

Government of India
Ministry of Jal Shakti
Department of Water Resources, River Development and Ganga Rejuvenation
(National Water Mission)

Proceedings of the Seventeenth Water Talk held on 18th September 2020

- National Water Mission (NWM) has been organizing a seminar series-‘Water Talk’ -to promote dialogue and information sharing among participants on variety of water related topics. The ‘Water Talk’ is intended to create awareness, build capacities of stakeholders and to encourage people to become active participants in conservation and saving of water. NWM has so far organized 17 ‘Water-Talks’ on the range of topics dominating the sector concerns, out of which last 5 talks have been held on virtual platform.
- **Seventeenth Water Talk** in this series was held on 18th September 2020 on a virtual platform- ‘CISCO WEBEX’ due to Covid-19 pandemic in the country. The talk that witnessed about 650 participants was organized by NWM with the help of Water Digest, the official media partner for the webinar. The talk was delivered by **Shri Vishwanath Srikantaiah, Director, BIOME Environmental Trust**. Shri U.P. Singh, Secretary (D/oWR, RD & GR) M/oJS, Shri G. Asok Kumar, Additional Secretary and Mission Director, NWM and officials of NWM attended the webinar along with more than 650 participants. The webinar included participants from across the country from various spheres of life. The talk was also live-streamed through Facebook on the 11 social media platforms of various organizations under DoWR, RD & GR. It was noted that the talk managed to engage around 60,000 people through social media platforms.
- **Shri G. Asok Kumar**, Addl. Secy. & MD, NWM, New Delhi, welcomed the speaker, Shri Vishwanath Srikantaiah and the participants to NWM’s fifth E-Water Talk. Shri Kumar in his speech, gave a brief overview of the Water Talk series and its objectives. Following the lockdown, the ‘Water talk’ series has been shifted to a digital platform. This shift has resulted in substantial increase in the outreach of the talk, both numerically and geographically. More than 600 participants have been attending the talk from across the country and outside of India. The talks have engaged 60,000 viewers on Facebook through live-streaming as well. Shri G Asok Kumar also shared updates on NWM’s ‘**Catch the Rain**’ campaign which aims to nudge people into harvesting rainwater efficiently. Under this campaign, States, Universities and major public institutions with large tracts of land have been requested to construct rooftop rainwater structures within their campus. Efficient Rainwater harvesting systems would not just help conserve water but also reduce flooding in urban areas. Introducing Shri Vishwanath as one of the significant “**Water Catchers**” of Bangalore, Shri Kumar revealed that the speaker has done notable work in the area of rainwater harvesting in the city. Shri Vishwanath and a group of like-minded experts

have been working on finding solutions to Bangalore's water problems.

- The topic of the e-Water Talk by Shri Vishwanth Srikantaiah, was “**Bengaluru- A Metropolis & its Water Management Challenges- State, Community and Citizens**”. He began his presentation by sharing a historical overview of Bangalore city's hydrogeological composition and water problems existing since centuries. Although the media reports state that Bangalore will run short of groundwater in the next two years, it is far from the truth. The problem is that of distribution and management, not shortage of water. An efficient integrated management system with partnership between institutions, individuals, communities and apartments can overcome wastewater challenges and ensure water sustainability in the urban areas of the city.
- Geology of a city plays an extremely significant role in defining the underground aquifers and how the groundwater flows. Continental drift has had a major role to play in the Indian water scenario as it created the Himalayas and became responsible for bringing monsoons to India. It is responsible for sinking of the Indo-Gangetic belt from Indus Valley to Bangladesh, making it the most fertile area in the entire world. Bangalore's 3500 million year old geological history of volcanic eruptions determines the underground aquifers; shallow, confined and deeper ones. For the part of land concerning Bangalore, geologically, it is pertinent to know that the Indian plate that separated from the African plate from Madagascar, left behind a portion of the western Ghats called the Palghat gap. The Palghat gap causes the hot air from Arabian sea to rush and drift upwards, and then reach Bangalore city in the form of a heavy downpour in the evenings, often called the “Office-rain.” As a consequence of geology, the “office rains” occur during the summer months of April- May, when rest of the country is suffering massive heat during summers.
- Another incident of historical importance is the establishment of British cantonment in 1806 that led to the introduction of pipe and underground pipe-storage system in the city. After the city was struck by a massive drought in 1876-78 leading to drying up of lakes, it was realized that local resources were inadequate to meet the demand and can't act as the main supplier of water. This caused the city's fathers to find a more reliable and sustainable source of water supply. Therefore, for the first time, technological intervention was made and a steam engine was used to pump water from Hessarghatta reservoir on the river Arkavathy to Bangalore which was 24 km away from the river. More advancements were made with the introduction of electricity in the following years to pump water and check overflowing. Following a plague in late 1890s, there was an expansion in planned localities and sewerage network system was paid attention to as sanitation was identified as the root cause of the plague.
- In 1964, the first ever specialised water supply institution in India called Bangalore Water Supply and Sewerage Board was established. The Cauvery River, about 100 km from Bangalore, was identified as a source by the institution. It is a known fact that Bangalore's water is one of the costliest in Asia at Rs. 95/KL. The production cost of water includes capital cost, distribution cost and O&M. It takes about two units of energy to get 1 KL of water to the city of Bangalore also making the carbon emission extremely high.

