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Let's Solve Water

July, 2020

Point and Non-Point Pollution Monitoring

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- B.Sc. in Physics and Math
- 11 years Experience in water quality instrumentation
- 8 years experience in COD monitoring
- 5 years with Xylem
- Sales manager for WTW online monitoring instrumentation

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Agenda

- 1st.: River Monitoring - Basic Introduction
- 2nd.: Applications
- 3rd: Installation Type

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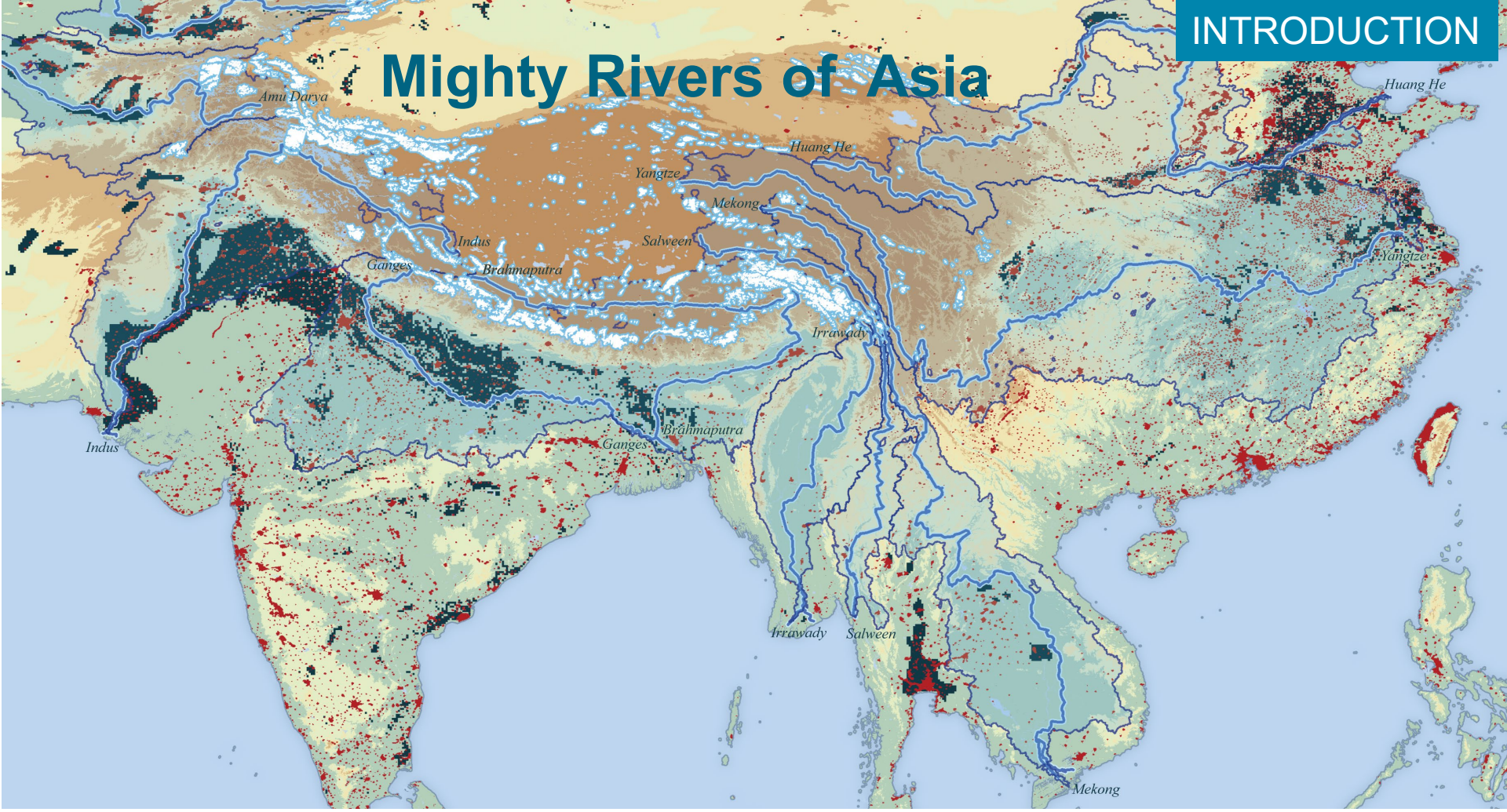
Mighty Rivers of Asia



