

British Geological Survey

Gateway to the Earth

British Geological Survey

BGS and India: summary of relevant expertise and activity

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Who are we?



- The BGS is part of the Natural Environment Research Council (<u>NERC</u>), which is the UK's main agency for funding and managing research, training, and knowledge exchange in the environmental sciences. The NERC reports to the UK government's Department for Business, Innovation and Skills (<u>BIS</u>).
- We employ around 650 staff, with an annual budget of around £45 Million, 50 per cent of which comes from NERC, with the remainder coming from commissioned research from the public and private sectors.







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Groundwater Systems (Science Director - Rob Ward)

- Water resources & groundwater
 - Groundwater flooding and drought
 - Groundwater & environmental change
 - Groundwater ecology & biodiversity
- Catchment processes
 - Modelling groundwater systems
 - Environmental tracers & groundwater dating
- Groundwater quality & protection
 - Groundwater & health
 - Shale gas & groundwater
- International groundwater research





Hydroflux – BGS, Imperial College, IIS Bangalore, IIT,Kanpur, IIT Roorkee 2012 -2016





Hydrology Project – IHP 2 2009 -2015





C f inda-wris.nrsc.gov.in/HydroCoservationStationApp.html



Groundwater resilience to climate change and abstraction in the Indo-Gangetic basin 2013 -2015





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Irrigation, rivers and recharge – Punjab – 2013 - 2015

- Major ions and trace elements , Dissolved Organic Carbon and fluorescence spectroscopy
- Stable isotopes d18O, d2H, d13C, Dissolved gases: CFCs, SF6 and noble gases
- Groundwater level monitoring







Community Management of Groundwater Resources in Rural India–2001 -2004





Sanitation and groundwater, Bihar, 2015

- Do toilets cause pollution of shallow groundwater?
- Testing a tryptophan sensor for rapid screening of wells and borewells
- Significant numbers of borewells contaminated if within 10 m of toilet poor sanitary seals?







log₁₀Tryptophan-like fluorescence



Managed Aquifer Recharge – AGRAR – 2001 2005









Groundwater and health





And the future?



- Flooding + Drought
- Climate change
- Emerging contaminants
- Nitrate and Phosphate in groundwater
- Shale gas and groundwater
- Integrated surface / groundwater modelling
- Real time monitoring
- 3D modelling of the subsurface



