

**National Hydrological Project (NHP)
Workshop on Water Quality Monitoring Through Real
Time Water Quality Monitoring Systems**

Presentation

on

**Real Time Water Quality Monitoring Systems in River Water
Quality Monitoring : Need, Advantages and Limitations**



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NEED FOR REAL TIME WATER QUALITY MONITORING

- ❖ Polluted rivers, Industries, Wastewater treatment plants etc.
- ❖ Ganga basin is the largest river basin .
- ❖ Conventional approach not suitable for polluted rivers.
- ❖ Shortcomings of Manual Quality Monitoring
 - Person dependant, susceptible to high errors.
 - Grab sampling does not reflect true condition of river quality.
 - Detrimental to environment due to release of chemicals.
 - Lack of adequate human resources.
 - Need of more human resource.
 - Requirement of separate instruments.



HOW DOES IT LOOK? (PHASE-I, 36 RTWQMS)



Madhya Ganga Barrage (UP02)



Bithoor Bridge, Kanpur (UP-18)



Dhodhi Ghat, Kanpur (UP-24)



Barrage at Kanpur (UP19)

HOW DOES IT LOOK? (PHASE-II, 40 RTWQMS)



River Kosi, D/s of Kashipur, Rampur ,U.P.



Durgapur barrage, Road Bridge, West Bengal



Fafamau, Lord Curzon Bridge, Prayagraj, U.P.



Abandoned old bridge Rudraprayag, U.K

Phase -I (36)

State	Station
Uttarakhand	01
Uttar Pradesh	21
Bihar	04
West Bengal	10

Phase-II (40)

State	Station
Uttarakhand	05
Uttar Pradesh	15
Bihar	10
West Bengal	06
Jharkhand	03
Haryana	01

Type/No	Freq.	List of Parameters
Fixed/Floating (34)	Hourly	Cat A-pH, BOD, DO, Temp & EC Cat B-NH ₄ , Chloride, COD, TSS & Turbidity Cat C-Nitrate, Color, Fluoride, Potassium Cat D-BTX, TOC & Water Level
	Cross section (2)	4 hr sampling daily Cat A-pH, BOD, DO, Temp Cat B-NH ₄ , COD & Turbidity Cat C-Color

Type/No	Freq.	List of Parameters
Fixed /Floating (40)	Hourly	Cat A-pH, BOD, DO Cat B- Temp, EC, Chloride, COD, Turbidity, Nitrate, TOC, Water level and depth.

Phase I (36 RTWQM Stations)

River Ganga	18
Tributaries	09
• Ramganga	02
• Banganga	01
• Varuna	01
• Pandu	01
• Falgu	01
• Maya	01
• Kali	01
• Gomti	
Drains	09
• Jagjeetpur STP, UK	01
• Mawaiyanala, Prayagraj	01
• Kurzi drain, Patna	01
• Rajapul drain, Patna	01
• Mandiri drain, Patna	01
• Anta Ghat drain, Patna	01
• Drain opposite d/s Srirampur, WB	01
• Ballykhal drain, WB	01
• Chitpur drain, WB	01
Total Stations	36

Phase II (40 RTWQM)

River Ganga	17
Tributaries	23
• Yamuna	06
• Hindon	02
• Kali-East	02
• Damodar	04
• Ramganga	01
• Koshi	01
• Ghaghara	01
• Burhi-	01
• Gandak	01
• Gandak	01
• Sone	01
• Punpun	01
• Sai	01
• Kosi	
Total Stations	40

ADVANTAGES OF RTWQM

- Measures parameters quickly and on real time basis.
- Detects variation as frequency can be customized.
- Neither requires chemicals nor generates any hazardous byproducts.
- Physical presence is not required.
- Parameters are scalable (bunch of parameters or only selected ones).
- Save travel costs.
- Stations can be shifted anywhere.

LIMITATIONS OF RTWQMS

- ❖ Proper contract document and procurement procedure.
- ❖ Requirement of NOCs from authorities.
- ❖ Need to select parameters scientifically.
- ❖ Monitoring affected due to flood and low water level.
- ❖ Theft and vandalism.
- ❖ Need for calibration of sensors.
- ❖ Constraints in identification of correct locations.
- ❖ High expertise to identify artifacts.
- ❖ Drift management.

THANK YOU