- Yangtze (Chang Jiang) 6300 Km
- Mekong 4350 Km
- Salveen 3000 Km
- Satluj 1450 Km
- Ganges-Hooghly-Padma 2600 Km
- Yellow River (Huang he) 5500 Km
- Indus 3200 Km
- Ayeyarwady (Irrawaddy) 2200 Km
- Brahmaputra-Tsangpo 2950 Km
- Pearl (Zhu Jiang) 2200 Km

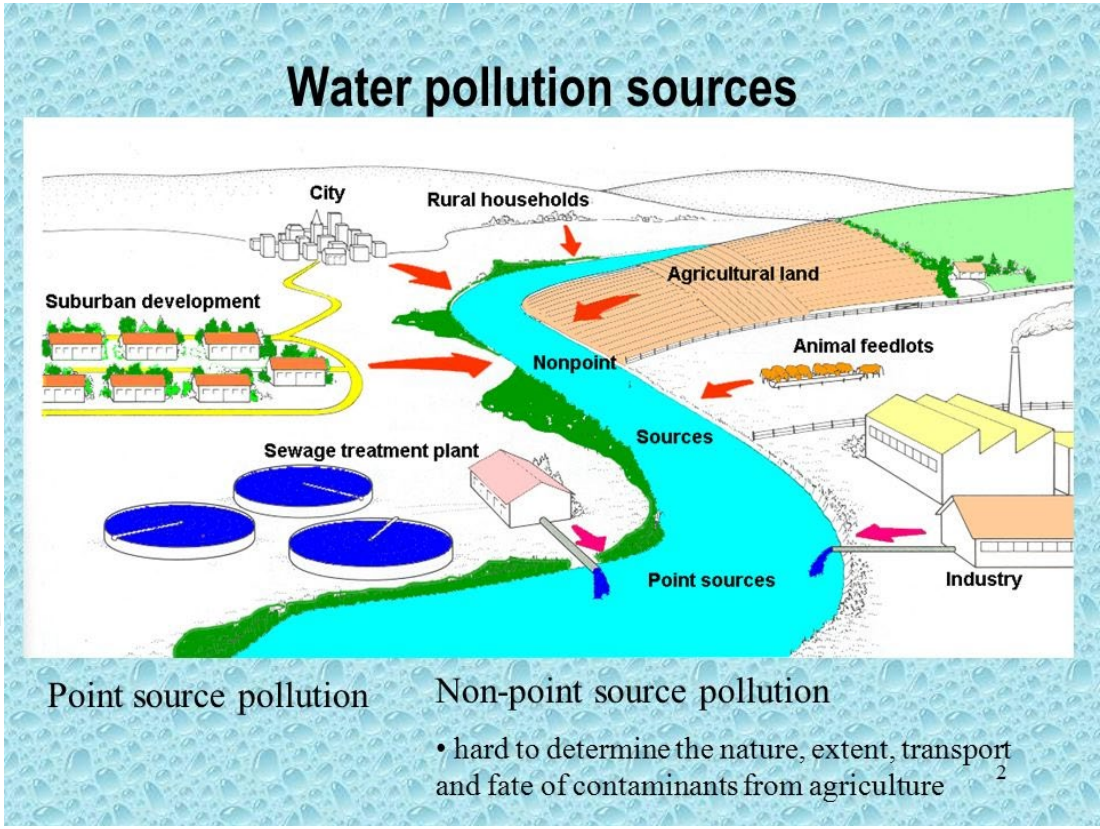
Water Pollution Sources and Impacts

- **Point-source water pollution**

  Originates from a single source or event and affects a specific area

- **Nonpoint-source water pollution**

  Also referred as diffused source of pollution e.g. Surface water run-off that carries fertilizers and pesticide residues from a farm To nearby channel and then into river.



- **Impact of Water Pollution**

  Water Borne disease
  Aquatic life disruption
  Increased Drinking water cost

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River – Lake Water Quality Monitoring

- River Monitoring
  - Upstream of the city
  - Downstream of the city

Real time River monitoring network

Multiple real-time monitoring system through-out Polluted stretch of the river

- Lake Monitoring

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Limits of Pollutants in Rivers & Lakes

Parameter	Range of River
COD	< 10 Mg/L
BOD	<3 Mg/L
NO3	< 10 Mg/L

Note: these limits can be different as per the country/region standards

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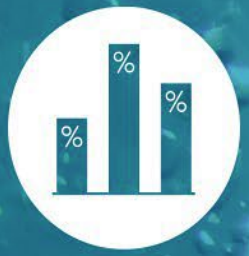

Poll Question #3

How frequently do you monitor for BOD/COD?

