



## **Peruvian Glacial Retreat and its Impact on Water Security and Resilience to Natural Hazards**

### **Announcement of Workshop**

**Lima, Peru 19-20 March 2018**

The Natural Environment Research Council (NERC) are inviting applications from UK scientists to attend a joint workshop with Consejo Nacional de Ciencia, Tecnología e Innovación Tecnológica, Perú (CONCYTEC) in Lima on 19-20 March 2018 on Peruvian Glacial Retreat and its Impact on Water Security and Resilience to Natural Hazards.

**The deadline for applications is 4pm on 26th January 2018.**

NERC, working with CONCYTEC, are planning a major investment in research that will provide an improved understanding of the rate of glacial retreat in Peru and the impact of this on water security and natural hazards. The exact level of investment is still to be confirmed, but NERC anticipates committing up to £3m in this area through joint projects under the Newton-Paulet Fund, with CONCYTEC supporting the Peruvian research effort.

The investment provides the opportunity for UK scientists to form substantial collaborations with Peruvian scientists to undertake research.

As an initial step to help build partnerships and facilitate collaboration, NERC and CONCYTEC will hold a workshop on 19-20 March 2018 in Lima. The aim of the workshop will be to discuss the key science challenges that relate to the aims of the programme and how they could best be addressed. It will also facilitate networking, discussion and enable researchers to share ideas on key research questions relevant to this call. The outcome of the workshop will shape the scope of the call. The full workshop programme and further details will be published in February.

### **The Background to and Aims of the Programme**

Peru hosts 71% of the world's tropical glaciers and relies on glacial runoff to provide water for drinking, agriculture, hydroelectricity and industry. The Peruvian coast, where about 56% of the population and most of the economic activity is situated, is vulnerable to changes in water availability due to its desert climate and low rainfall. Andean populations, though more dependent on rainfall, also depend on glacial water during the dry season. Peru is also heavily dependent on agriculture, and 50% of energy supply in the country is provided from hydroelectric power, both of

which are reliant on glacial runoff water. This supply of water is now at risk due to significant reduction in the surface area of glaciers in the Peruvian Andes (> 20% in the past 30 years). Changes in glacial runoff are also leading to increased risks from glacial outburst floods and glacial avalanches.

This collaborative programme will provide increased knowledge on glacial retreat, and the impacts that this will have on water supply in the region. The outputs will also provide further knowledge on the increased risk of natural hazards caused by glacial retreat which can be used to inform disaster mitigation strategies.

This programme aims to provide an improved understanding of the rate of glacial retreat in Peru and the impact of this on water security and natural hazards. Specific research challenges could include:

- Greater understanding of glacial dynamics in the context of climate change and climate variability, which will inform future glacial retreat
- Determining how future glacial retreat will impact on the role of tropical glacier runoff in providing water recharge to the region
- Understanding how glacial run off impacts on the riverine systems through water and sedimentary inputs, and in turn how this impacts on human activities e.g. agricultural practices and hydroelectricity schemes
- Determining the risk of exposure of melt-rich rock and subsequent run off of heavy metal deposits – on drinking water quality, pasture and agricultural land
- Understanding how increased run-off will impact on the risk of natural hazards, including glacial outburst floods and glacial avalanches

Through an improved evidence base and ability to predict change in glacial runoff, which are expected outcomes of this programme, it is anticipated that strategies will be developed to improve water security in the region for people, industry and agriculture and help to reduce conflicts over water usage. Increased understanding of glacial dynamics and the processes leading to glacial outbursts floods and glacial avalanches will support better prediction of these hazards and enable improvements in emergency response plans and mitigation strategies. Projects will be expected to work closely with end-users to ensure that government, local authorities, businesses and local communities can use the outputs.

By delivering the programme through joint projects we expect this programme to enable the development of UK-Peruvian research partnerships that can form the basis of future long-term collaborations.

### **The workshop**

The aim of the workshop will be to discuss the key science challenges that relate to the aims of this programme and how they could best be addressed. It will also facilitate networking, discussion and enable researchers to share ideas on key research questions relevant to this call. The outcome of the workshop will shape the scope of the call.

It is planned that the workshop will start on the morning of 19 March 2018 and end in the afternoon of 20 March. There is the possibility of an optional fieldtrip to Huaraz to visit the glaciers on the 21

March depending on the climatic conditions. This would involve an 8 hour coach trip to and from Huaraz, located at 3 052 m above sea level.

Attendance at the workshop does not automatically enable project bids to be submitted or guarantee funding. Conversely, absence from the workshop does not preclude bidding into the call that will follow the workshop.

To attend the workshop you must complete the [expression of interest form](#), following the instructions provided. The form should be submitted by 16:00 on 26 January 2018. Invited participants will be notified in week commencing 29 January 2018. Submission of this form will be taken as an indication of availability on the dates of the workshop.

Applicants for the workshop should outline their relevant area of expertise, any current overseas collaborations and links, their personal rationale for being involved in the workshop. They should also state in what area they are considering submitting an application in line with the aims of this programme. Please note that the total number of participants from the UK is limited and NERC will try to ensure a balance in terms of different disciplines/expertise and the number of attendees from the same institution. It is expected that 15 to 20 UK participants will be invited to attend.

All reasonable expenses for UK participants attending the workshop will be covered by NERC in line with NERC policy on recovering travel and subsistence.

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