

RECHARGING OF OPEN WELLS

The State Water Policy published in 2008 highlights the following issues in the water sector seeking a quantum jump in the water management scenario of the state focusing on open dug wells.

1. Protecting open wells and ground water sources from chemical and bacteriological contamination.
2. Lack of perspective planning in water resources sector at the local level.
3. Inadequate technical support for integrated water resources planning at the local level.
4. Increasing tendency to replace traditional water sources and systems with piped water supply in Kerala.
5. Poor efficiency of water user and management regimes.
6. Decreasing summer flow in the rivers and increasing salinity intrusion.

Considering the problems mentioned above, various agencies in Kerala have experimented the techniques suggested by Central Ground Water Board, New Delhi such as open well recharging through roof water harvesting and in situ rain water harvesting by way of percolation pits, trenches etc. The roof water is diverted to homestead dug wells using rain gutters and pipes (PVC) with filtration. This benefited the households in two ways. Homestead wells near the coastal belts which were facing saline intrusion, started availing fresh water in all seasons soon after the injection of roof rain water to their wells. Wells became perennials in the plain and high lands after roof rain water recharging programme.



It is evinced from the successful experiments from various Districts and odd attempts of NGOs, World Bank Aided Jananidhi Schemes in various locations in the State, that open well recharging through roof water harvesting is a powerful tool for combating drought in the State. And therefore, the Programme Implementation Agency wish to popularize the well recharge programme throughout the project area to reach the water security for all by reviving their traditional water resources i.e., homestead open dug wells.

Where to be implemented: Areas where the ground water is over exploited will be given top preference. The experience from various projects shows that 'where there is demand for open well recharging and preference for open well water' it is the suitable sites of identification for implementing the scheme. If the beneficiaries are indifferent to well recharge scheme on wrong conception, it is less likely to be successful. And therefore, awareness building is highly required for the programme. Places where the availability of piped drinking water supply exists, it is quite often seen that beneficiary tend to give less priority for roof harvested open well water.

Aims and Objectives

The broad aim of the programme is to improve the water quantity and quality levels of homestead open dug wells and small homestead ponds. This will contribute to enhanced health and welfare of the community through improved access to drinking water. The reduction of public spending on Tanker Water Distribution to the water stressed regions which is common during summer is also envisaged as a broader goal of the programme.

The specific objectives of the programme are

- (i) recharge ground water
- (ii) improved drinking water availability across the year
- (iii) significantly reduce the impact of drought and consequent public spending on supply of drinking water in tankers to the water stressed regions
- (iv) Improved agricultural production and productivity.

The programme would also envisage strengthening of the decentralization programme and the PRIs, in discharging their basic mandate in water sector through community efforts that are cost effective and sustainable.

To narrow down the prime objective, the well recharge programme intends to recharge 2000 numbers of seasonal and quality affected wells across the project area within 4 years (2012-2016). This will benefit not only these 2000 numbers of wells in the area but also the nearby wells of each well aquifer which will get recharged since the ground water table is common to all.

Approach and strategy

The strategy of implementation of the programme is as follows.

Community Driven: The Programme is tailored to trigger the community strengths, social capital, traditional wisdom and focus on “Investing in Common Future”

Participatory Approach: As water is everybody’s business, the programme envisages partnership, collaboration and synergy of all stakeholders, private, public and NGOs.

Demand Driven: The programme is bottom up and demand driven. There exists tremendous pent up demand in service level (quantity), quality and such demand is converted into willingness to make cost effective and minor investments to reap rich dividends.

LSGI Centric: Water is a mandate of the Local Self Government Institutions. The programme supports them effectively discharge their mandate by harnessing community initiatives and leveraging investments at their disposal for common benefit. Ground water is our common pool resource and investments made are undoubtedly for public welfare. This also entails vital responsibility on the LSGIs, in participatory planning/management and effective regulation of ground water usage.

Process Oriented: The programme encourages innovation and diversity. Grama Panchayaths will have the freedom to follow their own implementation arrangements. Critical to the programme is the thrust on the menu of technical choices open to the households and regions according to their capacity and need. Informed choice of the

household is facilitated by trained technical task teams/resource teams at Grama Panchayat level.

Cost Effective: Considering the overall impact on quantity of water harvested in volume, these would be the most cost effective way, possible by employing local material and labour available.

Campaign Mode: As the basic approach is participatory and demand driven, the success of the programme is possible only through the campaign mode in generating awareness, demand and sustained enthusiasm. This is expected through a Panchayat level campaign comprising direct contact programme and media.

The Cost of a Unit

As per the experiences of Open Well Recharging scheme in the state, it is estimated that Rs. 5000/- is the minimum cost of an individual homestead open dug wells. Accordingly it will cost Rs. 1 crore to recharge 2000 wells in the project area.

Estimate for One Well Recharging Structure

No	Description	Nos.	Length	Rate	Amount
1.	160 mm PVC Gutter Pipe		15 m	90	1350
2.	160 mm PVC Dropper	1		60	60
3.	160 mm PVC Stopper	1		56	56
4.	160 mm GI Clamp	15		30	450
5.	63 mm 4 KG PVC Pipe		15 m	70	1050
6.	63 mm PVC Bend	5		25	125
7.	63 mm PVC Tee	4		30	120
8.	63 mm Elbow	2		25	50
9.	63 mm PVC MTA	2		35	70
10.	63 mm PVC Tread Endcap	1		25	25
11.	63 mm PVC Air Cowl	1		15	15
12.	63 mm PVC FTA	1		30	30
13.	63 mm x 50 mm PVC Reducer	2		25	50
14.	63 mm Steel Clamp	6		4	24
15.	Plumbing Labour Charge & Supervision charge	3 Man days		325	975
16.	Miscellaneous Items				50
17.	Beneficiary Contribution (Well & Roof Cleaning)				500
	Total				5000

(Rupees five thousand only)

The programme also offers an array of cost effective choices for the community, mainly based on traditional methods and proven choices as follows:

No	Technology choice	Specification	Indicative Cost in Rs.
1.	Roof top harvest with Sand filter	PVC Gutters are fixed to collect water from roof and water is diverted to the filter using a PVC pipe. The filter consists of sand,	5000.00

		metal and charcoal	
2.	Roof top harvest with ordinary Nylon filter for Tiled and Asbestos sheet houses	Water is harvested from the roof and is diverted to the well through a Nylon or cloth filter using a PVC pipe.	3500.00
3	Rooftop harvesting without filter for concrete roofed houses	Water harvested from the roof top is directly fed into the well	2000.00
4	Surface run off catch through pits and trenches	Using a bund, trench or pit	500.00
	(*) Additional Rs. 1000 may have to be added for polyethylene sheets for thatched roofs		

Recharge pits may be of any shape and size. They are generally constructed 1 to 2 m. wide and 2 - 3 m deep. The pits are filled with boulders (5-20 cm), gravels (5-10mm) and coarse sand (1.5- 2mm) in graded form. Boulders at the bottom, gravels in between and coarse sand at the top so that the silt content that will come with runoff water will be deposited on the top of the coarse sand layer and can easily be removed.

The programme is well and household centric and therefore, the onus and responsibility for maintenance will remain with the owners themselves. Bulk of the investment can be leveraged through own contributions of the households. The semiskilled work of plumbing and diverting rainwater into the wells can be taken up under the MGNREGS, by training women in the rural areas to undertake this work. The utilization under MGNREGS can be tremendously improved by including Open well recharge under this watershed scheme.