INDIAN WATER WORKS ASSOCIATION, MUMBAI CENTRE

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# DROPLET

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## *from Chairperson Desk*

Hello IWWA Mumbai Centre members,

Greetings on the occasion of release of this Droplet Issue.

As per Indian category of seasons of a year, we are in Vasant (Spring) to be followed by Grishma (Summer). These months are critical for preparation for next monsoon from cleaning our drains to creating pondage from water storage. We appeal all concerned individuals / authorities to take up the task with enthusiasm of fulfilling of these social commitments and duties.

As per KPMG report, On an average, cities spend US$0.62 per cubic meter of storm water drained. The average city spends US$11,283 per kilometre of storm water network. As cities experience more extreme weather events, regardless of their cause, they need to spend more on storm water drainage and seriously consider innovative ways in which to divert water. At the same time, it is very much essential to clean the storm water network asset. As per information available from Hindustan Times news, Brihan Mumbai Municipal Corporation, Stormwater drains department have spent around Rs 1,888.11 crore of its total budget between April 2016 and March 2019. Considering the nationwide expense on these activities, innovative ways are required to prevent clogging of drains at initial steps. Public awareness, which is at large missing in underdeveloped countries that include our country as well, need to be created with participatory approach. IWWA Mumbai Centre shall offer their platform for all such initiatives.

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## *Editor Brief*

World Water Day, is celebrated on 22nd March every year since 1993 to raise awareness about the importance of water and educate people to conserve it. The theme of World Water Day this year is "Groundwater, making the invisible visible". Groundwater is invisible, but its impact is visible everywhere. Out of sight, under our feet, groundwater is a hidden treasure that enriches our lives.

Groundwater is water found underground in aquifers, which are geological formations of rocks, sands and gravels that hold substantial quantities of water. Groundwater feeds springs, rivers, lakes and wetlands, and seeps into oceans. Groundwater is recharged mainly from rain and snowfall infiltrating the ground.

Life would not be possible without groundwater. Most arid areas of the world depend entirely on groundwater. Groundwater supplies a large proportion of the water we use for drinking, sanitation, food production and industrial processes. It is also critically important to the healthy functioning of ecosystems, such as wetlands and rivers.

India is water-stressed due to changing weather patterns and repeated droughts. And the worst sufferes of this crisis are mostly women. As many as 256 of 700 districts in India have reported 'critical' or 'over-exploited' groundwater levels according to the most recent Central Ground Water Board data (from 2017). As per GEC 2015 report, out of 6607 number of assessed administrative units (Blocks/ Taluks/ Mandals/ Districts), 1071 units are Over-exploited, 217 units

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# Expert's Article

**Shri Jeevan Patil**
MCGM

## Large Size Tansa Water Main Repairs - Challenges & Solutions by MCGM Engineers

Tansa main pipeline is more than 100 years old & laid during British rule. It is supplying water to Mumbai since many decades. It brings water from Tansa dam to Island city i.e G/South & G/North ward areas. The total length of Tansa main pipeline is approximate 100 Km. Diameter of water main is 1450 mm and 5 feet tall person can stand inside the pipe.

The Municipal Corporation of Greater Mumbai (MCGM) Hydraulic Engineer's Department received a message on 18.11.2020 at 8.00 am that the water main had leaked in the middle of the road and cavity was created on the road at Gawade chowk in G/South ward. MCGM team immediately arrived at work site with all the machinery. It was observed that cavity has created due to leakage in the middle of road. Near to water leak point was a flyover of lower Parel with construction work going on and there was only one option for commuters travel. The leak detection team showed the location of the possible leakage point using ultrasonic sound rod method. The excavation work started with help of JCB and 15 to 17 feet down the work was hampered by the obstruction of Tata Power's high voltage power lines casing. The work was complicated by the fact that the main water main was likely to have leakage under the SWD main sewer line. The SWD and main sewer were damaged & there was possibility of further damage during the excavation.

On 19.11.2020, a second trench was dug in front of Railway Gate workshop. At a depth of 21 feet, the upper part of the Tansa East water main was found below the SWD line. On dated 20.11.2020, concrete encasing was broken with help of electric breakers at the top of cast main and 25 feet deep excavation was carried out with the help of poclain machine which was specially called for this repair work.

After cleaning the water main on 28.11.2020, large holes at four places on water main and leakage were observed. The leakage was temporarily arrested by plugging wooden plugs and wedges. MS patch plate was fitted with rubber packing and it was properly supported by screw Jack and the leakage was completed closed.

On 24.11.2020 while the water was being pumped by the pump, it was noticed that leakage water was coming to the bottom of the water main and another leakage was likely to be ahead. While digging further under the water main, an attempt was made to locate the leakage but hard rock was found below and further excavation was not possible. The leakage repair work was not an option but to go inside the water main. Accordingly, it was decided to dig a new trench on other side on Tansa west water main and make a Manhole. This enabled entering inside the water main to find out the leakage.

On 26.11.2020 & 27.12.2020, a 15 feet excavation was carried out with the help of JCB and poclain machine. Shoring plate was fixed inside the trench for safety purpose. Water main was welded with two manholes of 24 inch diameter. One can draw water inside the water main with the help of a pump and the other manhole can be easily repaired by the workers without disturbance of pump. On 01.12.2020, all the machinery required for repair was taken to the work place and they were properly arranged. Some submersible pumps & generator were placed to pump water from the manhole at Ambika Mill. A 24 hours of isolation period was taken from 02.12.2020 at 8.00am to 03.12.2020 at 8.00 am for this repair work.

