

## **EXISTING SCENARIO OF WATER SUPPLY SYSTEM IN NEW NORTH ZONE, SURAT**

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*Abstract: The total availability of water resources is currently under stress due to climatic changes, and continuous increase in water demand linked to the global population increase. A Smart Water management is a two-way real time network with sensors and devices that continuously and remotely monitor the water distribution system. Smart water meters can monitor many different parameters such as pressure, quality, flow rates, temperature, and others. Existing situation of water supply system of new north zone of Surat city is studied by collecting secondary data and analysis of it. Infrastructure leakage index was found for study area using benchleak software and SWOT analysis is performed for deriving strength weakness opportunity and strength of system.*

**Keywords:** Smart water management, Real time monitoring, Infrastructure Leakage Index, SWOT analysis.

### **1 INTRODUCTION**

Water is one of the most important natural resource and water scarcity is the most challenging issue at global level. as per the report of United Nations-The Millennium Project, 3 billion people could face water scarcity by 2025. Water resources in India are also exhausting due to rising population and increased water consumption in urban areas. Existing system of water supply is facing problems like higher rate of leakage, poor maintenance, poor customer service, and poor quality of water. As per Smart Cities Mission Statement & Guidelines prepared by MoUD, India. Smart water management consist Smart meters & management, Leak detection and preventive maint., water quality monitoring.

Present research paper describes existing situation of water supply management in New North zone of Surat city. Secondary data was collected to understand and analyse the existing situation of water supply in study area and SWOT analysis is performed in context of smart water management.

### **2 NEED OF STUDY**

In existing system of water supply Of Surat city, many problems like poor asset management, aging of water supply infrastructure, poor maintenance and break fix, poor

customer service are prevailing. Only 2-3 Hours/day of water supply is provided for most of the city area. Numbers of metered connection in Surat is very few so it is difficult to measure actual water loss but it is high as 20-30% as per SMC officers. Every year about 6000-7000 complaints are registered by consumer regarding leakage and service provided.

### 3 LITERATURE REVIEW

#### 1) Moving Towards Sustainable and Resilient Smart Water Grids by Michele Mutchek and Eric Williams,2014

In this paper author has provided conceptual diagram for urban smart water system. Moreover, it gives idea about various instruments for smart water management and possible challenges for smart water grid implementation. Various smart instruments are :

End-use sensing device, Smart irrigation controller, Contaminant sensor, Smart meter, Smart valve, Smart pump

