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DROPLET

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MUMBAI CENTER

- **Er. Maniessha Palande**
- Chairperson
- **Er. Pramod Dalvi**
- Hon. Secretary

EDITOR

- **Er. Dilip Sonwane**
- **Dr. Ulhas Naik**

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from Chairperson Desk

Hello members,

With a great pleasure, we are presenting you the August-September Droplet issue. I suppose we together are enjoying sharing Mumbai centre progress, forthcoming events and suggestions exchange. We recently organized events on storm water management, Flora and Fauna around Mumbai. It was a small attempt by IWWA Mumbai centre to create awareness about incredible biodiversity in Mumbai which needs to be appreciated and conserved.

Storm water management in Mumbai city is a challenge because of the topography and surrounded by the sea. It was a informative webinar giving insight in to challenges and projects undertaken by MCGM to tackle the issue. Our vibrant youth forum organized a quiz competition on Water Supply Engineering which received a thumping response from various engineering colleges with more than 300 participants. We shall be signing MoU with Jal Wardhini and Vasundhara as Engineers Day celebration for jointly making wide spread and enhance participants of various spheres.

Keep sharing your views and make use of this platform for betterment of our society.

-Er. Maniessha Palande



Editor Brief

In last two decades, our country has witnessed phenomenal growth. Due to these developments the vacant land is being transformed in to cities or industrial estates. These transformations change the land use pattern, flora, fauna, jungle/vegetation cover for the region or habitations. The changes in ground cover is reducing the percolation of rainfall, more runoff generation resulting in flooding of existing drains, water courses & habitations. Simultaneously, the climatic changes is adding more rainfall of short durations, flash floods, cyclones, storms and changes in rainfall pattern.

In September 2015, the United Nations General Assembly adopted the 2030 Agenda for Sustainable Development that includes 17 Sustainable Development Goals (SDGs). The Goal 11 & 13 are more related to urban floods and climatic changes.

Goal No 11 refers to making cities and human settlements inclusive, safe, resilient and sustainable. Goal 13 refer to taking urgent action to combat climate change and its impacts.

The urban planners and infrastructure developers need to address these issues at planning stage. A well thought planning process is required to create better, livable, resilient and sustainable cities. We will continue discussions with all stakeholders on these aspects through webinars and articles.

- Er. Dilip Sonwane



Stalwart's Advise

Shri U M Paranjape

Trustee Jalvardhini Pratisthan

Innovative Coir Fibre Tanks

Tanks are required for storage of rain water or other source water at Village Level.

Natural Fibers are locally available & it is a renewable resource. It is converted into useful material by using it in water retaining structures or Tanks. The renewable material which has been used includes Coconut coir, Banana Fiber, Ambadi (Flax) Fiber, Jute Fiber, Kumiya & Keven Fiber.

These Fibers are used as Crack controlling and or as bonding material in construction of water retaining structures below Ground.

During visit to Mr Vinay Kothari's Factory near Bangalore in 2002, I have seen a piece of coconut coir mat with cement sand mortar. By mistake

someone had poured cement mortar over coconut coir on previous day. After observing that piece of coir with mortar, I thought of using it as a pond lining.

The following procedure was adopted. Excavating a pit as per angle of repose and then applying a layer of cement sand mortar. Afterwards spreading evenly coconut coir or cocomat (a thin layer). The coconut coir is soaked with cement slurry and then plastering it with cement and sand mortar in proportion of 1:3. With this process, the results were encouraging.

Hence 1st Tank was developed at Shri Ketkar's Farm at Badalapur. In 2003, Dr Date and Prof Sohoni from CTARA-IITB liked the idea and they arranged funds for 2nd Tank of 10,000 litre

capacity in Taluka Karjat Dist Raigad in 2004. Afterwards, many similar tanks were constructed using various Natural fiber mentioned earlier up to 40,000 Litre Capacity.

During Seminar by Rural Technology Action Group (RuTAG) at IIT Bombay in 2012, the use of Natural Fibers was explained and along with need of further study on Natural Fibre Cement technology. RuTAG IITB approved the proposal and study on scale down models was completed. Nine tanks of size 1.5m X 1.5m at Top, 0.5m X 0.5m at Bottom and Depth 1.0 m. were cast for study at IITB near Hydraulic Lab. The objective of the study was to identify which of the above material will give least Percolation or best suitable for use in construction of underground water

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Mama Talav (मामा तलाव) - A Rich Heritage of East Vidarbha

Er. Dilip Sonwane,

Associate Vice President, Tata Consulting Engineers



East Vidarbha including Chandrapur, Bhandara, Gondia have rich heritage of water conservation and management. There are thousands of traditional lakes in East Vidarbha districts of Maharashtra. Rice production is the main crop in this area. These districts are known as Districts of Lakes. Every village in

these districts have minimum one lake. These lakes are known as Maji (Ex) Malgajari tanks or Mama lakes. There are two types of water storages which are known as Talav (तलाव) and Bodi (बोडी). Talav is large water storage structure having proper bunding and used for irrigation and other household activities. Bodi is small water storage constructed inside paddy farms for storing the rainwater and using it later for the same farm. Both lakes and Bodi stores rainwater which is utilised for paddy fields. The percolation from these lakes helps in maintaining the ground water level in surrounding area.

These lakes were created about 350 years ago. The Gond (गोंड) King Hirshah ordered the construction of water bodies and reward programs for those who constructs them. The

local Kohli (कोहली) community having skills in site selection have played major role in construction of these lakes. These lakes have major contribution towards irrigation in this area, fisheries and these lakes have been constructed considering topography of the area. The site where minimum bunding is required has been selected to create the water impounding. The farmers or beneficiaries contribute to clean the bed of tanks, desilting activities, cleaning of channels, overall maintenance and decision making about release, use of water from these lakes. Later, the Malgajari method got abolished and these lakes have been transferred to Irrigation department and Zilla Parishad depending on capacity of lakes.