Spectral Sensor Application in River Monitoring

- Spectral sensor Carbovis 705 SF measure temperature, NO3,TOC, COD, BOD and TSS
- These parameters are good indicators of river water quality and the effectiveness of upstream wastewater treatment plant (WWTP) operations.
- Monitoring is necessary to ensure whether protection and restoration measures are working
- Polluters can be identified by long term

  24/7 measurements

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Extractive Type Installation

An automatic monitoring site may consist of a land-based, lockable box, where river water is continuously pumped into

- A pump as well as mains power and a concrete foundation are needed.
  A fence can protect from vandalism

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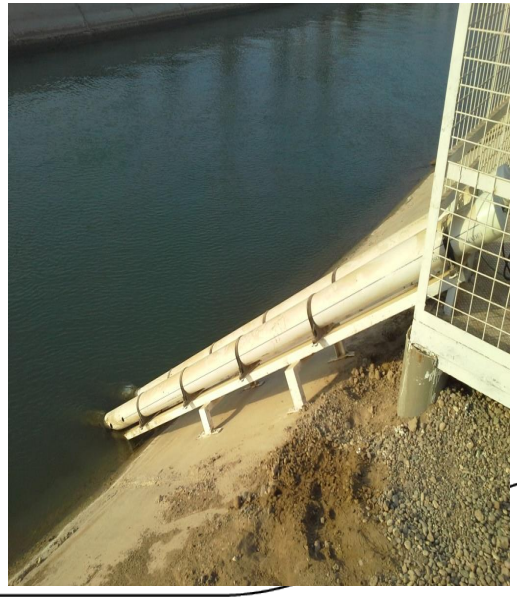
In-Situ Type Installation

Whenever all sensors are directly immersed in the water and contoller, Modem and unit stays in the panel.

No Pumps required in this case.



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System Calibration

Multipoint calibration for Spectral sensor for getting accurate readings of COD/BOD/NO3 and TSS (± %5 with Lab reference)

Calibration frequency:
Once a Month to adopt the seasonal variation and other pollutants changes in River water

In-house capability of the WTW Lab equipment for the most accurate results

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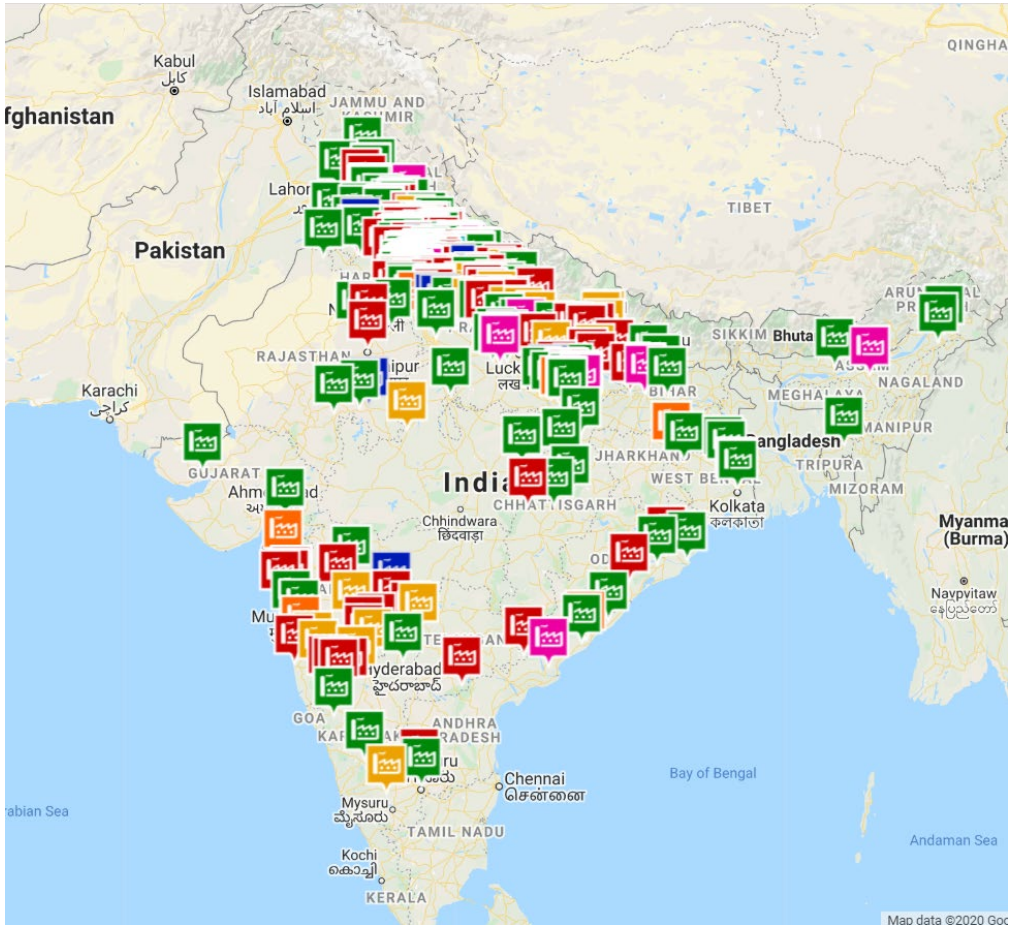
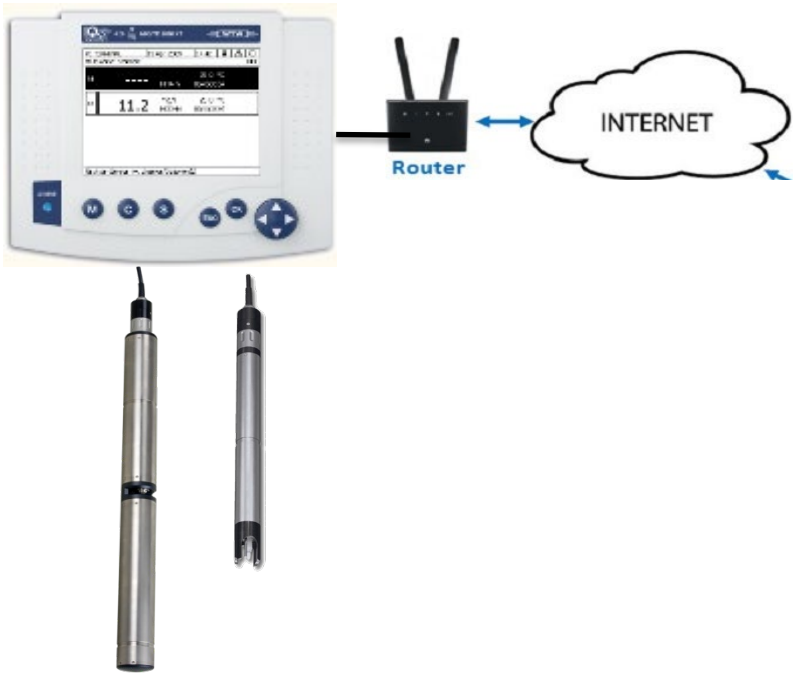
Success Story