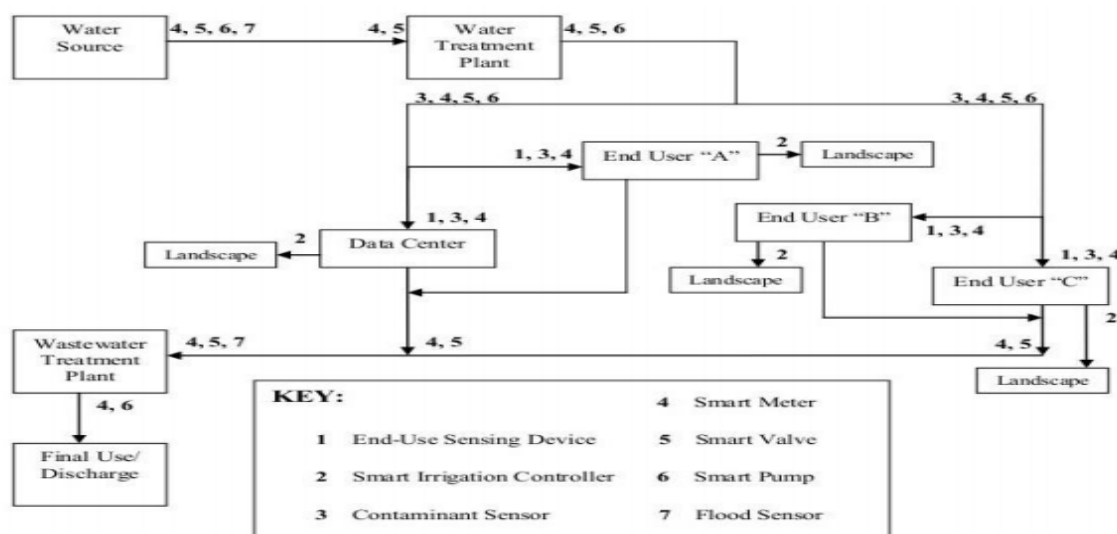


Figure 1: Simplified diagram of an urban smart water grid

#### 2) Real-Time Monitoring and the Development of a Smart Water Grid by Andrew J. Whittle (2012)

This report is case study of Singapore.it details demographic profile of Singapore. Water Demand and supply gap is shown. Non-revenue water is estimated. Non-revenue water is difference between total supplied water and total billed water. Working of WaterWise system for smart water distribution is given. This system is implemented since 2010. Per 5 km 1 sensor node is employed. How sensor node and PUB server works is explained by flow chart. How each element of sensor node works in real time is given in detail.

### 4 EXISTING SITUATION OF WATER SUPPLY SYSTEM

At present SMC is serving about 97 percent of its total populated area and 95 percent of its population.Population covered under piped network is around 95 %. Source of Water is River Tapi. Present installed capacity of Water Works (6 Nos.): 1300 MLD. Present gross daily average water supply: 980 MLD. Total storage capacity of all WDS & WW: 7076 Lacs Liters. SMC is providing 24 X 7 water supply in New north zone with 100% metered connection in an area. Present installed capacity of Water Works (2 Nos.): 115 MLD and resent gross daily average water supply: 20 MLD. Following figure describes the existing system of water supply in New North zone.

