Arsenic in water affecting indigenous rural communities in northern Chile

Initiative
This initiative aimed to raise the awareness and generate updated information on the water quality, particularly with respect to arsenic, in rural areas of northern Chile largely inhabited by indigenous communities. Northern Chile is an extremely arid region where water is scarce, unevenly distributed, with naturally high salinity and with unsafe concentrations of toxic substances. Chronic exposure to these elements, notably arsenic and fluoride, can cause severe health problems, such as cancers and skeletal fluorosis, respectively. Despite previous reports identifying arsenic in the main valleys of this region, many isolated Aymara communities are still exposed to this problem. Hence the importance of study this environmental and health issue, incorporating the experience and methodological approaches of SEES’s arsenic research group. This work is funded by CONICYT (PhD scholarship to GP), Leverhulme Trust (Fellowship to LR) and the University of Manchester (FSE Social Responsibility Fund to GP; GCRF - HEFCE QR Funding for “Water Quality for Better Lives” to Prof D A Polya) with valuable support from Chilean civilian and government institutions, including: the Aymara Community Coordinating Association, the Lluta River Irrigation Management Unit, University of Chile’s Geology Department, National Institute of Human Rights and the Municipality of Putre.

How Gianfranco and Laura have made a difference
We collected and analysed over 90 water samples in more than 15 localities within the region, and provided information to local residents. We considered communities’ input from the early stages of the project, including from two videoconferences with members of rural communities which helped constrain our sampling strategy. During fieldwork, we had the opportunity to gather feedback from landowners and local water management organisations, and to provide more than 600 informative handouts. We committed to deliver, in plain language, the validated results to landowners and local authorities. At the conclusion of our fieldwork, we delivered two public seminars to over 200 people – these were coordinated by the National Institute of Human Rights, and also included a panel of specialists (hydrogeology, toxicology) from the University of Chile.