CASE STUDY ON GROUND WATER IMPROVEMENT TECHNIQUES IN A MAINDARGI TOWN

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ABSTRACT

- In maindargi town there are some water shed management structure are constructed to store the water for the purpose of minor irrigation, drinking, recharging ground water table, etc. Such as cement plug, farm pond, recharging shaft/pit, percolation tank etc.
- In maindargi, Groundwater is that the water gift below the layer in soil pore areas and within the fractures of rock formations. A unit of rock or associate loose deposit is termed associate geological formation once it will yield a good amount of water. The depth at that soil pore areas or fractures and voids in rock become utterly saturated with water is termed the water level. Groundwater is recharged from the surface, and it should discharge from the surface naturally at springs and seeps, and might kind oases or wetlands. Groundwater is additionally usually withdrawn for agricultural, municipal and industrial use by constructing and in operation extraction wells. Much of this water remains trapped in the soil and percolates deep into the ground and becomes groundwater. Once surface water becomes groundwater, it will stay underground anyplace between a couple of days to thousands of years. In several cases, groundwater may be a direct part of the surface water system and transitions between flowing higher than ground and underground frequently.

INTRODUCTION

- To fulfill the requirement of water for a maindargitown, various demands are calculated and then quantity of wateris estimated.
- After calculating the total quantity of water required, source of water is studied and water shed development work is done. For every village, source of water is necessary as well as maindargi sanitation programme is also required.
- To supply water to crops in maindargitown, a system of irrigation is necessary. For micro and mini irrigation projects low cost irrigation methods and modern irrigation methods are used.
- Even though the precipitation cycle may fluctuate from year to year and place to place, the rain water's environmental advantage and purity over other water options makes it the first choice as a source of water.
- We all are dependent on rain water as an only source of water on this planet.
- Rain water quality almost always exceeds that of ground or surface water as it does not come into contact With soil and rocks where it dissolves salts and minerals and it is not exposed to many of the pollutants that Often are discharged into surface waters such as rivers, and which can contaminate groundwater.
- However, quality of rain water can be influenced by characteristics of area where it falls, since localized Industrial emissions affect its purity.
- Thus, rain water falling in non-industrialized areas can be superior to that in cities dominated by heavy Industry or in agricultural regions where crop dusting is prevalent.
- Rain water is soft water and can significantly reduce the quantity of detergents and soaps needed for Cleaning, as compared to typical municipal water.

- In addition, soap scum and hardness deposits disappear and the need for a water softener, often an expensive Requirement for well water systems, is eliminated.
- Water heaters and pipes will be free of deposits caused by hard water and will last longer.
- Rain water's purity also makes it an attractive water source for certain industries for which pure water is a requirement. Thus, industries such as computer microchip manufacturing and photographic processing would Certainly benefit from this source of water.
- For our water requirement we entirely depend upon rivers, lakes and ground water. However, rain is the ultimate source that feeds all these sources.
- Rain water harvesting means to make optimum use of rain water at the place where it falls i.e. conserve it and not allow to drain away and cause floods elsewhere.
- The quality of rain water is an overriding incentive for people to choose rain water as their primary water source, or for specific uses such as watering houseplants and gardens.
- If everything that exists has a life, then everything that exists needs water and temperature. Man can survive for five weeks without food but a maximum of five days without water. Worldwide 70% of water is used for agriculture on an average, 25% for industry and the remaining for domestic purposes (MuraliKrishna, 1998). Man needsabout 150- 300 liters of water every day for domestic purposes, and 75% of the human body is water because of which only the specific gravity is about unity. Among them, groundwater is the primary source of drinking water in both urban and rural India. Besides, it is an important source of water for the agricultural and industrial section.
- Groundwater can be found almost everywhere. Uncontrolled use of the bore well has led to the extraction of groundwater of such a high rate that often recharge Is not sufficient. The cause of low water availability in many regions is also directly Linked to reducing forest cover and soil degradation.