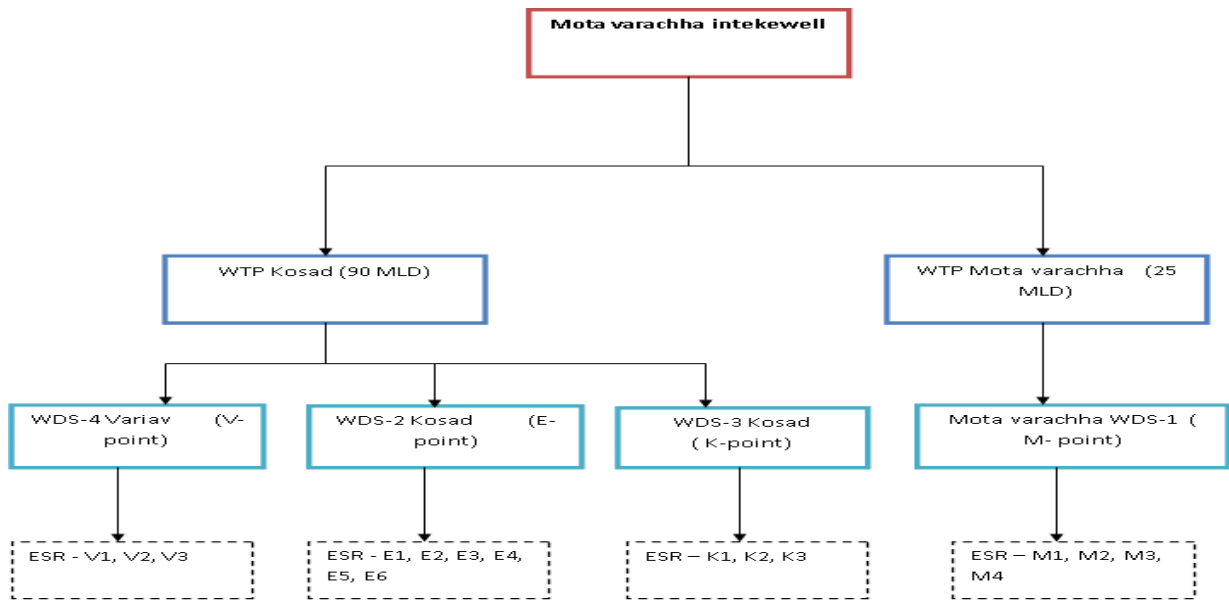


Figure 2: Water supply system in New North zone, Surat

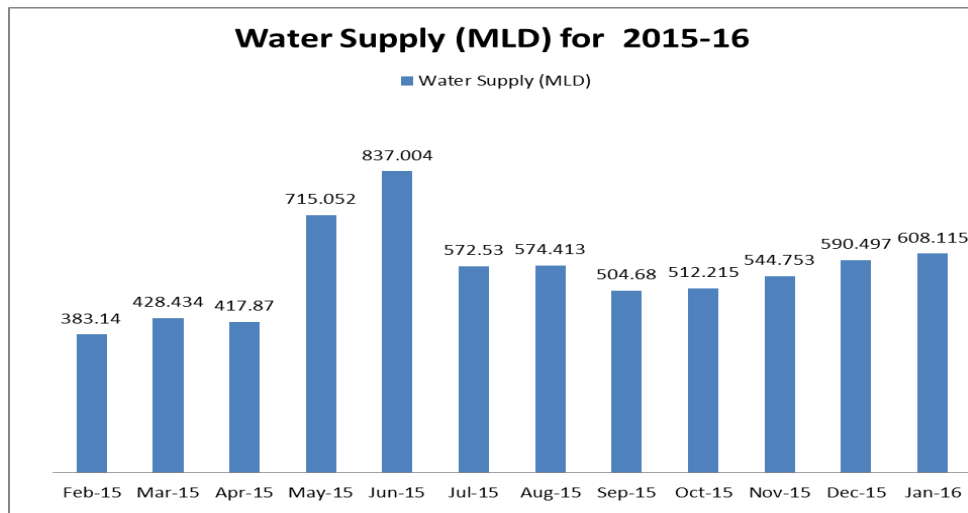


Figure 3: Water supplied in MLD in New North zone, Surat

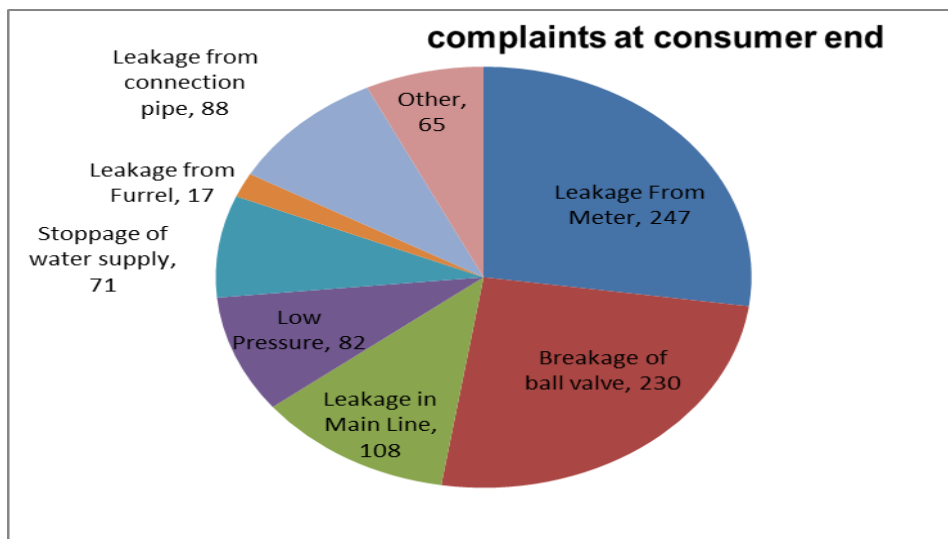
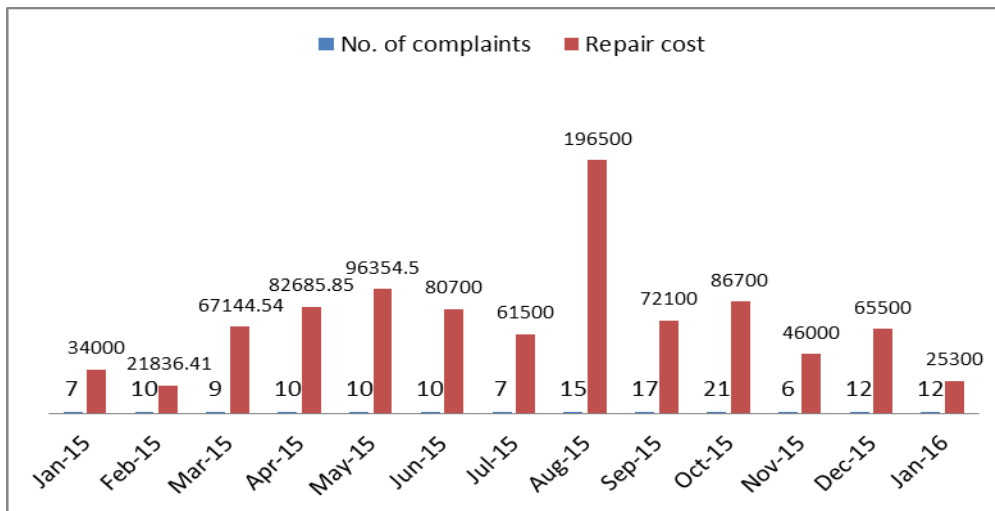


