

Summary of Results: Water Quality Monitoring Programme

0By

Indian Water Works Association (IWWA), Bangalore Centre

with the Guidance of

India Water Partnership Activities (IWP)

Water is a precious commodity. Most of the earth water is sea water. About 2.5% of the water is fresh water that does not contain significant levels of dissolved minerals or salt and two third of that is frozen in ice caps and glaciers. In total only 0.01% of the total water of the planet is accessible for consumption. Clean drinking water is a basic human need. Unfortunately, more than one in six people still lack reliable access to this precious resource in developing world.

The raw water quality available in India varies significantly, resulting in modifications to the conventional water treatment scheme consisting of aeration, chemical coagulation, flocculation, sedimentation, filtration and disinfection. The backwash water and sludge generation from water treatment plants are of environment concern in terms of disposal. Therefore, optimization of chemical dosing and filter runs carries importance to reduce the rejects from the water treatment plants. Also there is a need to study the water treatment plants for their operational status and to explore the best feasible mechanism to ensure proper drinking water production with least possible rejects and its management. With this backdrop, the Central Pollution Control Board (CPCB), studied water treatment plants located across the country, for prevailing raw water quality, water treatment technologies, operational practices, chemical consumption and rejects management.

About Dayananda Sagar College of Engineering

Dayananda Sagar College of Engineering (DSCE) is managed by Mahatma Gandhi Vidya Peeta Trust and is running several educational institutions for the last 42 years. Dayananda Sagar Institutions (DSI) has sprawling campus spread over an area of 29 acres. The college is located in the, hi-tech Bangalore city. College offers UG Programmes in 18 disciplines and 16 post graduate programs in M.Tech, MBA & MCA. Dayananda Sagar College of Engineering is affiliated to VTU and approved by AICTE.

About the Indian Water Works Association (IWWA)

The Indian Water Works Association (IWWA) is a voluntary body of professionals concerned and connected with water supply for municipal, industrial, agricultural uses and treatment and disposal of wastewater. IWWA focuses basically on the entire "Water Cycle" encompassing the environmental, social, institutional and financing issues.

IWWA was founded in 1968 with headquarters at Mumbai. IWWA has 29 Centres spread across the country and is very active in conducting different activities in the areas of Water Supply and Waste water Treatment and Disposal. IWWA has a membership of more than 6500 plus professionals spread all over the country and abroad.

IWWA brings out a quarterly Journal and a bi-monthly newsletter called Mid-stream. The IWWA and its centers organize various activities. These activities offer a platform for exchange of information on new technologies, management methodologies, their usage and experience etc. The IWWA also offers several awards and prizes to the people who are working in the field of water and wastewater

About Sneha Test House

Sneha Test House (STH) Company, established in the year 1997, had initiated with highly quality and remains driven with analytical services and committed to maintain Quality Management system. With in-house facilities, It has Premier Public Testing Analytical / Referee Laboratory, STH provide comprehensive analytical services to Industries, Processors, Research Institutes and various Consumer Organizations. Also Environmental Monitoring, Work place monitoring, Microbiological and Industrial Chemical etc.

The Laboratory is well equipped with modern analytical equipment as well as conventional analytical facilities. Sneha Test House provides consultancy services in the parameters stretched through the analytical projects and furtherance. Thus, the extensive facilities with the latest instrumentation techniques and technical expertise of qualified scientific staffs of high calibre, enable Sneha Test House to meet customer needs and effectively grant analytical data.

About the Programme

Throughout history, Civil Engineer have designed and built facilities that have advanced civilization and provided for a higher standard of living. From developing better water supplies, municipal sewer systems, waste-water treatment plants to the design of

buildings to protect citizens from natural hazards and provide health care, to improved agriculture through water resource development and distribution projects to rapid and dramatic changes in transportation systems, civil engineers have developed the basic infrastructure on which modern society depends. Civil Engineers we the first to be dedicated to technology development for the common good.

The World Water Monitoring Programme rigorously carries forward the conservation and development of water systems such as Borewells, tanks and ponds, and their management practices. As a part of this programme IWWA in association with Department of Civil Engineering, (DSCE), and Sneha Test House, Bangalore are involved in implementation of affordable safe drinking water projects at household level under the guidance of India Water Partnership (IWP)/Global Water Partnership (GWP) Activities..

