

Drinking Water Model 5

Extending the Narmada water supply to the new settlement by constructing an underground tank, pipeline, Pump and an over head tank with stand posts etc.

Lecture Notes
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Introduction

*NGO is a voluntary agency located at Vadodara and had branches in different districts of Gujarat. They had an office at Vagra in Bharuch district. The *NGO is involved in various Rural Development activities in different poverty alleviation programmes.

Proposal

*NGO at Vagra is running a school. Next to their school compound, a new housing complex for poor people has been established. There are about 200 households with about 1000 members without proper drinking water facilities. The school receives water from the Narmada pipe line and the NGO wants to extent the water supply to the new settlement by constructing an underground tank, pipeline and an over head tank with stand posts etc. They would also provide a pump set to pump the water to the tank.

Water Demand and Availability:

The present population of the settlement is of the order of 1000. The water demand has been estimated at year 10 for a population of 1200 @ 40 lpcd. With about 5 % seepage and other losses, the NGO proposes a tank of about 50000 liters capacity. This may be accepted. However, the availability of water is very important. Before under taking the works, the NGO may get permission from the necessary authorities, that they would supply water @ 50000 liters per day to the new settlement

Design of Underground tank:

An underground tank of 3m dia and 3 m depth is proposed. This is acceptable. However, the NGO proposed two underground tanks which is not acceptable. For the present only one underground tank is recommended of Rs 31280.00

Design of Pump set.

Considering a pumping of 2 hours in a day @ 7 lps for a head of 10 m, the requirement of HP is in the order of 1.5 Hp. The proposal of 3 HP may be accepted. The cost of Rs 19660 is acceptable.

Design of rising main.

The rising main of 672 m is proposed with 90 mm diameter. This is in order. However, 6 Kg /cm² pressure pipe is not required, as the length of pipe is only 672 m and the maximum head is only 10 m. 4kg/ cm² pipe is sufficient. Accordingly the cost of the rising main would be **Rs 65240** instead of Rs 75320

Design of over head tank:

The tank is designed for 50000 liters capacity. This is acceptable. Two Stand posts are proposed. This is also acceptable. However, the NGO may like to add more no of stand posts for the convenience of the people.

The height of the over head tank is fixed at 10m. This is very high. The NGO did not give the reasons behind the design of 10 m height. As the settlement is on level field and the water is being lifted from under ground tank, the requirement of the height of the tank may not be more than 6m. Accordingly, the cost of the overhead tank is reduced proportionally to that of 6 m height tank. At present the cost may be taken as Rs 228000

Stand Posts

The Ngo proposes two stand posts for Rs 13460. This is acceptable. However, they may increase the no of stand posts for the convenience of the people for easy access of the water.

Operation and Maintenance:

The NGO did not indicate how the system would be operated and maintained. It is easy to construct any structure but is very difficult to maintain unless the people are involved. The people who would be benefited should be involved in operation and maintenance of the project. The people should contribute at least 10 % of the cost of the project in the beginning and should pay monthly a fixed amount for operation and maintenance of the structures and the daily operation of pump set.

Cost of the Project

As discussed and indicated above, the following project cost is recommended.

Sr.No	Details	Amount (Rs)	Peoples Contribution (Rs) @ 10 % of the cost	Balance (Rs)
1	Construction of RCCESR 50000 lit cap & 10 mt height	228000	22800	205200
2	90 mm dia 6 kg/ Cm ² PVC pipe line	65240	6524	58716
3	3 HP pump set	19660	1966	17694
4	Underground tank	31280	3128	28152
6	Stand posts (2 Nos)	13460	1346	12114
8	Sub Total	357640	35764	321876
9	Contingencies @ 3%	10729	1073	9656
10	Total	368369	36837	331532

Peoples' Participation

The success of the scheme depends mainly on the people's participation especially after the construction of the various activities. The maintenance of the structures constructed is one of the major problems, as people do not own the structures. As such, the NGO should convene a meeting of the stake holders and insist that they should pay for maintenance at the rate of Rs 15 to 20 per family per month and collect and keep the same in the Pani Committee specially formed under this programme. The money can be utilized for repairs of the structures, pump operation and the balance can be utilized for any community work they deem fit. There should be one Pani Committee per village and sub or mohalla committees to look after the activities in their own areas. The members should meet at least once in a month and collect the money and explain the expenditure to the committee members for transparency of the activities.

Disbursement of funds and Monitoring

The NGO should complete the project in about 6 month's time. The work may be divided into 4 phases. The NGO may conduct monitoring study at different phases or as and when they release funds, but a quarterly monitoring study is necessary to see that the projects are progressing satisfactorily.

Demonstration effect

The purpose of this programme is to show how a drinking water programme can effectively solve the drinking water needs of the community. The demonstrative effect would be on the local villagers as well as on the people from nearby villages. To achieve that, a detailed board should be displayed at the site regarding the project with details in Gujarati and English language. The NGO may collect people in the village and nearby village and explain briefly the benefits of the project. The local Pani Committee members may be requested to give the details to the gathering regarding the methodology followed by them for the sustainability of the scheme.