INDIAN WATER WORKS ASSOCIATION, MUMBAI CENTRE

IWWA MC YouTube - https://www.youtube.com/channel/UCyV5ztX7fl4Fv6ksP7m_Emg

DROPLET

VOLUME-I · ISSUE-XI · JAN. 2023

www.iwwamumbai.info

CONTENTS

from Chairperson Desk

Lakes have traditionally served human habitations as water source for drinking, household uses like washing, for agriculture, fishing and for religious and cultural purposes; are an intrinsic part of the eco system. They also help us to recharge ground water, channelize water flow to prevent water logging and flooding, besides hosting a wide variety of flora and fauna. Especially, Urban Lakes are very important feature in the landscape and offer various recreational opportunities. However, the first victims of water pollution from sewage are the Water Bodies like ponds, lakes across the Globe.

The Lake Restoration are very vital for obvious reasons and the techniques involve two-fold approach, preventive and Treatments. While preventive measures may include Drainage Basin alternation, Diversion of Waste and Legal Control on pollutions, the treatment methods can be adopted outside of lake or the inside of lake, or appropriate mix. Both methods can be distinguished in physical, biological, and chemical categories. Duckweed based treatment, Constructed wet land, Phytorid technology and Soil Bio Technology (SBT) are technologies which are combinations of various treatment methods.

AMRUT 2.0 launched in October, 2021, with a total outlay of Rs. 2,99,000 crore

...contd. on page 4

Editor Brief

The annual convention of Indian Water Works Association was held at Pune recently between 20th to 22nd Jan 2023. There has been good discussions on Jal Jeevan Mission, Amrut projects leading to better service coverage and 24 x 7 water supply systems. For planning the water projects, data on existing assets plays an important role during design and project formulations. Mapping is a pre-requisite for movement towards 24x7 and better system management during operation phase of the project.

The water supply system in some of the cities in India is dates back to 100 years or more. The increasing population and urbanization has resulted in expansion of these water supply systems from time to time. Additional pipelines have been laid to cater to the expanded urban areas without integrated database creation and/ or updation. The distribution network is normally underground for which data availability is poor though larger transmission pipelines may be visible and details of which may be available.

The topographical survey gives data on existing properties, newly added areas, road extensions, alignments, plans, contour levels, etc. In addition to this, the data on utilities need to be collected from various sources. For the underground pipelines, other methods like pipe location by using special equipment need to be employed for

...contd. on page 4

Expert's Article

WHETHER 24 x 7 WATER SUPPLY ???

COL. BHASKAR TATWAWADI (Retd)
M AWWA, M ASCE, LM IWWA, MIE

The CPHEEO issued the Guidelines for Planning, Design and Implementation of 24 x 7 Water Supply Systems in December 2021 prepared by the Expert Committee, under the Ministry of Housing and Urban Affairs (MoHUA) to handhold States and Cities to disseminate knowledge and guide them in transitioning from Intermittent to 24x7 water supply systems with drink from tap facility!

To meet Sustainable Development Goal (SDG) 6 and to extend ease of living in water supply sector, AMRUT 2.0 was launched by Government of India on 1st October 2021 to make cities 'water secure' with water supply to all urban households. Cities were mandated to undertake reforms such as reducing Non-Revenue Water (NRW) to below 20%, Recycle of treated Wastewater (at least 20% of total demand) and 40% for industrial demand followed by rain water harvesting, 24x7 water supply, PPP projects, community involvement etc.

The Guidelines in seven chapters are to be used by all water management entities in the country in their march towards water security. These include a list of the disadvantages of intermittent water supply and are followed by the design for 24 x 7 water supply, hydraulic modelling, delineating the operational zones and DMAs, optimization of the water supply network, design of the transmission mains, and reduction of NRW within the systems.

As of December 2021, the official status of water supply in the country was stated to be "…. improved sources of water had increased significantly from 72% in 1990 to 88% in 2008. In 2015, 88% of the total population had access to at least basic water, i.e., 96% in urban areas and 85% in rural areas".

The perusal of the guidelines showed the edited and para-phrased forms of the extracts derived from the old manuals of water supply and treatment compiled by the CPHEEO. Although, the primary focus of water security was stated as reduction of NRW and reclamation of wastewater to 60% of its generation, the emphasis has been shifted to the 24 x 7 water supply systems design as distinct from the existing "intermittent supply"!

There is a need to add on consumer education, the cost of producing and supplying water plus the cost of treatment and management of wastewater. City level Water Balance study is incomplete and must include surface water, ground water, storm water and wastewater and effluents generated within the city as well as Virtual Water; the invisible water imported and exported through goods and services.