Figure 4: Complaints at consumer end in year 2015-16 in New North zone, Surat

Source: Daily Complaint sheet

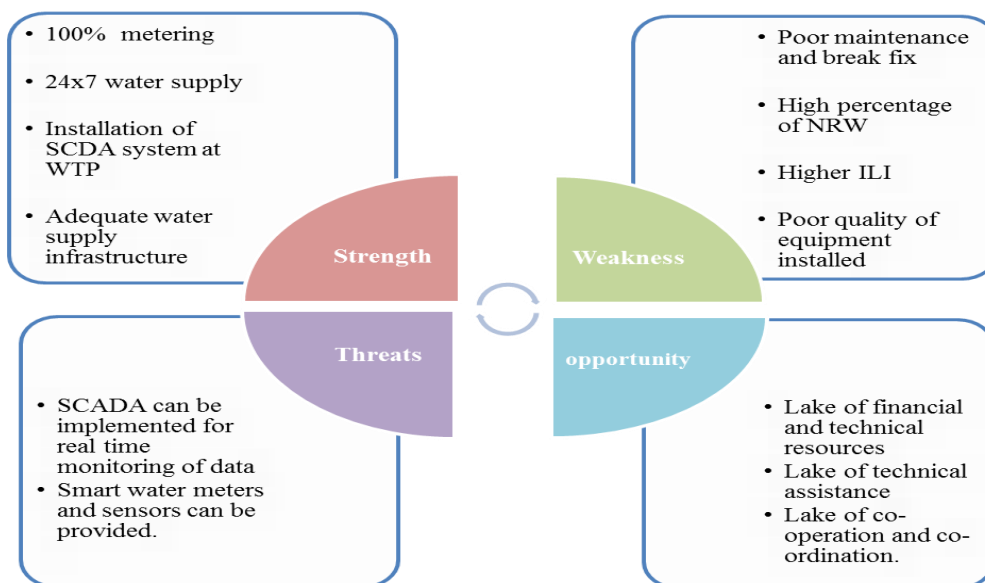


**Figure 5: numbers of leakage detected in each month of 2015-16 and cost of repair for that leakage in New North zone, Surat**

Source: Monthly record sheet of leakage repair

**Findings of SWOT Analysis**

The SWOT analysis is performed to identify strengths and weaknesses in the water supply management system of new north zone of Surat city (as internal factors) and opportunities and treats (as external factors). In specific, strengths and weakness were identified based on an overall brainstorming about the situation of water management issues for the study area. Whereas Opportunity and threats were identified by analysis of water supply system.



**CONCLUSION**

By study of existing scenario of water supply in New North zone it is found that area is having 24\*7 water supply and 100% metered connection. Water supply infrastructure is planned well to meet adequate demand of water. But quality of provided infrastructure has not been up to the mark. There is no real time monitoring of data which leads to loss of water during leakage because of time taken in detection and repair of leakage. Most of the complaints registered by consumer are about leakage so it should be a major concern of municipal corporation.

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