



Oswal Shikshan & Rahat Sangh Sanchalit  
SHREE HALARI VISA OSWAL COLLEGE OF COMMERCE  
(Affiliated to University of Mumbai & NAAC Accredited with 'B' Grade)



# **“STATUS OF WATER BODIES IN BHIWANDI CITY”**

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&  
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## BHIWANDI CITY MAP

Map data ©2018

# INTRODUCTION

- Bhiwandi is a city in the Thane district of Maharashtra state in Konkan division, located 20 km to the north-east of Mumbai and 15 km to the north-east of Thane city.
- The exact location of Bhiwandi is 19.296664°N 73.063121°E.
- Bhiwandi city, the headquarters of the taluka of Bhiwandi, comes under the administration of the Bhiwandi Nizampur City Municipal Corporation.
- The city is part of the Greater Mumbai metropolitan agglomeration.
- According to the 2011 census, the total population of the Bhiwandi-Nizampur Municipal Corporation area was 709665 people.
- In the early 16 century, Bhiwandi used to have a port on the Kamwari River and it was known as Bunder Mohalla. Was woods & Spices were traded the most from the port.
- The city is also known for many lakes and ponds, which led to commercial fisheries, recreation, & energy resource for the society.
- Nowadays water-bodies along with the anthropogenic activities, which have stressed in diverse ways has caused physical and biological disrupting to the ecosystem.

# NITI AAYOG'S REPORT 2018

India's water crisis is now official. The government's own think tank the National Institution for the Transformation of Aayog – successor to the country's Planning Commission – says 600 million Indians face **high-to-extreme water stress**

- First time that the government has officially acknowledged and given details of the country's water crisis,
- About **75% of households** do not have drinking water at home, **84% rural households** do not have piped water access, **70% of India's water** is **contaminated**, with the country currently ranked 120 among 122 in the water quality index
- By 2030, the country's water demand is projected to be twice the available supply and an eventual loss of around 6% of country's GDP.
- Under the Indian Constitution, **water is a state subject**
- India is now the biggest groundwater user in the world, and the most serious problem now is unsustainable use of groundwater coupled with neglecting or even destroying recharge systems.
- The **Niti Aayog** database says **54% of wells** in India are declining in level due to **unsustainable withdrawals for irrigation**. “States need to establish strong regulatory frameworks for managing and using groundwater,” it concludes, through “market-based interventions, such as impact bonds, that can also be explored to incentivize community institutions and users to conserve groundwater.”



# JAL SATHIS WORKS TOWARDS WATER CONSERVATION PROGRAMME



Street play by Jal sathis



Placards show at Pune



Bhima nadi cleaning



Community Awareness



Programme held at Pune



Walkathon on water conservation in Bh



Testing water sample



Creating awareness in people



Cleaning of water bodies by Jal s



# CONTRIBUTION OF JALNAYAK IN GANGA SEDIMENTATION ISSUES & WATER CONSERVATION PROGRAMMES



kalash ceremony  
water



Beginning of Jal yatra



Educating people about importance & preservation



Solving the issues of Ganga sedimentation & erosion in Malda and Murshidabad district

# SOME FACTS ABOUT BHIWANDI

There are more than 5 lakhs power looms, more than 225 dyeing, printing, processing units in Bhiwandi. Out of these 225 units, 45 units are Dyeing and printing units which carry out the printing work on clothes on a large scale. So it is called “Manchester of India”.

Bhiwandi's power loom industry used to be worth about Rs. 1,200 Crore annually.

Its economic importance is in being textile industrial hub which provide employment to approx. 10 lakh people .

With textile hub Bhiwandi is also known for its lakes and eco zones.

There are many water bodies like, Kamvari river, Varala lake, Diwan shah lake, Bhadw lake, Shelar lake, Kalher lake, Purna lake etc.

Thus with growing population and infrastructure in the city, there is also facing problem water crises, and similarly the water bodies are also getting contaminated.



