RURBANIZATION : ANALYSIS OF WATER SUPPLY SCHEME FOR NEWLY APPLIED TP SCHEME IN BHANODRA

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ABSTRACT: *From the census 2011 around 83.3 crores people lives in the rural area. Now a days peoples are migrating towards the urban area from the rural area because of insufficient infrastructure facilities available .So the problem of having more population arise in the urban area. Government of India is also doing essential programmes to develop the rural area by applying different schemes like Mahatma Gandhi Nation Rural Employment Guarantee Act, Indira Awas Yojana, Pradhan Mantri Grameen Sadak Yojana, National Rural Drinking Water Programme etc.to develop the rural area. Government also provide town planning scheme for the rural area for solving this problem. This work is carried out to analysis the water supply scheme for newly applied Town Planning scheme of village and to solve the problem of insufficient water by waste stabilization pond process through the recharge bore well and also come out with the best alternative method to solve the problem of water*

Keywords: Rural Area, Waste Stabilization Pond, Town Planning Scheme, Recharge Bore Well.

- **1) Introduction:** There are about a 100,000 rural water supply systems in India. At least in some states, responsibility for service provision is in the process of being partially transferred from State Water Boards and district governments to Panchayati Raj Institutions (PRI) at the block or village level (there were about 604 districts and 256,000 villages in India in 2002, according to Subdivisions of India. Blocks are an intermediate level between districts and villages). Where this transfer has been initiated, it seems to be more advanced for single-village water schemes than for more complex multi-village water schemes. Despite their professed role Panchayati Raj Institutions, play only a limited role in provision of rural water supply and sanitation as of 2006. There has been limited success in implementing decentralisation, partly due to low priority by some state governments. Rural sanitation is typically provided by households themselves in the form of latrines. A number of innovative approaches to improve water supply and sanitation have been tested in India, in particular in the early 2000s. These include community-led total sanitation, demand-driven approaches in rural water supply, a public-private partnerships to improve the continuity of urban water supply in Karnataka, and the use of micro-credit to women in order to improve access to water. There are no accurate recent estimates of the level of subsidies for water and sanitation in India. It has been estimated that transfers to the water sector in India amounted to 54708 million per year in the mid-1990s, accounting for 4% of all government subsidies in India. About 98% of this subsidy is said to come from State rather than Central budgets. This figure may only cover recurrent cost subsidies and not investment subsidies, which are even higher. There is little targeting of subsidies. According to the World Bank, 70% of those benefiting from subsidies for public water supply are not poor, while 40% of the poor are excluded because they do not have access to public water services.

2) Literature Review

- **Bore well recharge:[1]**

- Artificial groundwater recharge schemes involve measures for infiltration of water into pervious underground formations, to augment the yield capacity of these formations. The quality of the infiltrated water improves in most respects, and the storage capacity of the formation can be used to ensure availability of water collected in the wet season, for use in dry periods. Technically, artificial recharge schemes are likely to be feasible in most areas where aquifer formations are suitable for recharge and storage of water. Recharge schemes are economically attractive, and worth consideration in rural areas of developing countries, where they are a viable alternative to treatment works for medium-size water supplies. While the capital costs of recharge schemes are comparable to those of water treatment works, the recurrent costs for operation and maintenance are likely to be lower.

