Mapping water security in the Himalayan river basin

Himalayan water resources are critical to communities that rely on them for drinking, power and agriculture. Climate change, land-use change and population growth all challenge the sustainability of these resources. Indian authorities and local communities are starting to use new tools, developed through UKRI and Indian Ministry of Earth Sciences-funded research, to take a longer-term, strategic approach to managing their water resources.

UK and Indian scientists are building a highly detailed model of a whole Himalayan river system (the inter-linked Beas and Sutlej catchments) in northern India using a wide range of field and satellite observations to make it as accurate as possible. The model shows how climate change, land-use change and population growth will affect water resources in a range of scenarios. Crucially this enables authorities to zoom in and see local effects over daily to 10-year timescales.

This has the potential to transform the way critical infrastructure is managed. For example, optimising and formalising the management of reservoirs in the Sutlej/Beas basin can enable them to reduce the impacts of drought, which are expected to increase in frequency and severity in the basin due to climate change; and the tools developed as part of this project are enabling reservoir managers to do just that.

“With increasing population, India is likely to face water stress in most of its river basins. Optimum utilisation of water resources is a must for the Indian economy. Close international collaboration between Indian and UK scientists through Newton-Bhabha funding support is very timely and will turn out to be a big success in the near future.”

Professor Chandra S. P. Ojha, Indian Institute of Technology Roorkee

CALL: Sustaining Water Resources for Food, Energy and Ecosystem Services in India
COUNTRY: India
TITLE: Sustaining Himalayan Water Resources in a Changing Climate (SusHi-Wat)
GRANT NO: NE/N016394/1
LEADS: Professor Adebayo Adeloye, Heriot-Watt University and Professor Chandra Shekhar Prasad Ojha, Indian Institute of Technology, Roorkee
FUNDERS: Natural Environment Research Council Indian Ministry of Earth Sciences
PARTNERS: All India Farmers Association (Partner) Bhakra-Beas Management Board (Partner)