Tests for PH (acidity), Turbidity (clarity), Dissolved oxygen (DO), Temperature, Chloride and Hardness were conducted in hand pumps, bore well and lakes from which water is supplied through the public taps in 54 water sources from 10 localities of Southern Part of Bangalore City, Karnataka. Most of these sources are used for domestic/drinking purpose and few of them for bathing and washing clothes. We did the monitoring tests on 03.10.2012, involving Dept of Civil Engg. faculty members and student Volunteers. We tested four parameters namely pH, turbidity, dissolved oxygen and temperature, as an indicator of water health. We have carried out the tests with BBMP members, Local MLA, youth and community workers in the slum areas and they were explained about present status of their water source and pamphlets were distributed indicating the status of water, sanitation & health & hygiene

People were sensitized about the pollution of water bodies due to drainage from the urban areas/villages and polluted catchments. The test results of these water sources were shared in the respective wards /blocks/ areas meetings to sensitize the issue among other villagers and to take protective measures. We also emphasized the importance of safe drinking water. This event created an impact among the participated people to treat the water before use.

Voices of Community

I am Satheesh , the resident of Jayanagar, since last ten years. BBMP water and the borewell water is used for drinking and cooking over several decades. Today we tested all these sources. We checked the suitability for drinking. We need to treat it before use. It was a big shock to me and I have decided to take immediate steps to discuss this matter with our community and take necessary steps to solve the pollution problem of our water.



I am Syed living in BTM layout. I participated in World Water Monitoring Day activities on 03.10.2012 held at our block. We tested the water quality of five water bodies in our locality. These sources are used for our drinking and cooking needs. Only after these tests, I realized that how poor maintenance of catchment and water body affects the quality of water.



I am living in JP Nagar, for the past 45 years. On 3.10.12 we tested. The people make use of BBMP supplied water, borewell water as well as Cauvery water for various purposes. But I am not aware about the water quality. Our water is a little turbid but tastes good. After the test, I understands the need to purify my water before use.



Sandhya petrol pump is situated in Jayanagar 9th block, near Central Mall. They rely on water from the two borewell. The hardness and turbidity were checked. The water was also checked for variety of chemical content. From the world water monitoring program they realized the importance of water treatment.



I am working in IWWA office. Water was tested for two sources, Cauvery water and borewell water. Tap water result showed noticeable results out of which we found borewell water very much turbid.



World Water Quality Monitoring Programme, October 2012													
Organised by IWWA, DSCE & STH										Supported by INDIA WATER PARTNERSHIP (IWP), New Delhi			
ONSITE ANALYSIS REPORT													
No. of the Water Body	Name of the Water Body	Type of Water Body	Source	Area	Location	No. of participants (including observers)	Date of Monitoring	Time of Monitoring	Test Results				
									pH	Temp. (°C)	Turbidity (NTU)	Hardness (mg/l)	Chlorine Residual (mg/l)
1	Chauhan	Open well	Open well	1.6	1.6	21	4/10	11:50	9	0.75	54	200	5.1
2	Kanchara	Open well	Open well	1.6	1.6	21	3/10/11	12:45	7.5	0.75	52	150	5.1

Er. Srinavasa Reddy, Chairman of IWWA, Bangalore Centre appreciated the onsite water test conducted in the surrounding areas of IWWA office in BBMP /Greater Bangalore Area for different parameters for the benefit of the local community . The water quality tests indicated that the water provided needed more purification process to avoid health impacts.

Conclusion

India is often referred as “The land of rivers”. For generations India has had a strong tradition of preserving water judiciously. Our forefathers were visionaries who had the wisdom of thinking ahead of future. They anticipated the growing population which would lead to an increased demand for water in the future. Like today we have civil engineers, hydrologists and architects, who have acquired knowledge through lesser known or prestigious Institutions, our ancestors carried with them the same inborn talent to preserve water, that too without any formal degrees. They were people of intellect and had great sense of developing natural water resources. In a total of about 6.5 lakh villages of the country, approximately 50 lakh ponds and other similar structures exist. Unfortunately, during the past two decades the water quality has deteriorated at a rapid pace. One of the major reasons for this is the untreated waste water reaching the water sources, turning them to be a dirty drain. The Ganga and the Yamuna, the two most sacred rivers of our country are no exception to it.

This programme was quite fruitful as the young impressionable minds took this as an eye-opener. Excited about the programme, the students showed keen interest in learning about the water testing ways and also discovered the quality of the water available in resources around them i.e. the quality of water which they use. The major success of the programme was that the children and organizations keenly requested the foundation to associate them with the programme and appealed to take up this activity every year with their participation.

Through the World Water Monitoring Day programme, the organization expects that it has been able to make efforts to bring our history to life and this has been supported by masses especially children, contributing in their own ways by understanding the sensitivity of the issue and co-operate in its journey towards a better tomorrow because the journey of a 1000 miles starts with a step. As per a saying, ‘Yesterday is a dream and tomorrow is a vision. But today's well lived, makes every yesterday a dream of happiness and every tomorrow a vision of hope’. Thus to leave behind us a golden past and to build a bright future, we need to come up together and act now. This testing programme was a bench mark /step in that direction.

