

Review of Water Supply Scheme

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Abstract - In the past, there was a severe shortage of water in Thodsarwadi village. A new water supply has now been started in Thodsarwadi. therefore this project will show how much Thodsarwadi has benefited. This project topic shows the difference between past and present water supply scheme. The new water supply scheme has been reviewed and its functionality has been worked out. to review the new water supply, the villagers have been asked question and show how the new and old water supply is.

Key Words: Objective1, Review of scheme2, Difference between previous and new water supply scheme3, Design of water supply scheme4, Estimate5, question as surveying of water supply scheme6, site visit image7

1. INTRODUCTION

Thodsarwadi is a village in Maharashtra district Osmanabad, The Village used to face severe water shortage. Now there is a new water supply scheme in this village. Therefore, a review of how much the village has benefited from this project has been taken.

1.2 Aim of study

- To Check that the new water Supply is sufficient.
- To know the difference between the new water supply scheme and previous water supply scheme.
- Review of new water supply scheme.

1.2 Objective

- To study existing water supply scheme.
- Surveying and question as surveying of water Supply Scheme and site visit.
- To measure effectiveness of this scheme.

1.3 Study Area

Village THODASARWADI is in Osmanabad District. It is at a distance of 20 km from Osmanabad. S.T. Bus service is available in all seasons Village is situated at on Osmanabad-Ujani road. Nearest railway station is Osmanabad which is 25 Km. away from the village. The village is having primary school etc. Electricity is available in the village, Main occupation of the villagers is a agriculture and main crops grown are .Sugar

cane, Bajra Jwar .cotten etc. The village is famous for. Local Yatra Civic affairs of the village are managed by village Panchayat.

a) Necessity of the scheme- Existing water supply infrastructure is inadequate to supply the water. Hence to supply 40LPCD safe and drinking water to the villagers scheme is proposed. GSDA has suggested Bore wells as an underground source for water supply supply scheme

b) Proposed water supply scheme-

Water from percolation well is proposed to be pumped by means of 5.00 BHP 2 Nos submersible pumps having of discharge 3912 Lph against 38.00 m, head through 90 mm. dia PVC 6Kg./Cm² L- 1160 M. rising main to ESR cap. 27,000 Ltrs. Water after disinfection will be supplied through net work of distribution.

2. Literature Review

Thodsarwadi Village used to face severe water shortage. Now there is a new water supply scheme in this village. Therefore, a review of how much the village has benefited from this project has been taken. Water from percolation well is proposed to be pumped by means of 5.00 BHP 2 Nos submersible pumps having of discharge 3912 Lph against 38.00 m, head through 90 mm. dia PVC 6Kg./Cm² L- 1160 M. rising main to ESR cap. 27,000 Ltrs. Water after disinfection will be supplied through net work of distribution.

Vikrant Bhakara , Nitesh Sihaga , Rebekka Gieschenb , Stefan Andrewb , Christoph Herrmannb , K. S. Sangwana [1] studied the environmental impact analysis of a water supply system for indian university campus the environmental impact of water supply management is described in respective impact categories. the main impact in this category is due to energy used for groundwater extraction and water wastage in reverse osmosis treatment. the study shows that the use of treated water for gardening activities will reduce the environmental impact of university by almost 25%. The demand during the winter period will be less as the minimum temperature almost reaches 4 degree centigrade.

Tariq Ahmad Bhat [2] studied an analysis of demand and supply of water in india. It has been found that the demand for water is increasing substantially due to increasing population, growing urbanization, and rapid

industrialization combined with the need for raising agricultural Production. India is not a water deficit country, but due to severe neglect and lack of monitoring of water resources development projects, several regions in the country experience water stress from time to time.

Stephen Nyende-Byakika, Gaddi Ngirane-Katashaya and Julius M. Ndambuki[3].described Significance of water distribution Network in water supply. The paper reveals that adequate water supply to consumers is not only achieved by increasing production but equally through an efficient distribution network. From the foregoing discussion, headlosses in pipelines can be controlled by using bigger pipe. while enlarging diameters can increase pressure, it reduces flow velocity as already demonstrated. thus optimisation of the network is very important in order to obtain the best results.

Arjun Kumar*, Kankesh Kumar, Bharanidharan B, Neha Matial, Eshita Dey, Mahan Singh, Vivek Thakur, Sarit Sharma, Neeraj Malhotra [4] Studied DESIGN OF WATER DISTRIBUTION SYSTEM USING EPANET.

In this work, the water distribution system has been design with the help of EPANET in which we use number of nodes, elevation, number of pipes and demands of Kathgarh area. First we surveyed the area and take information about the population and per capita demand of the people. And according to that we design the distribution system for the area. In this system 2 centrifugal pumps are used having power of 10hp. In storage two overhead tanks are used having capacity of 88700litres. Here during the day time hours that is peak hours during morning time the demand of water is more as compared to the other time so the maximum supply is given for 8 hours a day. And also we concluded from the graphs that we obtained from EPANET shows that the demand is more during the peak hours.

Aiyelokun Oluwatobi, Ojelabi, Akintunde [5] Studied An Underground Based Municipal Water Supply system for a rural community. This study has successfully provided a water supply system design for Oke-Eri rural community situated in Ogun State. An average per capital consumption of 100 l/c.d was considered for a design period to end at 2030. The design if implanted would effective provide potable water for the community.

