

# Water Distribution in Undulating Terrain at Pangarbari.

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**ABSTRACT** - Water is the most important to sustaining life and developing region. Hilly areas, having predominantly rural economic and high dependence of rainfed agriculture. The project is on “WATER DISTRIBUTION IN UNDULATING TERRAIN AT PANGARBARI.” Under the defined understanding of drinking water governance, the thesis analyzes the international, national and local institutional structures, condition as well as stakeholders regarding the drinking water management in Pangarbari. Aim of a project is to solve problems of drinking and house-hold water needs and irrigation in the region. Water distribution system in hilly area is always divided into several zones due to the undulating terrain.

**Key Words:** Water distribution, undulating terrain, drinking water, Developing region, rural economic.

## I. INTRODUCTION

Pangarbari village is located in Dharampur taluka of Valsad district in Gujarat, India. It is situated 23KM away from sub-district headquarter Dharampur

and 55km away from district headquarter Valsad. Wilson hill is nearest hill station to Pangarbari which is approximately 2km away. As per 2011 stats, Pangarbari village is itself a gram panchayat. The total topography area of village is 870.7hectares. There are about 338 houses in Pangarbari village. Pangarbari has a total population of 1,738 peoples of which 857 are male while 881 are female as per population census 2011.

### 1.1 DISTRIBUTION SYSTEM

A distribution system consists of pipe lines of various sizes for carrying water through the streets, valves for controlling the flow, hydrants for providing water during fire, distribution or service reservoirs for storing the treated water to be fed in the distribution pipe.

The distribution system are three types:

- Gravity System
- Pumping System
- Combined gravity and pumping system

### 1.2 DECADAL POPULATION

**Table -1: DECADAL POPULATION**

Sr.No.	Census	Population
1	1981	587
2	1991	933
3	2001	1248
4	2011	1738

## II. LITERATURE REVIEW

In order to ensure the availability of sufficient quantity of good quality of water to the various section of community in accordance with the demand. Many computer tools were developed, out of all the tools available EPANET become most popular and convenient for the effective design of complex pipe

networks. This paper highlights only the effective design and distribution of network of pipes using EPANET tool. The residual head at each and every node was found out by having the elevation as input and thereby the corresponding flow quantities were derived like residual head, velocity and nodal demand etc.

**Table -2: AVERAGE POPULATION IN THE YEAR AFTER SUCESSIVE DECADE**

SR NO.	METHOD	2011	2021	2031	2041
1.	Arithmetic progressive method	1738	2659	3580	4501
2.	Geometrical increase method	1738	2486	3604	5789
3.	Incremental increase method	1738	2731	3796	4933

**Table -3: TOTAL WATER DEMAND POPULATION IN THE YEAR AFTER SUCESSIVE DECADE:**

YEAR	2011	2021	2031	2041
Population	1738	2731	3796	4933
Water demand(MLD)	0.36	0.57	0.79	1.03

Water demand

Average demand = population × rate of supply (135)

Total water requirement = peak factor (1.5) × average demand.



**Fig -1: Village profile of Pangarbari**

### III. CONCLUSIONS

India has fourth largest economic in the world however, one factor which is drag on its development is the lack of world class infrastructure. India needs urgently bridge the infrastructure gaps that industries people face every day. World class infrastructure holds the key for India to become sustained development of entire country. Entire project of “WATER DISTRIBUTION SYSTEM IN UNDULATING TERRAIN AT PANGARBARI” is an attempt to improve existing water supply system of Pangarbari village looking to following points.

1. Due to increase in population of village and out skirt Hilly area development surrounding the village. Water demand in increased and will also increase in future.
2. 0.36 MLD (2011) water is required to allotted for pangarbari village against ultimate demand of 1.03 MLD (2041).

3. On the basis of past records FUTURE POPULATION for year 2021, 2031, 2041 has been worked out and water demand has been calculated on the basis of future population.

### REFERENCES

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