

Sampler on Rural Drinking Water Research
Centre for Technology Alternatives for Rural Areas (CTARA)
IIT Bombay.

In the water sector, CTARA has been active in Raigad and Thane district. It has done numerous studies in groundwater modelling, groundwater regulation, analysis of water supply schemes, gram panchayat level reporting, simulations, optimization and feasibility studies. Many of the reports describing this work are available on line at:

www.cse.iitb.ac.in/~sohoni/TD603

- **The Gudwanwadi Checkdam Project, 2005:** This project aimed at relieving the drinking water stress of Guwanwadi village in Karjat taluka of Raigad district. An 85m long earthen structure was created with technical inputs from Gangotree, community participation from residents and coordination by CTARA. The project was moderately successful—the stress relief was for about 4 months. There was increased availability of water till about March, every year.



- **Jal-Swarajya Review, 2007.** This study was in collaboration with TISS and Prayas, Pune. The study visited all the ongoing (roughly 35) Jal-Swarajya projects of Thane district to do an assesment of best practices. These findings were reported partly in student theses at CTARA. Our conclusions were that (i) about a third of the projects had failed, and (ii) groundwater source failure was a major reason for failure, and (iii) source strengthening was not undertaken in most projects.

- **North Karjat rural regional scheme: Feasibility Study, 2010.** This study focused on the feasibility of a rural regional scheme supplying drinking water to an area covering about 70 habitations across more than 6 Gram Panchayats with a design population of about 30,000. The source was Pej river. We used innovative optimization techniques and the use of GIS to aid design. We found that for 40 lpcd, the investment cost came to Rs. 2200 per capita while for 200 lpcd it came to Rs. 7500 per capita. The results were presented to local stake-holders including the Tehsildar, Shri Girase, the MLA, Shri Suresh Lad. Six GPs adopted the report in their gram sabhas and presented their demand to MJP.



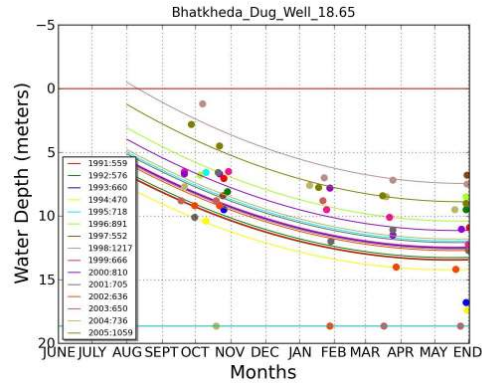
- **Anjap-Sugave Multi-village scheme analysis, 2011.** This study focused on a poorly performing rural regional scheme, viz., the Anjap-Sugave scheme of Karjat taluka, Raigad district. The study showed that there were several design issues which resulted in poor performance of the scheme. Poor community mobilization and inordinate delays had further complicated the situation. Key assets such as one of the ESRs and the WTP remained incomplete and the other ESR remained untested. These results were presented to all stake-holders including the CEO, Shri Abhijit Bangar and Minister for Rural Development, Shri Jayant Patil. The study also included a plan for the scheme's revamp. Karjat's Konkan Gyanpeeth College of Engg. (KGCE) followed this up with a review in 2012.



- **Failure analysis of the Tadwadi-Morewadi Single-Village Scheme, 2011.** This work studies the reasons behind the failure of a single-village scheme for two tribal *wadis*. tadwadi and Morewadi are one of the most stressed habitations of the taluka and have been so for decades. We found that the proposed scheme was poorly designed with an obvious error in the height of the ESR. Furthermore, the source well was closer to another wadi which had made a formal representation about this. The ultimate cause of the failure was that the pump was stolen. Currently, this well now has a huge private well adjacent to it and a bungalow-plot scheme using this water. This now requires an application of the groundwater act.

- **Regional Groundwater Modelling based on GSDA datasets, 2012.** This work was in collaboration with GSDA. Based on the observation well data of GSDA, we built groundwater models aimed at predicting groundwater levels at different locations and different times of the year. The study focussed on Thane, Sangli and Latur as example districts. key conclusions were that (i) goodness of fit was more in Thane and Latur than in Sanglis, (ii) the goodness of fit increased substantially when rainfall totals and

peak rainfalls were also recorded. The study also verified the wisdom of shallow and deep aquifers and the difference in models for dug-wells and bore-wells.



- Thane District regional analysis of drinking water, 2012.** This study focused on the use of GIS and statistical and data representation techniques to analyse drinking water stress. This work was in collaboration with the Thane district administration, and is ongoing. the methodology involved using district administration data, ground-truthing it and using GIS and other data to draw conclusions. We saw that Shahpur, and esp. Murbad, showed a higher risk of failure for tribal wadis. We also saw that elevation was a major reason of failure. The second observation was that areas of large investments for PWS and those of stress were largely disjoint. This calls for investments in regional PWSS for areas of Mokhada and Jawhar.