1100 Industrial and Municipal outlet monitoring system: CPCB Guidelines 2014 for polluting industries





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Success Story

Punjab Pollution Control Board:

12 river monitoring system for the 4 different rivers (Satluj, Vyas, Ghaggar and Buddanala)

ਪੰਜਾਬ ਪ੍ਰਦੂਸ਼ਣ ਕੰਟਰੋਲ ਬੋਰਡ
Punjab Pollution Control Board

Total Installation nos. of spectral sensors for the COD/BOD/TSS/pH monitoring:

1200 in India

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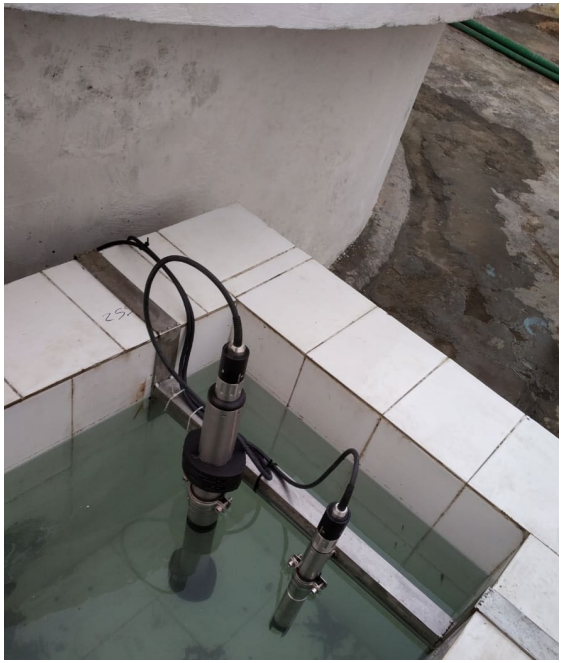
India Installation Photos



(Ultrasonic cleaning Effect)

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Summary

- Types of Pollutions
- Spectral sensor parameters for river pollution
- Installations type

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Poll Question #4

Would you like someone from Xylem to contact you about COD or WTW Solutions?

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Questions?

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