# WATER BODIES OF BHIWANDI



Kopar Lake



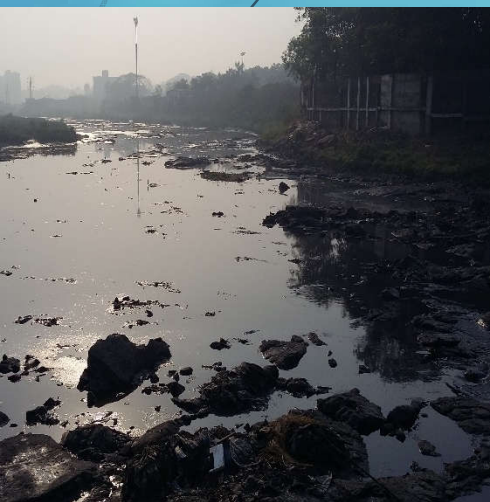
Kalher lake



Purna lake



Varala lake



Kamvari river





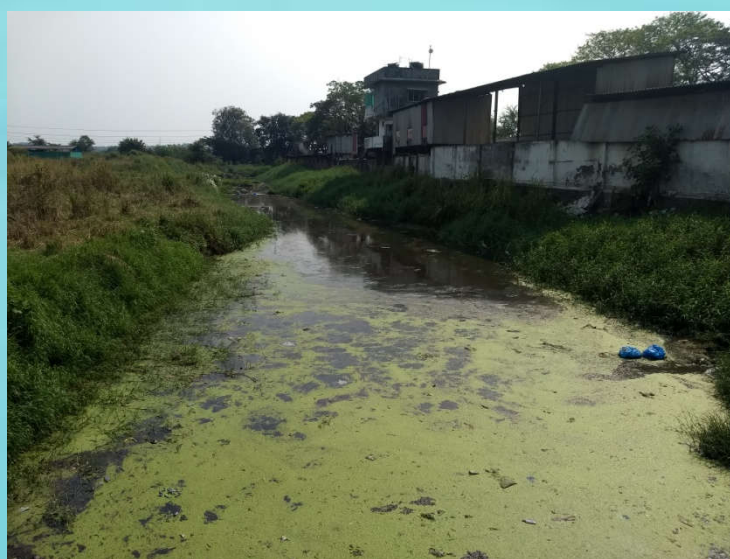
*Status of Kamwari River and its banks*



# ARJULI STREAM EUTROPHICATION

- Arjuli stream is located near **Padgha village, Taluka Bhiwandi in Maharashtra**
- It is highly polluted by waste water effluents released into it by numerous tabelas built on its bank
- Tabela waste water is enriched with Nitrogen (**N**), Phosphorous (**P**), Potassium (**K**) Magnesium (**Mg**), Calcium (**Ca**), Sodium (**Na**), Chloride (**Cl<sup>-</sup>**), Sulphate (**SO<sub>4</sub><sup>2-</sup>**), Nitrite (**NO<sup>2</sup>**), Phosphorous pentaoxide (**P<sub>2</sub>O<sub>5</sub>**).
- These elements have nutritional effect on the living organism and leads to Eutrophication of the water body.
- *Eutrophication is an enrichment of water by nutrient salts that causes structural changes to the ecosystem such as: increased production of algae and aquatic plants, depletion of fish species, general deterioration of water quality and other effects that reduce and preclude use.*
- The locals stated that during March- May, there is **increase in temperature of water** which leads to cause **bubbling in water stream**.
- Abundance of organic substances gives the water **disagreeable odors** or tastes, barely masked by chlorination in the case of drinking water.
- It is seen that there is **reduction in aquatic biodiversity** such as fishes and other aquatic and amphibian organisms due to increasing **hypoxia** and increase in **fungal and cyanobacterial growth**.





## Eutrophication in Arjuli Water Stream





# CLIMATIC CONDITION IN BHIWANDI

On average, the temperature in Bhiwandi is always high.

A lot of rain (rainy season) falls in the months: June, July, August and September.

Bhiwandi has dry periods in January, February, March, April, May, November and December.

On average, the warmest month is November.

Recently Bhiwandi recorded highest temperature of 41 degree Celsius

On average, the coolest month is January.

