

## Groundwater utilization in a hirekere watershed in Raichur district in Karnataka

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■ **ABSTRACT** : The present study was taken up in Hirekere watershed which is draining to Krishna river through Nallavagu stream and is located near Singanodi and Mandalgeri village in Raichur district, Karnataka. The main objective of the study was to assess the present status of groundwater usage to evolve efficient crop planning on the basis of sustainable groundwater usage. Optimum utilization of groundwater was also planned for the maximum crop benefits. There was recharge of groundwater of 100.90 mm, 26.65 mm, 128.85 mm, 20.35 mm and 113.05 mm during the years 2005, 2006, 2007, 2008 and 2009, respectively. The recharge varied from 4.44 to 17.24 per cent, where as 77.96 mm/year *i.e.*, 11.68 per cent of annual rainfall was found to be the average annual recharge of the study area. The percentage of utilisation of available groundwater resource is 98, 183, 97, 208 and 114 per cent for the years 2005-06, 2006-07, 2007-08, 2008-09 and 2009-10, respectively indicating the area as over exploited zone. Recharge calculated by the water balance and watertable fluctuation method revealed that there was no correlation between the values calculated by the WT fluctuation method and the water balance method. In this contest the recharge calculated by water table fluctuation method is best method for the recharge estimation in the watershed. It is also recommended not to go for new bore wells and non paddy crops at least two to three years by introducing crops like cotton, groundnut and vegetables may be in the study area. It is recommended to reduce the present area under paddy cultivation. Further, rainwater harvesting and augmentation of ground water recharge through artificial recharge structures can be taken to improve the ground water quantity and quality.

■ **KEY WORDS** : Groundwater, Groundwater recharge, Water balance method, Watertable fluctuation method, Groundwater draft

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