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World Nature Conservation Day Celebration : 28th June 2021 Webinar on Flora & Fauna in & around Mumbai



The World Nature Conservation Day is observed annually on

July 28. The occasion aims to create awareness about the need to preserve the environment and natural resources in order to keep the world healthy.

The Indian Water Works Association, Mumbai Center has organized a webinar on the eve of World Nature Conservation Day on 31st July 2021.

The Webinar was focused on "Flora and Fauna in and around Mumbai.

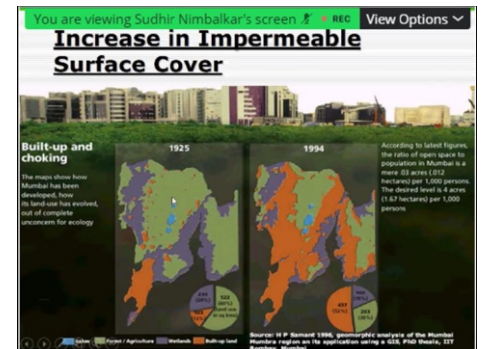
Dr Sudhir Gaikwad, a hardcore Wildlife Photographer spoke on Avifauna of the Thane Creek. He shared experiences on large Thane

creek including Flamingos Bird Sanctuary, photographs taken at various locations, migratory birds, shared photographs of many bird types. Shri. Divakar Thombre, presented on World of Butterflies, his experience & photographs during his travel to North East and Maharashtra state. The webinar had good presence of professionals and nature lovers.

Webinar on **STORM WATER MANAGEMENT** : 28th August

The Indian Water Works Association, Mumbai center has arranged a Webinar on "Storm Water Management Concept and Practical Approach" on 28th August 2021. Er Sudhir Nimbalkar from Municipal Corporation of Greater Mumbai (MCGM) delivered a presentation. The webinar has good response with presence of over 50 students, engineers and professionals. Er Nimbalkar shared the changes occurred on ground surface in

MMRDA region as developmental projects occupied more lands. He presented on the Mithi river development works and widening of river up to 100 m which will increase the carrying capacity up to 3 times the earlier situation. The discussion on highest rainfall data of Mumbai and other similar places, high tide impacts, type of drains, history, vast drainage network has attracted lot of interest and enthusiasm among participants.



FORTHCOMING WEBINAR : 26th Sept 2021

Engineer's Day Celebration on 26/09/2021. Webinar on @Koyna Lake Tapping@ by Er. Rajnish R. Shukla.

RECENT EVENTS DURING THE YEAR 2021-22

30th April 2021

Solid Waste Management covering BOT Annuity Model For 100 TPD MSW Plant in GOA , Dry Waste Management Model in Mumbai and success story of Vengurla Municipal Council .

14th May 2021

Catch the Rains covering Necessity of Water Conservation for Sustainability, Emerging technologies in rainwater harvesting and water conservation, Government initiatives in Rain Water Harvesting, Regulations of ground water use and various Case Studies on Rain Water Harvesting techniques.

5th June 2021

World Environment Day was celebrated in remembrance of noted Environmentalist Late Shri Sunderlal Bahuguna. The webinar covered a presentation on forests, mangroves and wildlife conservation, a case study on Decentralized WWTP on PPP Mode and plastic waste collection, tracking and benefits to housing societies.

The results of Poster Competition was also declared.

Stalwart's Advicecont'd from Page 2

retaining tank. Coconut coir of 250 gm/sqm, 300 gm/sqm, 400 gm/sqm, 500 gm/sqm, 600 gm/sqm and Banana Fibre and Ambadi Fibre were used in construction of Tank.

Recommendations after 2 years of observations in August 2015

Presently, for water tank construction in rural watersheds, available technologies are based on reinforced cement concrete, brick, masonry, Ferrocement and Plastic Tanks. These techniques are expensive and poor farmers cannot bear it, the natural fibre based tank should be promoted in the rural watershed management schemes. The fibre based construction techniques are highly cost effective and more Environment friendly. The Coconut fibre 300 gms /sq.m based water storage tank has been recommended.



Mama Talaocont'd from Page 2

However, few lakes are still owned and managed by village people on co-operative basis. The efforts are happening for the restoration and preservation of these lakes. These Mama lakes give insight of rainwater storage, usage, learnings and wayforward on centralised and

decentralised water management practices.

Reference : Conservation and Management of Water Bodies ...by SV Bhandarkar, G T Paliwal etc.



NEWS ROOM



A. Dr M Satyanarayana, Hon. President, Er Pramod Kumar Sinha, Hon. Vice President, Er D B Panse Hon. General Secretary, Hon. Directors Dr D Hanumantha Chari & Er Ramesh Bambale are welcomed by IWWA Mumbai Centre Chairperson Er Maniessha Palande and Er. Pramod Dalvi, Secretary at HQ Conference Hall on 05/09/2021.

B. The Management Committee meeting of Mumbai Centre held on 28/08/2021 on virtual mode.

C. Datta Meghe College of Engineering,, Airoli, Navi Mumbai, Youth Forum IWWA Mumbai Centre organised a "Quiz Competition on Water Supply Engineering" on 2nd Sept 2021.

D. Saraswati College of Engineering, Youth Forum Students Chapter for IWWA Mumbai Centre organised a Webinar on ""Disaster Management & Monsoon Preparedness" on 8th Sept 2021.



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