VILLAGE LEVEL SECURITY PLAN FOR SUSTAINABLE MANAGEMENT OF GROUNDWATER RESOURCES IN TYPICAL HARD ROCK TERRAINS IN NORTHERN TELANGANA: IN STUDENTS PERSPECTIVE

By

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Detaled water balance studies were carried out to suggest a village level security plan for our birth village Wadgaon by carrying out detailed well inventoryduring pre-monsoon season of 2017. The study village Wadgaon covering an area of 3.66 Km^2 has a population of ~1100 and receives an annual normal rainfall of ~1000 mm of which ~85 % is contributed during the monsoon months (June-September). The village is situated in a transition zone between basalt in north and granite rocks in south; however, the depth of basalt is very shallow (0-10 m). The depth of groundwater varies from 5-10m bgl and entire irrigation (~65 ha in both season) is based on groundwater. Groundwater is anthropogeically polluted with nitrate and is unfit for humn consumptions. Based on GIS studies and drainage pattern, the village area is divided into 6 zones (A-F) having a runoff yield of ~7.22 MCM. During monsoon season, the utilizable recharge potential is 0.2 MCM and net annual groundwater recharge is 0.19 MCM and gross groundwater draft is 0.15 MCM. Lack of surface storage and artificial recharge measures are a major hindance in the village for sustainability of water resources.

Both supply side and demand side management strategies are suggested for secure groundwater resource plan. The supply side measures includes, construction of 2 surface storage tanks by utilizing 50% of the total runoff along with 2 mini percolation tanks and 4 check dams with recharge shafts of 40 m depth along with digging of continuous/staggered contour trenches at 300 & 400 m elevations under MGNREGA scheme. Under Mission Bhagiratha, there is a plan to import 0.04 MCM of surface water into the village and considering the same as a saving from groundwater, construction of 16 new bore wells of 100 m depth are recommended under PMKSY scheme. The Demand-side plan includes bringing 50% of existing irrigation under micro-irrigation; other plan includes creating awareness among people under various IEC activities.

Key Words: Groundwater, Hard rock,Water Security, Sustainable Management plan and MGNREGA.

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