

Technological innovation: Piezo-electric sensor

The Aga Khan Agency for Habitat (AKAH) partnered with the Office of the Principal Scientific Adviser to the Government of India to evaluate technologies to enable automatic recording of borewell water depth for integration into the WebGIS based platform developed by AKAH for better monitoring and governance of groundwater resources. After careful evaluation, “Pulse” a sensor-driven recorder by Connected Farms was selected for pilot integration into the technology platform developed to collect and process real-time data on water resources.

Better understanding and management of water resources is critical to reversing worrying trends in their governance and usage. The Aga Khan Agency for Habitat (AKAH) in India is developing an innovative and inclusive tool to facilitate participatory and transparent governance of water resources. AKAH has developed and is piloting this tool in clusters of villages in Maharashtra and Gujarat. The WebGIS based platform developed in collaboration with Geo-climatic Risk Solutions Pvt. Ltd. (GCRS) uses static and near real-time spatial and non-spatial data from wells, remote sensing, satellite imagery, and other secondary sources to collect and process data on surface-water bodies and networks, vegetation, elevations, rainfall, groundwater, etc. It also allows villagers and interested stakeholders to provide information, on well water levels and quality, through a mobile app. It also enables them to access the individual and aggregate data for their village, taluka or district.

“Pulse” a sensor-driven water level recorder from Connected Farms, is an innovative technology that has been integrated into the platform to collect real-time data on water levels from bore wells. The product can help to monitor the level of water in tanks, borewells, and dug wells at a considerably low cost. The sensor used is a low-cost piezoelectric sensor that is lowered to the bottom of the borewell. This transmits changes in water level to a GSM modem which relays information to a cloud server. Data from sensors can be viewed either for individual wells or multiple wells via a map interface on a smartphone or laptop. Data can be privately accessed or put on the public domain and can help a village build its sensor network and manage groundwater in a participatory manner.

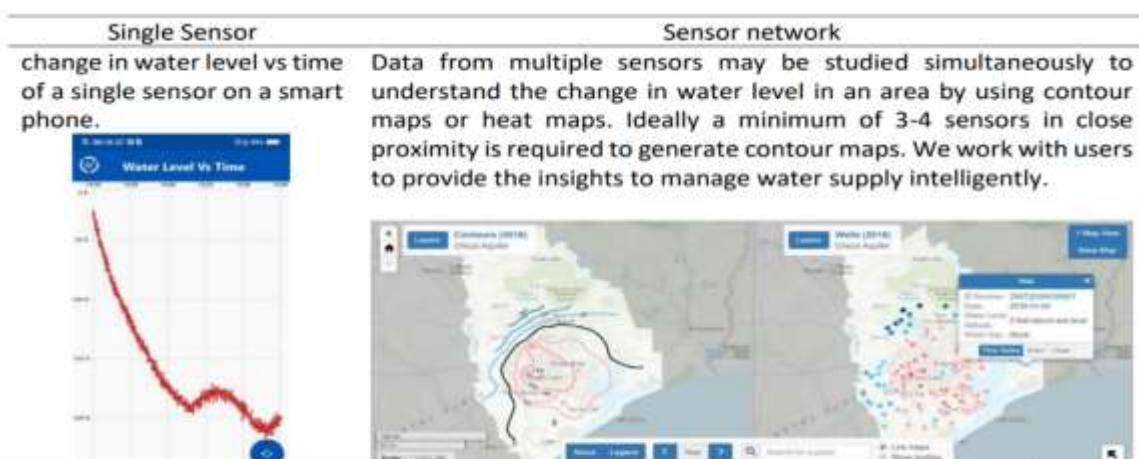


Figure 1: Single Sensor data from cFar's sensor 'Pulse'

Figure 2: Deployment of multiple sensors gives a groundwater flow map (sample map USGS)