Dhedhuki – Water Resource Management

Dhedhuki Regional Water Supply Scheme provides water to 22 villages of Sayla taluka in Surendranagar. Dhedhuki area is composed of sand stone, which is medium to coarse grained and has good porosity and transmissibility. However, the area around Dhedhuki has poor ground water quality and the average rainfall in the area is also on the lower side, about 500 mm. Under these circumstances, water resource management assumes significance for source sustainability

Dhedhuki has two ponds namely, Somani talao and the Bhimnath talao which is on the road to Dhandhalpur. Both these ponds were deepened by excavating 55,000 m3 and 6,000 m3 mud respectively and the mud was used to increase the height of both the talaos by 30 cms. As result of the deepening the capacities of the two ponds have been augmented by 1,38,000 m3. in addition a 3 km stretch of recharge channel has been deepened and diverted to the two ponds. Thus the water that overflows from the Bhimnath talao as well as the run-off from the village borders is diverted through the recharge channel into the Bhimnath talao. In each talao a recharge bore has also been developed so that water easily percolates into the aquifer. The Dhedhuki Regional Water Supply Scheme, sources the ground water in the area through 11 bore wells. Of these nine are functional and the water is pumped from a depth of about 112 meters. The artificial recharging carried out at the two ponds will help in improving both the quantity and quality of water in the bore wells of the RRWSS. The Pani Samiti of Dhedhuki participated in the work with complete enthusiasm. The total cost of pond deepening was Rs. 20,93,000 of which the community has contributed two per cent i.e. Rs. 40,000.

Based on the report from operator of RWSS and village people of Dhedhuki, the inflow of water started in the ponds from mid night of July 01, 2007 and outflow started just after 8 hours from the time of inflow i.e. at about 0800 hrs on July 01, 2007 because it was in deed very heavy rains in the beginning itself. It was noticed that the result has been very encouraging and a huge quantity of pond water penetrated into deep aquifers through the bore wells. The rate of inflow and the assessment of recharge through bores and seepage for a period of 20 days from July 01, 2007 to July 20, 2007 are calculated as under:

Impact of recharge on quantity and quality of ground water

- **Impact of recharge was very good in quantity and quality of drinking water. The following benefits have been assessed:**

- **Net recharge in first spell of monsoon 1.7699 mcm (1769.9 million litre)**

- **Water quality test indicates improvement from TDS 1300 to 774 mg/l while fluoride has shown improvement from 0.8 to 0.6 mg/l.**

Cost of renovation of ponds with recharging bores

Work of repair/ renovation of two ponds with recharging bores was carried out on war footing in May June 2007 on the following components with their cost so as to reap their benefits in this rainy season:

Deepening of ponds (quantity two)	**- Rs. 14,20,000/-**
Raising height of waste weir (quantity two)	**- Rs. 22,500/-**
Drilling of bores and construction of	
Recharge structures (quantity two)	**- Rs. 2,92,000/-**
Repair/ improvement of channels	**- Rs. 2,25,500/-**
Total	**- Rs. 19,60,000/-**

Cost Benefit Ratio

Taking into account the cost of the work and immense benefits in ground water recharge, we may draw the following conclusion with cost benefit ratio even in first spell of rains:

Total quantity of water recharged	**1769936000 litre**
Total cost of renovation work with recharge bores	**Rs. 19,60,000/-**
Cost of recharged water per 1000 litre	**Rs. 1.107**