On 02.12.2020 at 8.00am the first manhole of 24" dia was cut by an air plasma machine when main valve on the Tansa East and Tansa West was closed. High Volume dewatering pump (Wadia) and other submersible pump were used in the manhole and water was pumped out. When water level dropped, another manhole was cut and pumping was started. Dewatering from water main continued for 6 hours. When the water level was significantly low, the repair personnel entered the water main with safety belt, other safety equipment as well as advanced CCTV crawler camera to monitor the internal condition of water main and it was inspected from all sides.

A large leakage spot was found 15 feet from the manhole. The leakage was completely closed by first plugging wooden wedges from the inside and then welding properly. Also, at a distance of 25 feet ahead it was observed that there were five large holes in the bottom of the water main. The repairs were externally complex and relatively challenging. The work was completed in a planned and efficient manner before the end of the isolation period.

Feature and benefits of Tansa East water main repair.

1. Repair work has been completed with Isolation period from 02.12.2020

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# Imparting On Site Education- Field Visits for Engineering College Students

**A. Visit to Badalapur Water Works**

Indian Water Works Association (IWWA) Mumbai Centre arranged a Site Visit on 18/02/2022 at Water Treatment Plant, Badalapur for student members of Saraswati Engg College (SCOE) and Datta Meghe Engg College (DMCE). Total 93 students from DMCE and SCOE College along with two Faculty members namely Dr Smita Patil, Dr Pooja Somani and IWWA Mumbai Centre & MJP officials visited Badalapur barrage water works.

Visit was planned and executed in a very good manner. IWWA Managing Committee Members Mr U V Paranjape and Mr A S Ghadge accompanied the students during site visit. Technical elaborations from team of officials of MJP, Ambernath Division were very informative and nicely taken by students.

**B. Visit to Ferrocement Tank at Karjat**

Three students from Saraswati Engineering college visited on 17th Feb 2022 to study the construction of Ferrocement tank at Karjat Dist – Raigad. Ferrocement tank of 10' dia & 4' height has been constructed for farmer Shri Vishnu Gavanda at Gavand Wadi with Participatory approach by Jalvardhini Pratisthan. The students participated in reinforcement making, placing process and observed the cement lining work.

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## Editor Brief

are Critical, 697 units are Semi-critical, and 4530 units are Safe (Ground Water Assessment, 2011). Apart from these, there are 92 assessment units which are completely saline. Number of Over-exploited & Critical administrative units are significantly higher (more than 15% of the total assessed units) in Delhi, Haryana, Himachal Pradesh, Karnataka, Punjab, Rajasthan,Tamil Nadu and Uttar Pradesh and also the Union Territories of Daman & Diu and Puducherry.

We must protect them from overexploitation – abstracting more water than is recharged by rain and snow - and the pollution that currently haunts them, since it can lead to the depletion of this resource, extra-costs of processing it, and sometimes even preventing its use. Exploring, protecting and sustainably using groundwater will be central to surviving and adapting to climate change and meeting the needs of a growing population. As climate change gets worse, groundwater will become more and more critical. We need to work together to sustainably manage this precious resource.

***- Er. Dilip Sonwane***

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## Tansa Water Main Repairs

8.00am to 03.12.2020 at 8.00am (24 Hours)

2. Millions of litters of water saved due to this repair.

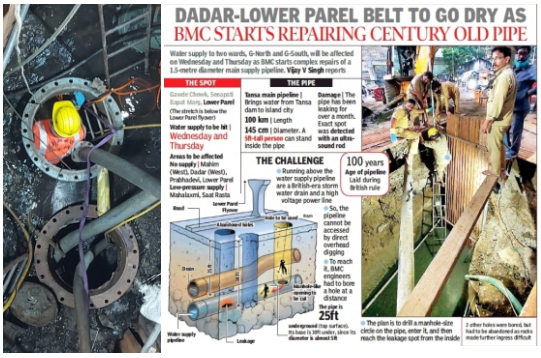
3. The water supply in the surrounding area was ensured with high pressure.

4. The water pressure in the water main has increased by 4 to 5 pound watch was pointed out by the officials of G/South ward.

5. Due to the two manholes installed on this water main. If the water main needs to be repaired in future, it will be easier to go inside and repair this water main without major excavation and without obstructing the traffic.

**Acknowledgements**

Hon'ble Additional Municipal Commissioner (Project) Shri P. Velrasu , Hydraulic Engineer and Deputy Commissioner Shri Ajay Rathore provided guidance for this work. Under the leadership of Assistant Engineer Water Work (ERC) Shri. Jeevan Patil, Sub Engineer Amit Hatwar, Junior Engineer Vaibhav Gawade & Ashwini Mohite and other ERC labourers worked tirelessly day and night for the repair work. Hon'ble AMC(P) Shri P. Velrasu and Hydrulic Engineer & DMC(SE) Shri Ajay Rathore visited the site and inspected and expressed satisfaction over the repair work.

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## *from Chairperson Desk*

To mark the coming out of Covid-19 imposed restrictions, IWWA Mumbai centre celebrated the World Water Day ( 22 March 20222) on 29th March 2022 at IWWA HQ Seminar Hall. In the event organized, we felicitated IWWA 54th convention award winners from Mumbai Centre.

Er. M V Domkondwar- Shri P N Patki Memorial Prize, Mr. Shubash Dalvi- Linga Raja Das Memorial Trophy, Er. Niranjan Khanolkar- Best Delivered Lecture Datta Meghe Cllege of Engineering- Certificate of Appreciation (Youth Forum for Water) Soon, we shall launch more events for members active participation.

Stay safe and healthy.

***- Er. Maniessha Palande***

# NEWS ROOM

## Annual General Body Meeting

The 40th Annual General Body meeting (AGM) of IWWA Mumbai centre was held on 29/01/2022 in virtual mode.