The Indian families draw and store water for their daily needs in a manner that they can consume it over a 24 hours cycle. This is true for any and all quantities of water depending on availability. In every location in the country, the source of water and the quality supplied varies but the practice of storing water for the day continues. Water is thus available 24 x 7 in homes across the Indian urban

...contd. on page 3

Presentation on Innovative Design and Implementation of Water Supply Systems in India using Hydraulic Isolation Structures

Dr Pradip Kalbar, Associate Professor, IIT Bombay

During this presentation on 12th November 2022, Dr Kalbar discussed, the present challenges of water supply infrastructure in India in both urban and rural settings. The drivers for intermittent water supply were presented along with the vicious cycle of water infrastructure. The new hydraulic modeling approach for studying flow-starved water networks, challenges in the design and modeling of intermittent water supply networks, decentralized infrastructure approach, along with an innovative hydraulic isolation system was presented. Many advanced hydraulic solutions and their benefits such as low-cost and energy efficiency, success stories of implementing these innovative solutions at different places have been shared.

...Expert's Article contd. from page 2

and rural landscapes. This availability of water in homes on 24 x 7 basis is a constant while its quantity and quality are the two variables. While the hardships faced by millions of consumers to get their few litres of water are factual and deplorable, water for daily use in most households is actually available across the length and breadth of our country even without 24 x 7 water supply!

Under the Jal Jeevan Mission of the Jal Shakti Ministry; Govt. of India, substantial progress has been achieved in creation of water supply infrastructure. However, the water security seems elusive and good quality, adequate water forming the basis of the Mission; requires more efforts.

The Guidelines for 24 x 7 Water Supply state: "To meet Sustainable Development Goal (SDG) 6, ... with an objective of making cities 'water secure' ..... Cities are mandated to undertake reforms for water conservation such as reducing Non-Revenue Water (NRW) to below 20%, recycle of treated used water to meet at least 20% of total city water demand and 40% for industrial water demand, rain water harvesting, ... 24 x 7 water Supply, PPP projects, community involvement etc".

However, more focus is happening on 24 x 7 water supply involving huge budgets on metering, automation, laying of new pipes designed with peak factors and new storage tanks! There is a total lack of emphasis on other vital components, reforms etc.

The annual reservation for drinking water for urban Maharashtra is 4,843 million cubic metres against 1,033 million cubic metres in rural areas. So, urban areas get 4.7 times more drinking water whereas the urban-rural population is evenly divided. The inequity is policy driven and flows from norms set by the government. Urban areas get 135-150 lpcd while the rural areas get 40-70 lpcd. The budgets of cities for 24 x 7 water supply amount to hundreds of thousands of crores. On the other hand these cities generate hundreds of million litres of wastewater which is available within their physical boundaries and can be reclaimed for reuse AS IS ALSO MANDATED IN THE ABOVE GUIDELINES!! But this is not being done!

The financial impacts of the design of the 24 x 7 water supply schemes have not been analysed with relevant case studies. Initiatives in this area to validate the revised parameters by the academia must be initiated by the better informed and qualified and, are to be welcomed by all!

CONCLUSION

GOD created planet earth and has provided water for all with a peak factor of 4 (four)! Three months of rainfall and twelve months of consumption. Taking a laf out of nature let the focus shift to storage and security, wastewater treatment using antural and mechanical processes for local reclaimation and reuse and equitable distribution of water resources among the rural and urban areas. All water warriors and management professionals must focus on #Water #Security at the local, state and the national level!

NEWS ROOM

1. Veermata Jijabai Technological Institute (VJTI), Civil and Environmental Engineering Department organized the inaugural ceremony of the student chapter of the Indian Water Works Association (IWWA) on 14th November 2022 when VJTI has entered its centenary year in Matunga campus. IWWA is the first-ever student chapter in the department and has been declared as a Life Organization Member, with membership number LOM- 001038. The main motto behind establishing the student chapter is to provide the best platform to channelize the youth energy for the water movement. It will provide an opportunity for the students to get exposed to the knowledge and expertise of the consultants, institutions, educationalists, social services, engineers, administrators, and policymakers who are team members of IWWA, in addition to involving the students in safeguarding the interest of the water sector. Furthermore, the mission of the IWWA student chapter is to understand the views of the young generation about water resources, water quality sustainability, rainwater harvesting, conservation, water distribution, wastewater generation, treatment, etc. Also site visits , work shops, conferences of IWWA will be an opportunity for the students and faculty to learn.

2. A site visit to Bhandup Water Treatment Plant was organised under the Student Chapter of Indian Water Works Association (IWWA) by VJTI - Civil and Environmental Engineering Department for class V Diploma in Civil Engineering students on 16th November, 2022. Water treatment Plant visit was guided by 3 faculty from Civil & Env. Engg. Dept. VJTI and total of 66 students were benefitted from the site visit.

...contd. from page 1

from Chairperson Desk

targets to promote circular economy of water through development of city water balance plan for each city focusing on recycle/reuse of treated sewage, rejuvenation of water bodies and water conservation.

IWWA Mumbai centre can act a platform for knowledge dissemination on this important subject.

- Er. Maniessha Palande

...contd. from page 1

from Editor Brief

generation of data. The available equipment/ methods and their use in obtaining the data on underground pipelines, mapping, preparation of Geographic Information System (GIS) database for water supply system forms the important phase in system planning. Integrated GIS database for water supply network and its properties enhances the efficiency of planning and operations and the revenue collection. GIS tools help in mapping theft, losses and their trends.

- Er. Dilip Sonwane