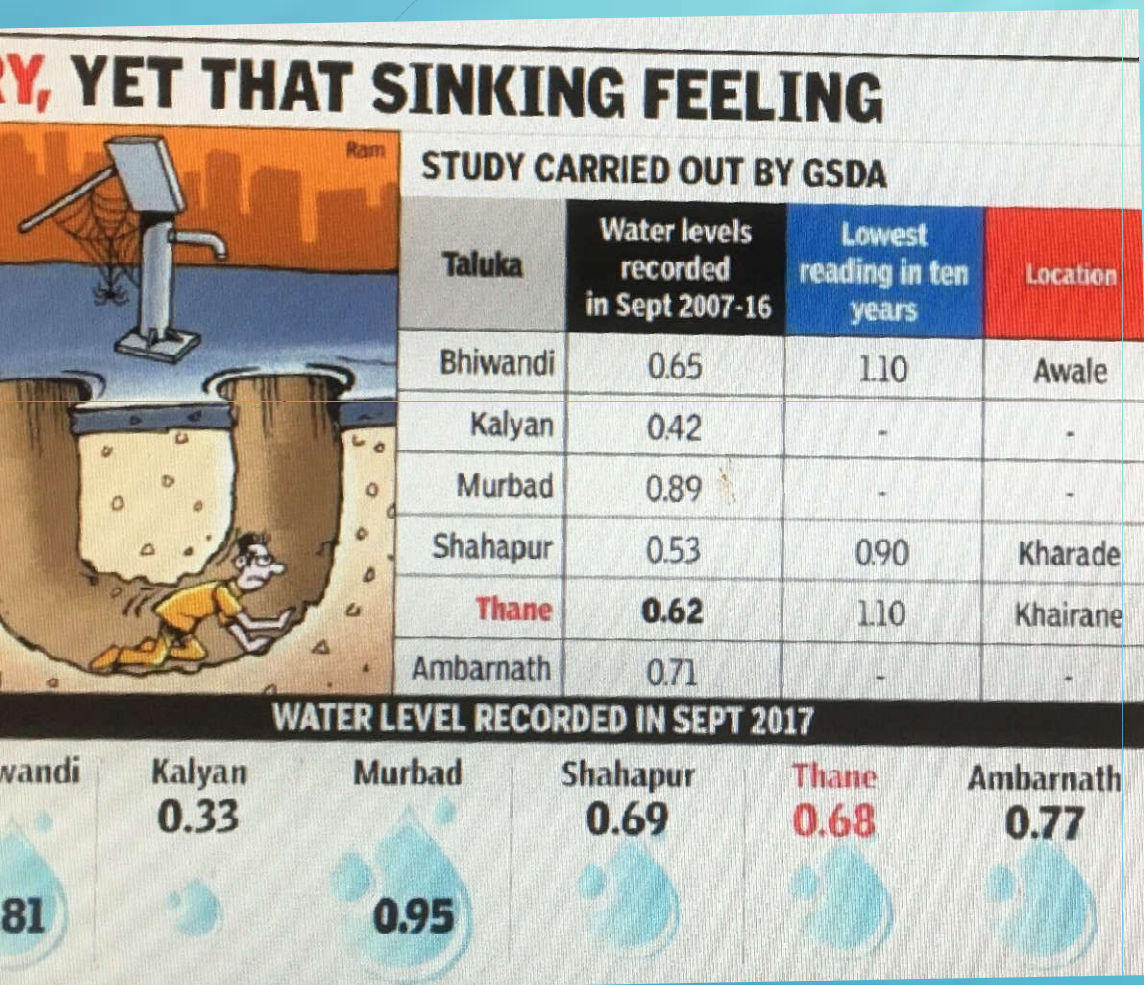
Bhiwandi receive about 2722mm of rainfall annually.

Average ground water level in Bhiwandi taluka is 1.10m as compared to the decade average of 0.74m.

