

### B.8 Hydrology

40. **Walia, Neha**, "Harvesting Rainwater: A noble goal-a common responsibility", *Urban India*, 29(1), 2009: 37-59.

Rainwater harvesting is vital in both urban and rural locations as the demand for water is going up together with increase in period of drought, low average rainfall, depleting ground water level and inadequacy of surface water. It can meet range of demand from drinking water to water for livestock and irrigation. Rainwater harvesting systems are simple to construct and potentially successful in most habitable locations. There are number of types of systems to harvest water ranging from ground catchments, roof catchments, pits, trenches, dug wells, hand pumps, recharge shafts, lateral shafts with bore wells to spreading techniques.

The urban areas are facing acute water crisis even when there is almost flooded streets during monsoon times which can be checked with rainwater harvesting. Urban water harvesting will not only solve water crisis of the cities but also help recharge ground water, improving its quality, prevent the runoff from going into drains thereby reducing load on treatment plants and reduce urban flooding. Rainwater harvesting has been accorded policy and legal support only in handful of states. This needs to be adopted in other states with mandatory harvesting not only in private buildings but also public buildings. This also needs to be linked with urban land use policy, urban water supply and drainage policy and law.

Community based rainwater harvesting as is practiced in rural India since ancient times is much needed in present times when the efforts of the government in providing water have failed miserably. There is a great potential of rainwater harvesting in rural areas and this can meet multiple water demands.

The author is of the view of making rainwater harvesting mandatory in all building plans. It should be made pre requisite for permission for the development of new colonies. A policy should be of both incentives and penalties. The efforts of private associations in promoting rainwater harvesting like National Water Harvesters Network is praiseworthy in this regard.

**41. Maiti, Moumita Moitra and Ram Krishna Maiti,** "Sub Watersheds for Rational Management of Water Crisis of Darjiling Town, West Bengal", *Geographical Review of India*, 71(2), 2009: 117-129.

The paper has focused on the water crisis facing Darjiling town of West Bengal. The location of the town along the crest of the water divide made the water unavailable as surface water flows down leaving no scope for its concentration. The increasing population pressure without improvement in water supply has made the water situation worse in the town. Keeping this in mind the author has made an effort to identify the watersheds where water can be retained.

For the purpose of the analysis the author has used the SOI toposheet of 1987, tourist map of 1992 and LISS III imageries. All the watersheds are identified. Their land use classification is done. Hydrologic condition of each watershed is assessed based on land use and land cover. Antecedent moisture condition following USGS classification is estimated for each land use. Weighted curve of each watershed is calculated. The potential maximum retention and runoff of each watershed is estimated. The final prioritization is done based on composite index encompassing discharge, basin area, hydrologic and morphometric attributes.

Watershed no. 1 followed by 21, 34, 6 and 2 are most favourable for harnessing surface water. The water can be tapped in watershed 1 after studying its soil and slope stability.

**42. Singh, Sunita,** "A Spatial Analysis of Quality of Water in Berach River Basin", *Annals of the Rajasthan Geographical Association*, 26, 2009: 47-56.

Water is one of the most precious resources. It is renewable resource and subjected to abuse and misuse. It is a crucial resource for development in Berach Basin. The paper is an attempt at analyzing the quality of water in the region under study on the basis of physio-chemical parameters, like pH, total alkalinity, total hardness, calcium, hardness, magnesium hardness, chlorides, nitrate, total dissolved solid and flouride.

The analysis is based on data collection at tehsil and village level. A survey was conducted to collect water samples from different sources like wells, tube wells and hand pumps. About 77 villages

were selected using random sampling method. The collected data were processed with the help of quartile range method and maps were prepared. The reference period of study was February 2008.

The study concludes that the quality of water, found in selected villages falling under the moderate plus and high category and within tolerable limit. It has been inferred that the region is not having a severe problem of water quality but the water is hard and mineralized which needs immediate attention to tackle it and save people from health hazards.