

Groundwater Fluctuation and Need for Artificial Recharge of Khanapur Taluka, Sangli District, Maharashtra, India

Mr. A. A. Lole¹ Dr. A.S.Yadav²

¹Assistant Professor ²Professor

¹Sanjay Ghodawat Institutes, Atigire-416118, Maharashtra, India ²Dr. J. J. Magdum College of Engineering, Jaysingpur-416101, Maharashtra, India

Abstract— Groundwater is an important source in the Khanapur Taluka, Sangli district, Maharashtra, India. 35 dug wells were selected for study of groundwater fluctuation. In Pre monsoon groundwater level in the study area ranges from 0m to 16.5m and Post monsoon the water level fall in between 0m and 15m and overall water level fluctuation of study area ranges from 0m to 15m.

Key words: Water Table, Khanapur Taluka, Groundwater, Fluctuation

I. INTRODUCTION

The groundwater is the main source used for drinking, irrigation and industrial purposes in Khanapur Taluka, Sangli district, Maharashtra. Stress and strain in water level due to groundwater recharge, discharge and intensity of rainfall are reflected in groundwater level fluctuation with time (Gopinath & Seralathan., 2008). The lowering of groundwater levels has resulted in reduction in individual well yield, growth in well population, failure of bore wells, drying up of dug wells and increase in power consumption (Imtiyaz & Rao 2008). Knowledge of water table depth is a crucial element in many hydrological investigations, including agricultural salinity management, landfill characterization, chemical seepage movement, and water supply studies (Buchanan & Triantafilis 2009). Without any proper understanding of groundwater occurrence in time and space it is often developed, therefore, threatened by overexploitation and contamination. For that reason, groundwater management and artificial recharge is the key to combat the emerging problem of water scarcity. Hence, an attempt is made to study the groundwater fluctuation in the Khanapur Taluka, Sangli district, Maharashtra.

II. STUDY AREA

The Khanapur Taluka of Sangli District in Maharashtra State is bounded between latitude 17° 9' N to 17° 27' N and longitude 74° 22' E to 74° 48' 15'' E, in Survey of India Toposheets numbers - 47 K/7, 47 K/8, 47 K/11, 47 K/12, 47

K/15 and 47 K/16 on scale 1:50000 (Fig. 1). The Taluka is covered by Deccan trap of Upper Cretaceous to Lower Eocene in age. The study area is well known for Grapes and Pomegranate production. Groundwater is the main sources used for drinking, irrigation and industrial purposes.

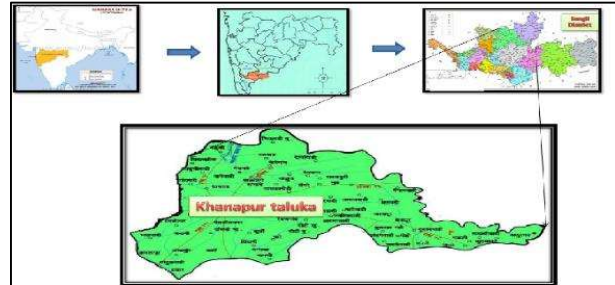


Fig. 1: Location map of Khanapur Taluka, Sangli District, Maharashtra, India

III. METHODOLOGY

The groundwater fluctuation of water levels in the wells, study area have been observed for pre and post monsoon period. 35 dugwells have been selected and details of the well inventory of these wells are given in the Table 1. The data collected for the year 2014. These pre and post monsoon water level variations are plotted in Microsoft Excel. The location of dugwells has been plotted in Khanapur taluka map with the help of QGIS as shown in the Figure 2.

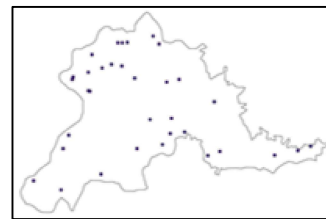


Fig. 2: Location map of dugwell in Khanapur Taluka, Sangli District, Maharashtra, India.

Sr. No.	Place	Latitude	Longitude	Diameter in meter	Depth in meter	Post monsoon	Pre monsoon
1	Gardi	17.30111	74.31011	10	6.5	1.5	3.5
2	Ghanwad	17.31969	74.5255	10	6	1.5	4.5
3	Ghanwad	17.32058	74.52197	10	16	3	6
4	Hingangade	17.33814	74.49714	7.5	3	0.5	2
5	Hingangade	17.34189	74.49853	12	11	5	7
6	Nagewadi	17.34897	74.52239	12	7	1.5	2.5
7	Bhikachiwadi	17.35597	74.54422	12	18	1.5	16.5
8	Bhendawale	17.36142	74.55919	12	8.5	6	7
9	Salsinge to Valkhed road	17.35875	74.57517	12	5	1.5	2.5
10	Valkhed	17.39469	74.576	10	10	4	5
11	Valkhed	17.39481	74.5695	10	7	4	6
12	Chikalhol	17.37681	74.52861	12	18	4.5	5