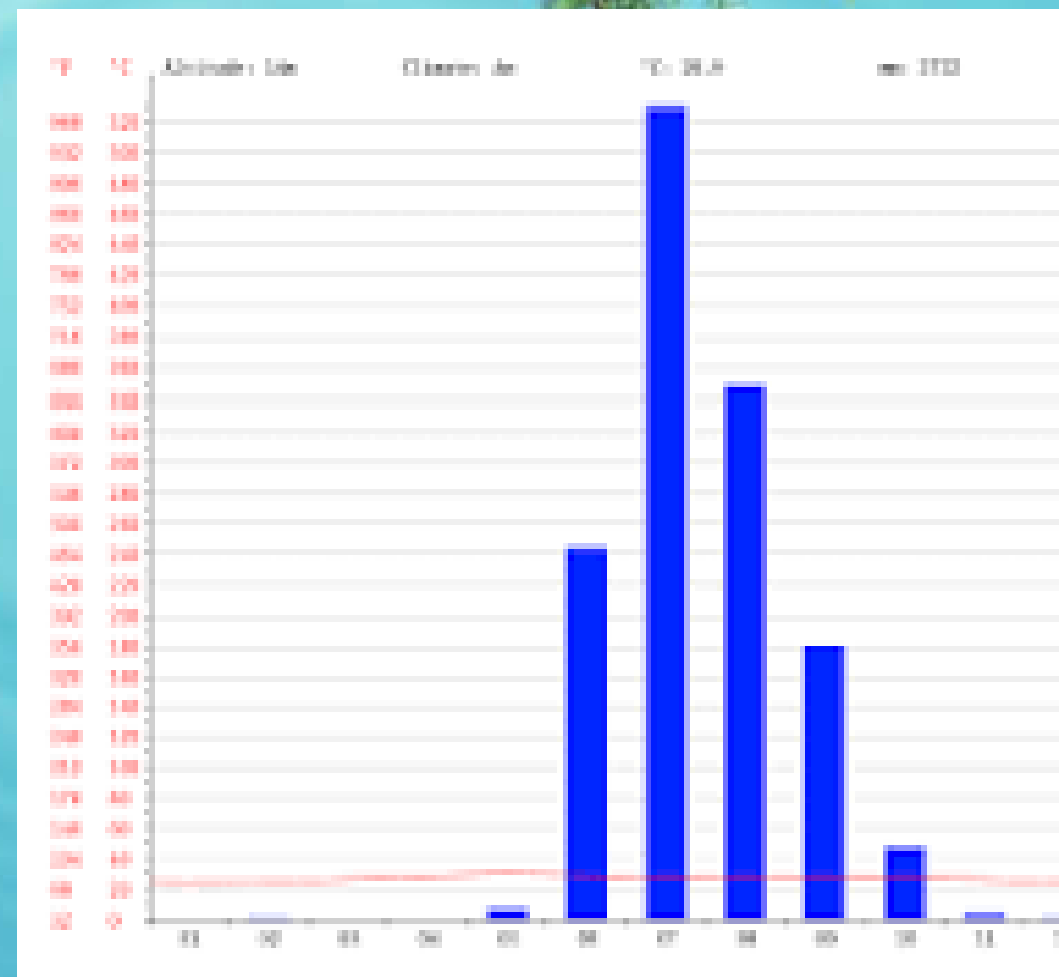
Also this city receive daily 20 million litres (mld) water. And the need is increasing day by day



# AVERAGE RAINFALL & GROUND WATER LEVEL IN BHIWANDI



Ground water level



Average Rainfall

# BHUJAL GAATHA





# REASON OF WATER CRISES IN THE CITY

Lots of water is utilized by the textile looms and dyeing industries.

Approx. 1900 Mm<sup>3</sup> of water is used for washing clothes in dyeing and looms.

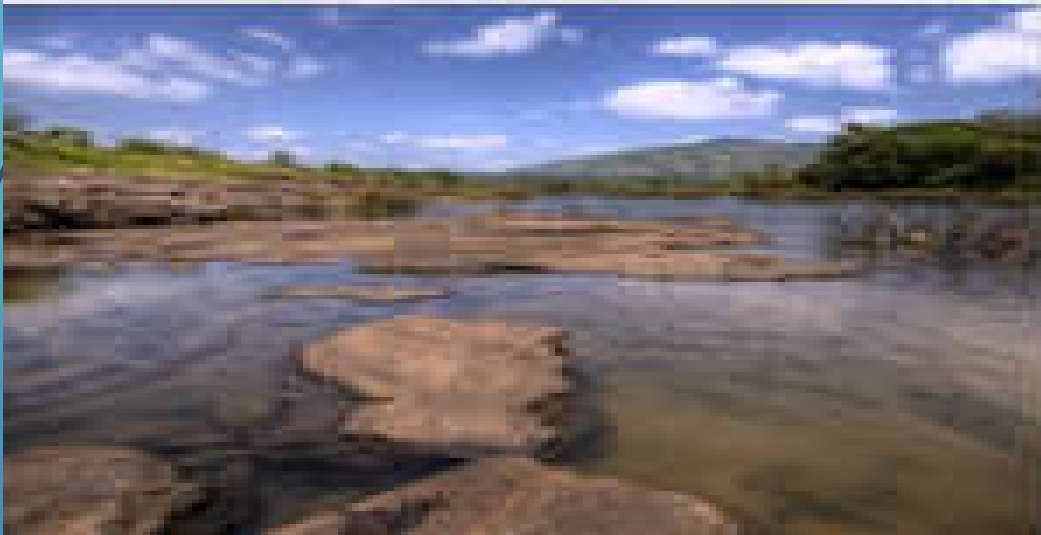
Daily 1000 of litres water from wells is supply to this looms and industries by many tankers service providers.

