arsenic intake, bio-accumulation and excretion. Ultimately, predictive risk assessment modeling approaches will be developed to integrate the water, food and biomarkers data to understand the arsenic associated toxicity development process.

To accomplish this aim, I find the School of Geography at the University of Leeds, as an appropriate study place. I am fortunate to have an excellent supervision and guidance, resulting in continuous scientific learning and improvement in my project milestones. The school provides platform to meet research PGRs from different disciplines undertaking research on cross cutting areas. The PGRs community is friendly and interactive. The w@l DRTC provides the excellent networking and linkages opportunities and allows me to obtain an international exposure, scientific directions and recommendations for my research.