- Groundwater as a source of water supply has great advantages over surface water from streams, rivers, or lakes. Due to the long retention time underground, often for ten years and longer, groundwater is generally hygienically safe for drinking,and domestic use, and it can be stored for use in periods when drought conditions have depleted the surface sources. Most groundwater resources receive natural recharge from infiltrating rainwater or surface water. The water slowly flows underground to places where it is discharged into streams, rivers, lakes, or directly into the seas and oceans.
- In most areas of the world there is groundwater available at some depth, but the quantities involved vary widely for different types of formations. Sedimentary formations which consist of deposits of granular rock fragments and precipitates (e.g., sand, gravel, sandstone, shale, limestone), can hold large quantities of water in the pores and crevices between the granular particles. Metamorphic formatioas, such as gneiss, quartzite and slate, formed out of sedimentary or igneous rocks by the effects of heat and pressure can hold only limited quantities in the small and unconnected voids and pores in the rocks. However, there are often fractures, joints, and bedding planes in these rocks where groundwater can occur in appreciable quantities. Igneous rocks derived from cooled magma (e.g., granite, marble, and crystalline rocks, such as the African Basement Complex) are dense and only small quantities of water occur in fissures and fault zones. However, often more water is held and transmitted in the weathered and fragmented upper zones.
- Thus, the quantities of groundwater found in underground formations are largely governed by the nature and composition of the formations and by the natural recharge. The yield capacity of different types of aquifer varies widely. In crystalline rock, a borehole should not be expected to give more than one or two litres per second, and even depends on striking a water-bearing fissure. By contrast, wells and boreholes in sedimentary formations may have a yield of up to several hundreds of litres per second. Another important characteristic of water-bearing formations or aquifers is whether they are unconfined or confined. Unconfined aquifers are open to recharge by infiltrating surface water and the groundwater table will fluctuate with the amount of recharge in relation to the water outflow from the aquifer Confined, or artesian aquifers are water-bearing formations having an impervious base, mostly bedrock, and an impervious overlaying formation. The water in a confined aquifer is often under pressure.

➢ **Method adopted for bore well recharge:[2]**

- A 10x10x10 feet pit is dig and adjoining catchment area is made.
- Stone pitching is done in the pit.
- A 3 inch layer of sand is made at the bottom of the pit.
- Holes are made and the casing pipe and then it is covered with mesh
- Cement rings are placed around the pipe.
- Rain water from the catchment area gets transferred to the percolation pit.
- The filter water seeps in via cement rings.
- The water after filtration through the mesh enters the pipe through tiny holes.

➢ **This renovation of ground water harvesting is useful because it helps in:[3]**

- **Increased water-output:** Bore-wells recharged using our technique have an increased water-output. Completely dry bore-wells can be revived too.
- **Better water-quality:** Sending back of naturally filtered rainwater into the groundwater tables results in a decrease in the proportion of impurities in the water. The bore-well’s water thus loses its hardness with time.
- **Cost-effective:** The use of locally procured natural materials enables us to deliver the bore-well recharge service at an extremely low cost.
- **Permanent:** Once recharged a bore-well never goes dry. Year after year, underground water-tables and aquifers are replenished thus keeping your bore-well up and running.
- **Customizable:** It doesn’t matter if you’re a farmer with your bore-well on a farm-land or if your bore-well lies on the site of an industry / farm-house / educational institute or any other urban site. Our technique can be customized to meet your needs.
- **Eco-friendly:** Apart from resolving your water-scarcity issue, our bore-well recharge technique also ensures the storage of naturally filtered rainwater in natural water-reservoirs i.e. aquifers and water-tables for use by future generations.

➢ **Before the intervention:**

o Earlier in 1990 the first bore well was drilled at a depth of around 180 ft. Again, in 1994 he decided to drill another bore well with a depth of 150 ft.

- The impact of bore well recharge turned out to be a failure as the entire land was not properly irrigated and thus he dug another bore well which again had a setback. There were 15 bore wells in the land out of which only 2 bore wells could manage properly.
- The excessive usage led to the downtrend of water delivery which reduced to 3 to 5 hours per day in the post monsoon period. This imposed a great burden upon the farmer.

➢ **After the intervention:**

- After the intercession in June 2010, the bore well increased the out flow of ground water.
- The involvement also extended further i.e. irrigating the fields and this practice also led to the adoption of the sprinkler irrigation method for sugar cane crop and he gradually gained confidence about the bore well recharge.
- For bore well recharge, the beneficiary contributed Rs.11, 665.00 and the project contribution from SRDS Rs.11665.00. The total expenditure was Rs. 23310.00.

Basis of difference	**New Bore well**	**Bore well Recharge**
Investment	Rs 1,00,000- Rs1,50,000	Rs 30,000-Rs 35,000

3) Conclusion: In this research paper I have introduce the technique of recharge bore well method so that the water which naturally proceed in the waste stabilization pond can available for people for use and some quantity of water can go through the recharge bore well and the issue of water can be solved in the area. Also other method is to take the pipeline from the nearer village's water tank which is more capacity then the required demand but in that process the cost is more then the method of waste stabilization pond and recharge bore well so that this method is the best way to solve the water problem in area inspite of getting new pipeline.

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