In Bhiwandi there are more than 500 tankers which provide water daily to the textile zones.

In slums and residential areas there is lots of illegal water connection due to which city people are facing problem of water crises.

# WATER PROJECT UNDER BNCCMC

- Project under PPP scheme - Source production  
Source 1 – Atkhipilli, Kanwadi river
- Revamping the existing Water Treatment Plant (WTP) at Padgaon and construction of MBR





# RECOMMENDATIONS

- ▶ To manage this water bodies programme like protect, restore, monitoring, awareness should be carried out at each level.
- ▶ Increased interaction between people and various agencies for co-ordinated efforts for rejuvenation, restoration of the water bodies.
- ▶ Create buffer zone & sewage treatment for protecting this water bodies.
- ▶ Involve school & colleges, research institutes and community for the study and understanding various components for comprehension of aquatic ecosystem restoration goals, and methods.
- ▶ The active participation of educational institute may value the opportunity for hands – on environmental education further monitoring of water bodies provides a vital inputs for conservation and management

# Line Of Action For Transformation

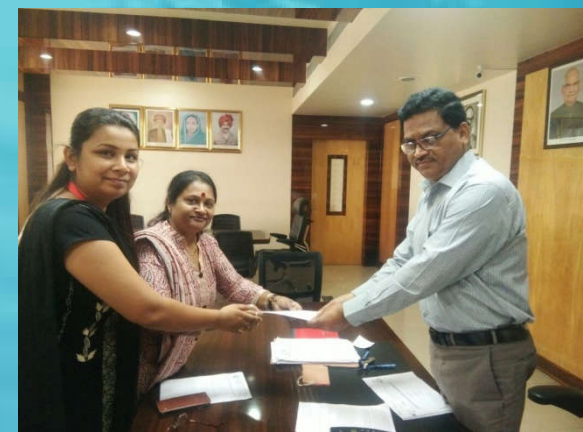
- On 7<sup>th</sup> September 2018, Meeting held with *Collector Shri Rajesh Narvekar* regarding the Kamwari river dried up and urgent desilting need.

Meeting was resolved with urge to send notice asking for accountability from MPCB, MMRDA, Bhiwandi Corporation, BDO and Zilla Parishad for the work done and taking corrective measures. So that integrated approach and plan can be drawn and executed with above mentioned govt. agencies.

- On 09/08/18 Meeting was held with *Commissioner of BNCMC, Manohar Hire and Mayor of Bhiwandi Nizampur City Municipal Corporation (BNCMC), Mohammed Javed Gulam Dalvi*. In this meeting collaboration was established for working towards water recharge, rejuvenation and conservation. Also Mayor approved for displaying iron boards at different sites of the water bodies. (Kamwari River, Varala Lake, Khoni Lake, Diwanshah Lake, etc.)



Meeting with Collector Rajesh Narvekar



Meeting with Commissioner of BNCMC, Manohar Hire



# REFERENCES

<http://spml.co.in/business/bootppp/waterprojects/waterproject01.htm>

<https://weather-and-climate.com/average-monthly-Rainfall-Temperature-Sunshine,bhiwandi-maharashtra-in,India>

<https://timesofindia.indiatimes.com/city/thane/alarming-drop-in-underground-water-stock-thane-district-levels-at-5-year-low/articleshow/61896672.cms>

Ramachandra, T.V., Mahapatra, D.M., Samantray, S., Joshi, N.V. (2013). Biofuel from Urban Wastewater: Scope and Challenges. Renewable and Sustainable Energy Reviews. 21:767-777.

Mahapatra, D.M, (2015). Algal bioprocess development for sustainable wastewater treatment and biofuel production, PhD Thesis, IISc, Bangalore, 2015

Mahapatra, D.M., Chanakya, H.N., Ramachandra, T.V. (2013). Treatment efficacy of Algae based sewage treatment plants. Environmental Monitoring and Assessment. 185:7145-7164

- We would like thanks Dr Rajendra Singh ji for his guidance and valuable suggestion on water crises problems face by the city of Bhiwandi and helping us in the restoration and rejuvenation of water bodies in the city.



**Dr. Rajendra Singh**  
Water man of India

**Magsaysay Award & Stockholm water prize winner (Nobel Prize in Water)**

# THANK YOU