

DROUGHT LESS WORLD -WATER SUSTAINABILITY FOR GLOBE - 24 X 7 WATER SUPPLY BY USING EXISTING RESOURCES AND SIMPLE AND EFFECTIVE METHOD OF GROUND WATER RECHARGE

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Abstract:- 24 x 7 water supplies are possible by using existing resources. The small supply of water in the bore wells can be used effectively. The existing pumps can also be used with one speed regulator to adjust the capacity of pump/speed as per the supply of water in the bore wells which will maintain the continuity of flow; thereby the main principle of getting maximum water from the water scare bore can be achieved i. e. $Q_{outlet} \leq Q_{inlet}$. All the bore wells which are not in use because of their small supply of water will also start to function as per their capacities of inlet discharge. This concept of using speed regulators to submersible pumps is a new innovation and because of this we can make use of existing resources for effective water supply across the globe. This innovation really serves the globe.

The simple and effective method of ground water recharge is to improve the ground water table is to take the small depth of bore wells say 50 feet across the rivers, small streams, nallas at different sections and completely filled it by filter material like pebbles and sand. Because of this method of recharge of ground water level will come up at faster rate and it is cost effective.

Key words: 24 x7 water supplies, bore wells, speed regulator, existing resources

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Introduction

The whole world is facing the problem of effective water supply because of summer season and drought and so many other reasons. In rural and urban area there are so many tube wells (bore wells), if we adjust the pipe diameter and capacity of pump and introducing one regulatory valve at outlet, we can adjust the outlet discharge from the bore well less than or equal to the inlet discharge i. e. as per supply of water in the tube wells (bore wells). It leads to 24 X 7 water supply in some area and even it is effective in draught. Also it is more effective for irrigation just by constructing small water tanks or by changing methods of irrigation like sprinkler or drip. By using this small principle (outlet discharge less than or equal to inlet discharge) we can make use of existing bore wells (tube wells) which are not in use because of their less supply of water and save lot of money of nation and can serve nation more effectively.

By the use of adjusting nozzle/regulatory valve (which we are using for vehicle washing) we can adjust the yield from the bore wells as per supply, which gives the continuous supply of water, as per the supply of water from ground in the tube wells and which can be used in any corner of the world. In this case it is not necessary to adjust the capacity of pump and diameter of pipe, and the same existing pipe and pump can be used.

India is agriculture country and facing the great problem of water for various purposes though so many big projects are coming to fulfil the need. Even though it is not possible to supply the water in every corner of the country by means of big projects only. But if we make use of existing resources up to its optimum use, then it is possible to supply the water effectively in every corner of the world. The one of the existing major resource is a bore well/ tube well. The bore wells which are not in use because of its small supply of water can be used effectively by sound technical knowledge. If this small supply of water is made available effectively then defiantly 24 x 7 water supplies is possible with minimum investments and saves billions of Rs of the nation. In India the numbers of bore wells are not functioning effectively because of its small supply of water. The supply of water in the bore wells varies because of less rainfall, summer, draught etc. this small supply of water can be used by designing the capacity of pumps and pipe diameter for minimum discharge and one regulatory valve can also be used to maintain the continuity of flow. But because of this when the inlet discharge in the bore wells becomes more in rainy season we cannot make use of excess water. And if we design the capacity of pump for maximum inlet discharge there will be fluctuation of water when the inlet supply becomes less in summer and draught and the continuity of flow cannot be maintained which leads to less availability of water for use. So to make use of optimum water, the capacity of pump and diameter of pipe should be such that outlet discharge should be less than or equal to the inlet discharge which maintains the continuity of the flow. But here also the inlet discharge will not remain constant because of more or less rainfall, Season, droughts etc. And also it is not possible to change the pump and pipe diameter as per the inlet discharge. But in such case the continuity of flow can be maintained by using one regulatory valve which can be operated manually up to some extent.

The new approach to adjust the capacity of pump as per the inlet discharge plays very important role for effective water supply and economy as every time it is not possible to change the capacity of pump as per inlet discharge. In this case the capacity of the pump should be designed for maximum discharge and *one speed regulator* can be used to adjust the capacity of the pump/speed so that we make use of maximum and minimum inlet discharge so that every bore well will start to function as per their capacity. This approach of designing new pump along with regulator to adjust the capacity of pump/speed leads to effective water supply and economy.

In short there are four stages to get maximum quantity of water from any water scare bore wells are as below

1. Design the capacity of pump as per inlet discharge.
2. Design the pipe diameter.
3. Use the regulatory valve at outlet.

Use one speed regulator to adjust the outlet discharge as per inlet discharge.

The country is facing the great problem of water supply for various purposes. Day by day because of less rainfall, summer and drought the ground water level is going at deeper level. If we take the small depth bore well across the rivers, small streams, nallas at different sections and completely filled it by filter material like pebbles and sand. Because of this method of recharge of ground water level will come up at faster rate and it is cost effective.

Design :-

1. Take the small depth bore wells across or sides of rivers, streams, nallas of approximately 50 feet.
2. Fill the drilled bore wells completely by filter material like pebbles and sand.
3. Pebbles are filled at lower level and at top the sand will be filled.
4. The coarse material like pebbles at bottom level and finer filter material at top level can be maintained.

Salient Features and Conclusions

1. Effective 24 x 7 water supply
2. Water can be made available in any corner of the country with minimum investment.
3. Existing bore wells which are not in use can be used effectively.
4. Deeper bore wells can be automatically avoided and thereby water table can be maintained at higher level.
5. Saves billions of Rs of the nation for major projects.
6. Overall economy and development can be achieved.

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