Karl Tilman Rost, Gesine Ratfelder, Oktiabr Topbaev[6] studied Problems of rural drinking water supply management in Central Kyrgyzstan: a case study from Kara-Suu village, Naryn Oblast. According to our research in Kara-Suu, the challenges facing community freshwater management are multifaceted. The concept of a decentralized, community-based drinking water management is a new phenomenon for most rural villages in Central kyrgyzstan

3. Research Methodology

GENERAL -Village THODASARWADI is in Osmanabad District. It is at a distance of 20 km from Osmanabad. S.T. Bus service is available is in all seasons.

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Proposed water supply scheme

Water from percolation well is proposed to be pumped by means of 5.00 BHP 2 Nos submersible pumps having of discharge 3912 Lph against 38.00 m, head through 90 mm. dia PVC 6Kg./Cm² L- 1160 M. rising main to ESR cap.27,000 Ltrs. Water after disinfection will be supplied through net work of distribution.

Principal Feature Thodsarwadi Water Supply Scheme

Source-Percolation well

Daily Demand-0.041 MLD

Rate of water supply-40 Lpcd

Table- 1 Population in design stage (Person)

Stage	present	ultimate
year	2020	2040
population	877	1141

Pumping machinery

Hours of pumping -12hrs

Rate of pumping-3912 lit/hr

Total head-38m

B.H.P-2BHP

Type-Submersible 2 NOs

Distribution system

Diameter-90mm

Class-PVC 4Kg/cm²

Length-270

Diameter-75mm

Class-PVC4Kg/cm²

Length-1398m

Total length -1668m

Rising main

Design Discharge-3912 LPH @0.094MLD

Diameter ,type and class of pipe-90mm Dia 6kg

Length of rising main-1160m

Estimated cost-3980500Rs

TO difference between past and present water supply scheme has been deduced from the below question.

Surveying question of water supply scheme .

- 1.How many sources of drinking water are there in your village at present ?
- 2.How many water sources did your village have in the past?
- 3.Approximately how many liters of drinking water do you get .?
- 4.In your village how many time a day is the water supply?
- 5.How many days ago was the water supply in your village ?
- 6.How many minutes a day is your village supplied with water?
- 7.Is the source of drinking water and sewerage the same?
- 8.Is the premises near the storage tank clean?
- 9.What is the efficiency percentage of water supply scheme in your opinion?
- 10.whether bleaching powder is used for disinfection ?
- 11.Are you satisfied with the current water supply scheme?
- 12.What do you think should be done to improve the water supply scheme?

To these survey question have been asked to the people of Thodsarwadi village.This argument is drawn from their answer

Table -2: Difference between old and new water supply scheme.

Parameter	Old water supply scheme	New water supply scheme	Increment in parameter
No of source of water Supply	3	5	2
Quantity of Approximate Drinking water in lit	30	50	20
Quantity of Sewerage water in lit	700	1200	500
How many days do you Get water	3	1	2
Water per day in minutes	60	120	60

The following table is the opinion of the people.

It shows how efficient the water supply scheme is.

This survey is based on the opinion of the people of village.

No Of People Opinion	Percentage efficiency
12	70
10	50
3	30

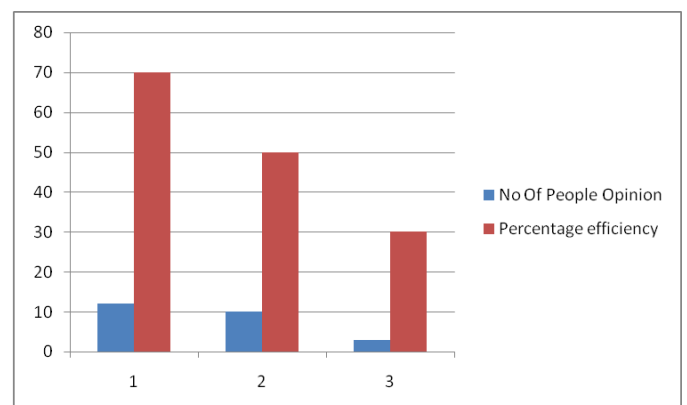


Chart -1: No of People opinion vs Percentage efficiency

This is graph between no of people opinion vs percentage Efficiency of new water supply scheme.

This graph based on 25 votes .

According to 12 people ,the water supply scheme is 70%

Efficient.

According to 10 people ,the water supply scheme is 50%

Efficient.

According to 3 people ,the water supply scheme is 30%

Efficient.

Site visit-This figure is of Elevated storage tank of the new water supply scheme.

Storage capacity of ESR is 27000 lit.

Detention period of storage tank is 12 Hrs.

FSL- 115m

LDL-112m

Average GL -103 m

Strging height -9 m



Fig -1: Elevated storage tank

3. CONCLUSIONS

a) When reviewing the new water supply scheme in the village ,it is understood that the new water supply scheme is more efficient than the previous water supply scheme.

b) According to 12 people ,The efficiency of the new water supply scheme is 70%

c)The new water supply scheme has increased the amount of water amd wastewater.

d)Due to the water supply scheme ,water is coming to the village in one day.

e) The Storage capacity of new water supply scheme is more than previous water supply scheme.

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BIOGRAPHIES

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