LITERATURE SURVEY

➢ PEOPLE'S OF MAINDARGI FACED PROBLEMS DUE TO LOW OR NO RAINFALL IN MAINDARGI

When an area experiences below-normal levels of precipitation for an extended period, we call it a drought. The environmental effects of drought can be widespread, affecting all members of an ecosystem. Dry soil causes plants to die and the animals that eat those plants are left struggling to find food and water. Drought's effects on humans can be significant, diminishing water available for drinking and crop irrigation. Rainfall shortages tend to have a trickle-down effect felt throughout ecosystems.

METHODOLOGY

➢ RAIN WATER HARVESTING POTENTIAL:

- The total amount of water that is received in the form of rainfall over an area is called the rain water endowment of that area. Out of this, the amount that can be effectively harvested is called rain water harvesting potential.

Area of catchment x Amount of rainfall Rain water endowment

- All the water which is falling over an area cannot be effectively harvested, due to various losses on account of evaporation, spillage etc. Because of these factors, the quantity of rain water which can effectively be harvested is always less than the rain water endowment. The collection efficiency is mainly dependent on factors like runoff coefficient and first flush wastage etc.

- Runoff is the term applied to the water that flows away from catchments after falling on its surface in the form of rain. Runoff from a particular area is dependent on various factors i.e. rainfall pattern and quantity catchment area characteristics etc. For determining rainfall quantity, the rainfall data preferably for a period of at least 10 years is required.
- For determining the pattern of rainfall, the information may be collected either from meteorological department or locally. The pattern of rainfall in a particular catchment area influence the design of rain water harvesting system.
- In areas where rainfall is more but limited to very short period in a year, big storage tanks would be required to store rain water, if we are collecting rain water in storage tanks for direct use.
- In such areas, it is preferable to use rain water for recharging of ground water aquifers, if feasible, to reduce the cost of rain water harvesting system.
- Runoff depends upon the area and type of catchment over which it falls as well as surface features. Runoff can be generated from both paved and unpaved catchment areas.
- Paved surfaces have a greater capacity of retaining water on the surface and runoff from unpaved surface is less in comparison to paved surface.
- In all calculations for runoff estimation, runoff coefficient is used to account for losses due to spillage, leakage, infiltrations catchment surface wetting and evaporation, which will ultimately result into reduced runoff.
- Runoff coefficient for any catchment is the ratio of the volume of water that run off a surface to the total Volume of rainfall on the surface.

  Runoff coefficient $= \frac{Volume\ of\ water\ that\ run\ off\ a\ surface}{Volume\ of\ rainfall\ on\ the\ surface}$

➢ UNDER GROUND WATER RESOURCES IN MAINDARGI

- As far as the groundwater resources are concerned, the amount of rainfall that gets into The soil is dependent on the intensity and amount of rainfall and nature of the surface soil. Groundwater in a region is the region is depending on:

a. Climatic factors, such as; rainfall, humidity, and weathering.
b. Topography factors like; undulating surface, nearness to hills and direction of the Valley,
c. Geographical factors, such as; nature of rocks underground and their inclination.
d. Presence of tanks/reservoirs in the recharge area.

CONCLUSION

In maindargi, The groundwater is of course replenished by surface water from precipitation, Streams, and rivers once this recharge reaches the groundwater level. Groundwater is Often a semi-permanent ‘reservoir’ of the natural water cycle as opposition short run water reservoirs just like the atmosphere and fresh surface water. The managing Water is a grand challenge problem and has become one of humanity’s foremost Priorities. The groundwater should be licensed and controlled by competent Authorities according to specific requirements laid down in an appropriate permit System that should be flexible to adapt to site-specific conditions.

REFERENCES

[1] The village president and Sarpanch. These people gave to our group kinds of information mainly teachers are very helpful in starting of project to help selection of a particular village for project can be completion with successful according to planning of our group, we has visit to the Nagansur village.

[2] We stand to collect the information about village and the condition village. There number problems as per peoples.

[3] Then we interacted with villagers about light and lot of problem also we informed them about no of India government scheme.

[4] for supporting us, and one more thing we would like to say is Mr. Gram N. A. has suggested wonderful subject to our group.

[5] discuss with villagers selecting subject like hotels, grocery store, temples houses, bus