

A  
Report on  
Field Project

“Design And Analysis of Water Distribution System For Village  
Kinhi”



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# “Design And Analysis of Water Distribution System For Village Kinhi”


By  
Civil Engineering Department

1. Title of Activity	“Design And Analysis of Water Distribution System For Village Kinhi Yavatmal”
2. Date of Activity	29/03/2017
3. Objective	To develop and integrated portable water system technology for design and analysis of water distribution system.
4. Venue	Kinhi Tq, Yavatmal
5. No. of Beneficiary	130 Students work on this project(Final Year)
6. Guided By	Prof. S.S.Kendhe Prof. V.R. Bankar

## INTRODUCTION

The present system of supply adopted in KINHI municipality is an intermittent supply and the network adopted is a dead end system. This system of supply of water in KINHI municipality may not be reliable to the upcoming years. as the present water distribution system do not fulfill the requirement of the area. Hence the research is all about the analysis of the new network and concludes about the reliability on the network for the future. The analysis is carried out based on various public demands, quantities of inflows and out flows of the over-head reservoirs. This analysis provides the information about various demands, losses, and uses of the public. The design and analysis of network of supply will make the municipality be aware of the new demands, rate of increase in the demands. The design is made keeping in view of the population growth rate, and the developing town. We use EPANET 2.0. Software to detect the flow of water in each pipe, the pressure at each node, the height of water in each tank. To examined the study of water demand analysis of public water supply in urban area using EPANET 2.0. Software with the aim of providing effective planning, development and operation of water distribution network which is one of an essential component of any water distribution network.



  
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Water is the most precious gift of nature. It is the most crucial for sustaining life and is required in almost all the activities of mankind i.e., domestic and industrial use, irrigation to meet the growing food and fiber needs, power generation, navigation, recreation etc. and also required for animal consumption. The common source of water mainly comprises of Rain water, Surface water, Ground water and Water obtain from reclamation. With the increase in population, demand of water supply on the civic amenities including water supply for domestic purposes, irrigation, industry etc. has increased. Therefore, identification of sources of water supply, their conservation and optimal utilization is of utmost importance. Water distribution system, hydraulic infrastructure consisting of elements such as pipes, tanks, reservoirs, pumps and valves etc. is crucial to provide water to the consumers. Distribution mains are the pipelines that make up the distribution system. Water served human beings and living organisms in past centuries by rivers valleys and streams.

The most important consideration in designing and operating a water distribution system is to satisfy consumer demands under a range of quantity and quality considerations during the entire lifetime for the expected loading conditions. Also, a water distribution system must be able to accommodate abnormal conditions such as breaks in pipes, mechanical failure of pipes, valves, and control systems, malfunction of storage facilities and inaccurate demand projections. The possibility of occurrence of each of these deficiencies should be examined to determine the overall performance and thereby the reliability of the system. In general, reliability is defined as the probability that the system performs successfully within specified limits for a given period of time in a specified environment. As it is defined above, reliability is the ability of a system to provide adequate level of service to the consumers, under both normal and abnormal conditions. However, there is still not a convenient evaluation for the reliability of water distribution systems.

The primary task for water utilities is to deliver water of the required quantity to individual customers under sufficient pressure through a distribution network. The distribution of drinking water in distribution networks is technical challenge both in quantitative and qualitative terms. The water supply in most Indian cities is only available for a few hours per day, pressure is irregular, and the water is of questionable quality. Intermittent water supply, insufficient pressure and unpredictable service impose both financial and health costs on Indian households.



  
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Water supply networks are part of the master planning of communities, and municipalities. Their planning and design requires the expertise of civil engineers, who must consider many factors, such as location, current demand, future growth, leakage, pressure, pipe size, pressure loss, firefighting flows etc. Water supply systems get water from a variety of locations, including groundwater, surface water (lakes and rivers). Water then either flows by gravity or is pumped to reservoirs, which can be elevated such as water towers or on the ground.

#### OBJECTIVES:-

It is important to look at operational objectives first, and use these to establish the objectives for the project phase; otherwise there is risk that the water supply system will operate inefficiently, even if the project phase was completed successfully. So, for efficient working of system following objectives should kept in mind:

- To supply water equitably to the consumers with sufficient pressure so as to discharge the water at desired location within the premises.
- To develop and integrated portable water system technology for design and analysis of water distribution system of kinhi village

#### NECESSITY

Human life, as with all animal and plant life on the planet, is dependent upon water. Not only do we need water to grow our food, generate our power and run our industries, but we need it as basic part of our daily lives - our bodies need to consume water every day to continue functioning. "Basic needs of about 70litres per person per day". It includes the need for water to maintain a basic standard of personal and domestic hygiene sufficient to maintain health. The effects of inadequate water supply causes disease, time and energy expended in daily collection, high unit costs, etc. provision of basic daily water needs is yet to be regarded by many countries as a human right.

#### CONCLUSION

The main focused of this project is to design and analyses the water distribution network so at the end of analysis it is observed that the entire network has uniform flow and velocity and every node receives enough pressure without any deficiency.



A handwritten signature in blue ink, appearing to read "HMS" with a flourish.

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## SNAPSHOTS



Fig.1: Students Taking Reading

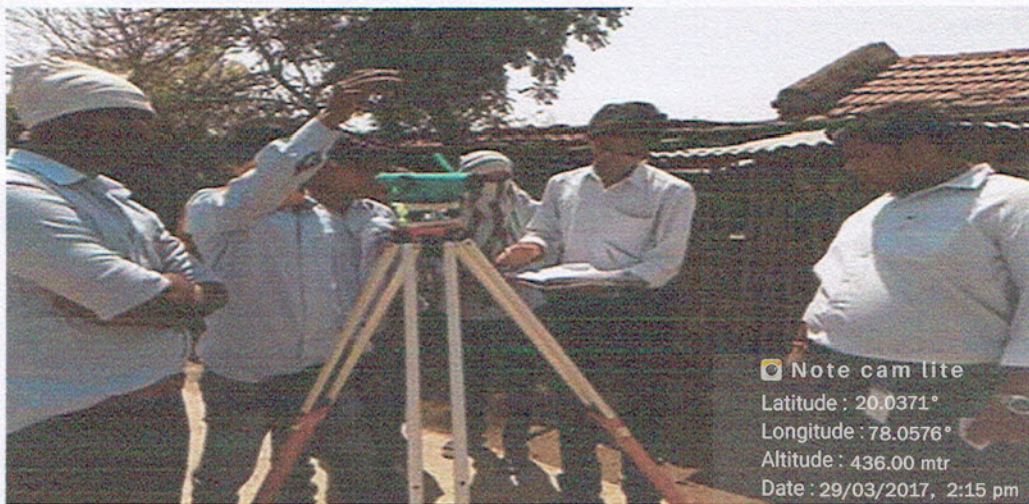


Fig.2: Faculty Guiding to Students



  
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Fig.3: Students Taking Reading



Fig.4: Students observing Control Pannel



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