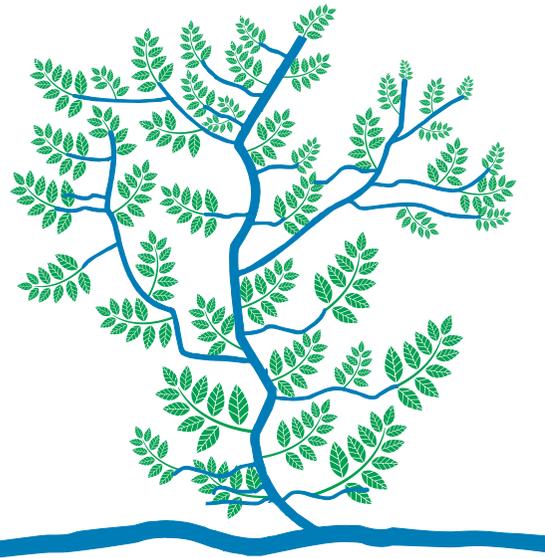


# Comprehensive Water Quality

Monitoring System for Hindon is Emerging



Water *quality* monitoring measures the *health* of a river and *impact* of pollution *control* measures

expanded significantly, but at the same time the water quality in many of our country's water bodies has deteriorated significantly. The case of Hindon River is no different, in fact Hindon is one of the most polluted rivers in the country.

Efforts are currently underway for a well-designed comprehensive Water Quality Monitoring Systems for the Hindon River along with transparent data sharing that can provide higher quality data and analysis for better spatial coverage and understanding of longer term trends.

For many years, the pollution of the Hindon River has been widely studied and results have been documented. Studies under national programs as well as independently have been undertaken; however, on a closer look the data clearly shows limitations. Hindon River water quality monitoring data has had temporal and spatial limitations due to limited number of sampling points and low testing frequency. While the available datasets indicates that the river has become more polluted over the last many years, there exist data gaps in terms of missing values of

About four decades ago, clear provisions for monitoring, compliance and penal action to prevent and control water pollution were stipulated with the advent of the Water Act (1974). Since then the water quality monitoring network has

## HINDON BASIN



key parameters and inconsistencies in data interpretation.

A recent survey conducted by India Water Partnership of various stakeholders (community/farmers, industry, administration and academia) reveals that while everyone agreed to the fact that Hindon was a highly polluted river, there was little cohesion amongst the stakeholders. Often, discussions based on available datasets led to conflicting opinions and disputes over proposed actions. From the Hindon basin, it is learned that stakeholders have started adopting social

mapping, documentation of anecdotal evidence and installing/recording data findings from various samples collected along the tributaries.

### **The need for real time monitoring**

Real time data networks are being adopted for water management. There is a growing acceptance that traditional grab sampling is unlikely to provide a reasonable estimate of the spatial and temporal variability in water quality at a particular site. Traditional sampling and analysis techniques result

in delays of days to weeks for analytical results to be available, and results in a real loss of high frequency information content that can greatly enhance understanding the water quality behavior of the river. Fluctuations can only be detected through high frequency real time ‘continuous’ measurements, with a much higher sampling frequency, that have the capability to capture most natural variability and measure sporadic concentration peaks. It is therefore, necessary to support the automatic monitoring systems with manual sampling.



*‘A reliable water quality monitoring system in combination with pollution load assessment of all drains discharging in to the Hindon forms the basis for planning targeted interventions to improve water quality, along with judicious water use and water conservation, paves the way for river rejuvenation.’*

*V. Rajagopalan, Former Secretary,  
Ministry of Environment, Forest  
and Climate Change (MoEF)*

The manual sampling also helps as a quality assurance of the performance of the automatic monitoring stations and vice-versa.

From recent discussions with State Government officials from the Irrigation and Pollution Control Board (PCB) departments, it is learned that the increased efforts are being made to better map the water quality in the Hindon river basin. The water quality monitoring points are being increased from about 10 to over 50 sampling points which would definitely provide greater insights into the various causes of pollution and devising appropriate solutions. The increased vigor and focus is noticeable at all levels, clear directions and support are being provided by the administration as apparent from a vision set by the Chairman of UPPCB, Mr. Sanjiv Saran, who is personally spearheading the efforts of installing a world class automated Water Quality Monitoring and Information management system based on global best practices. It is only a matter of time when a comprehensive water quality monitoring system would form the backbone of the decision making tools for planning and

designing pollution control measures and sustainable development practices are adopted to ensure a water secure growth in the Hindon basin. The improved data quality and quantity enhances the ability to conduct accurate mathematical modelling of water quality trends at local, watershed and regional scales.

A team of global and national water quality experts have partnered with the UP PCB to develop a comprehensive water quality monitoring system with the support of the 2030 Water Resources Group. The key components include:

1. A Snapshot Assessment of the Hindon and its tributaries to collect data relating to both the river water quality and the pollutant loads in the river system.
2. A comprehensive WQMS utilizing global best practices and technologies that would have a mixture of both automated and manual water quality sampling stations as well as a robust and transparent information management system.



## GOING FORWARD

1. The proposal to combine manual and real-time monitoring is appropriate and in fact necessary since reliable real-time sensors are not yet available for heavy metals and pesticides.
2. Considering health concerns arising from possible contamination of nearby water bodies with the highly polluted Hindon water, parameters monitored should also include heavy metals whose concentrations have been reported to be very high as well as pesticides chosen based on toxicity and usage in the basin.