- Reservoir management is crucial to water supply needs of the city. Around 1450 million litres of water is tapped in a day and an additional 775 ML is expected to be tapped in the next 3 years. According to Shri Vishwanath, cities are the most efficient users of water and the treated wastewater from cities can be used in agriculture. He argues that since Bangalore contributes to 60% of Karnataka's GDP, the water needs of the city should be prioritized.
- Rainwater received by the city is equivalent to 3000 MLD per day. Shri Vishwanath argues that lakes can be treated as mere sources for recharge spots of groundwater, not direct sources for drinking water. Although 400-500 MLD is drawn daily from groundwater from 400,000 bore-wells, not enough focus is on groundwater recharge and management. Further, wastewater is increasingly becoming a resource for the drought prone hinterland in the city. As per statistics, 1 million connections supply water to 2 million households sheltering about 9-10 million people proving water shortage isn't a problem in the city. Problem is that of democratisation, equity and equitable distribution of water.
- Some positive advancements include metering of all water connections, introduction of volumetric tariff, monthly charges for private bore-wells. However, he feels a more pro-poor policy can be put in place to increase access, affordability along with maintaining economic viability. The overall holistic planning of pipe-water, rainwater, wastewater and groundwater need to be included in the urban water management system. Certain institutions like Karnataka State Natural Disaster Monitoring Centre and Groundwater Authority and Karnataka Tank Conservation Development Authority are responsible for managing the water resources in the city. In fact, the KSNSMC has also launched an app called the 'Megha Sandesha' App that provides real time data on intensity of rainfall, volume of rainfall and flood prediction. Some progressive bye-laws and regulations in the city address rainwater harvesting, wastewater recycling, Groundwater recharging, metering in every house and ensuring that every pump has an automatic switch and water control system to avoid overflowing of tanks.
- The rooftop rainwater is the cleanest and can be easily filtered, and then stored or recharged; the landscape water can be filtered and used to recharge the aquifer whereas; major storm water drains need to be filtered using a biological filter and then used to recharge lakes and tanks. If the roof catchment is clean, the collected water can be even used as potable water. Simple filters will help in overcoming the biological contamination caused by microbes such as Bacteria. Shri Vishwanath argued that the construction of buildings and sites not just leads to encroachment of river beds and basins but also drastically increases the run off coefficient, thus escalating the chances of urban flooding by a factor of nine.
- Shri Vishwanath shared some positive examples and noted that self-sufficient communities and apartments in Cubbon Park have created water management layouts by successfully reviving wells, tube-wells and managed to produce about 1 lakh litre[WU1] of water in a sustainable manner. The communities surrounding 'Jakkur'

lake have put in place a wastewater recharge system that takes the water to a sand filter, an activated carbon filter, an ozoniser, and then passes it through RO system. The treated water is then made to blend with groundwater making it fit for drinking. The wastewater plant can be seen as an energy & income generating source that has provided livelihoods to many fishermen and well diggers. Some lessons for the urban apartments could be harvesting rainwater, metering every flat, recycling wastewater and reusing it, rejuvenating lakes and regulating groundwater as the aquifer is independent of the gated apartment.

- Bangalore's wastewater has the capacity to irrigate 64,000 hectares of agricultural land through drip irrigation system. 440 MLD is treated in wastewater treatment plant and is currently being pumped 50 km into 65 tanks around the Laxmipura area. The tanks are filled up with the effect of gravity without any external force. The cascading effect keeps improving the quality of water as it flows and slowly fills up tanks. The technological advancement has given rise to several entrepreneur ecosystems that are developing rainwater systems, wastewater treatment system, smart meters, aquifer management systems etc. Websites are now offering the treatment of wastewater to drinking water as a service. Shri Vishwanath concluded his talk by stating that Integrated Urban Water Management System (IUWM) must be understood as an ecosystem that requires many crucial factors to be nudged and coordinated. It's critical to view IUWM bodies as systems design thinking institutions rather than a water supply body. It requires a social, technical, institutional, financial, legal and environmental effort along with citizen participation to make IUWM possible. There is also a need to put out open source data in public domain making it easier to replicate good practices and instate well-planned and researched IUWM systems in place.
- **Shri U.P Singh**, Secretary, D/o WR, RD & GR, M/oJS thanked the speaker for his positive insights and sustainable approach towards harvesting rainwater and meeting the India's water needs in urban areas. He reiterated that India receives ample rainfall during monsoons to meet the water requirements of the country throughout the year. He further emphasized the importance of participation management as the water problem is decentralized and so should the solution be. Citizens should feel equally responsible as the government and take efforts to conserve water as appealed by **Hon'ble PM Shri Narendra Modi** in the '**Mann ki Baat**' programme. Various campaigns taken up by the Ministry, state governments and district administrations has brought about a positive change and generated awareness amongst people to work for water.
- The talk was followed by a session of questions and answers wherein members from the audience were invited to discuss their queries with the speaker. The webinar saw some interesting and unique questions from people across the country.

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