Report on the Workshop
“World Water Monitoring (Quality/Quantity) Programme in Bangalore”
Jointly organized by
Indian Water Works Association (IWWA), Bangalore
India Water Partnership Activities/Global Water partnership (IWP/GWP)
Sneha Test House , Chandra Layout, Bangalore-40
Department of Civil Engineering of Dayananda Sagar College of Engineering, B'lore-78

The main objective of the on site consultation workshop is to prioritize the major issues and challenges regarding water Quality/Quantity /Resources and to know their importance (Causes & Health Impacts)

The major gist of the discussions/recommendations is presented below

1. Water Storage, Disiltation and Recharging of Underground Aquifers

While precise impact of climate change in terms of variability in rainfall and temperature, droughts and floods etc. are not predictable for different parts of the country, it firmly indicate that these patterns in terms of these variables will change and there will be large variability in rainfall. This will make things difficult. Therefore much larger concentration of water storages will be needed in addition to disilting of tanks by increasing storage /percolation capacity. Underground water aquifers provide the best possible storages, available almost everywhere. Thus, massive plans for recharging underground aquifers in variety of ways, including through water harvesting systems, and recharging using the flood waters are required to be prepared and implemented.

2. Water quality management needs to be taken up on priority basis

Apart from the issue of augmentation of water availability (conservation, storage, etc.), the issue of water quality management deserves serious attention. Some of the known measures are: (a) discouraging over-exploitation of ground water leading to salinity; and (b) prevention of pollution of river waters due to discharge of untreated sewages and industrial wastes into the rivers. Improving quality of water is a major issue closely linked with the apathy towards the environmental issues in the present system and lack of serious concern to developing futuristic urban systems.

3. Rain harvesting is crucial for water and food security due to short time span of annual rainfall

India gets rainfall (on average) on less than forty days a year. In India, much attention is paid to the use of river waters and it has its own merit. However, if rain water is treated as a natural resource and properly harvested, it can make significant contribution to food and drinking water security. Since, at present, less than 30 percent of rain is being harvested, it is imperative that rain harvesting is given a high priority. The availability of technology is not a constraint.

4. Transferring water from Surplus basins to deficit basins

Most river basins in India do not have surplus water. Brahmaputra- Ganga river basin is the only basin left with surplus water. It needs to be linked with other water deficit basins to meet the future challenge of growing demand for water on a big scale. The GOI may like to consider and expedite the interlinking of rivers to achieve the objective of making water available in deficit areas. However, while implementing such a scheme, it is imperative to take a holistic view of flow of water in the Ganges with precision of technical details of minimum water required at different locations over time for the very survival of the river.

5. River Basin Planning and Holistic Water Management

Climate proofing cannot be confined in a river reach within one state boundary rather it can be achieved in the whole basin which could be located in several states. River Basin planning and preparation of Master Plan studies on holistic approach is essential both for

flood management and optimal water resources utilization. Pollution abatement of human activities shall be part of the Master Plan studies. **Ganga River** System is particularly in bad shape. Population density in this basin is high, and agricultural activity is also very high. Water in this river is drying up and its quality has deteriorated. Glaciers which feed the system are melting. Alpine forests have been disappearing fast, modifying the catchment area in very adverse way. Streams feeding Ganga are drying up. Aqua-food is also in distress. Many species of fishes and water animals have disappeared and are vanishing at fast rate. Ganga system needs to have a special plan for regeneration.

6. Inter-ministerial/inter-departmental coordination

Water related issues cut across various ministries and departments without an effective coordination and creation of synergy. As a result, the implementation of various programs is inefficient and causes undue delays. Creation of synergy would also help gender mainstreaming in different sector programs. **Studies** of impacts vulnerability and adaption being conducted focus on some sectors. The essential linkage of impacts on one sector with changes in other sectors needs to be taken up. **Users** (or Users Associations) need to be empowered to take up the issues to impress upon the concerned authorities to expedite coordination and bring transparency in decision making and implementation.

7. Developing Core Competence in Research and Facilitating Data availability

Coordinated efforts are needed to make the relevant data for research available for long periods. The present status of data availability in a centralized institution is far from satisfactory. The available models for water resources management are too restrictive in terms of boundaries of different disciplines such as hydrology, agronomy, economics, etc. What is needed is the interlinking of this kind of models to address the policy issues and bridge the gap between science and policy. This would require development of core competence in the relevant areas of research. This undoubtedly, is a very challenging task before the government and the academia. But a concerted effect is needed.

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