

# AQUAWATCH

Water Quality Risk Assessment  
System

Automating WHO-based contamination analysis for villages  
From hours of manual calculation → to seconds of instant insights

Presented by Shashank (Team FLAWLESS)

# THE PROBLEM

Water testing labs receive samples daily from multiple villages. But technicians still must manually compute WQI/HPI, compare values with WHO limits, and classify risk levels.

Challenges:

- Time-consuming calculations
- High chance of human error
- Delayed intervention
- Unsafe water may be misclassified as safe

Water safety should not require complex manual work.

# OUR SOLUTION

AquaWatch: Instant Risk Intelligence  
AquaWatch transforms raw lab values into:

- Automatic contamination indices
- Color-coded risk classification
- Alerts for dangerous pollutants
- Actionable recommendations for authorities

Result:  
Accurate water safety assessment in seconds

# WHAT AQUAWATCH PROVIDES

WHO Guideline-Based Risk Classification

Instant detection of Lead,  
Arsenic, Fluoride risks

Suggested actions for villagers &  
officials

Dynamic Multi-Village Support

Unsafe villages automatically surfaced  
first

Authority - ready documentation in one  
click

# LIVE DASHBOARD VIEW

AquaWatch provides:

- Total villages analyzed
- Safe vs Unsafe distribution
- Visual WQI comparison chart
- Emergency attention villages highlighted

Not just data → but actionable monitoring

# INNOVATION

Most solutions stop at “analysis.”

AquaWatch goes further:

From Assessment → to Intervention Support

- Prioritizes critical villages automatically
- Generates AI-based advisory actions
- Produces reports ready for government/NGO response

This is a deployable real-world public health tool.

# REAL WORLD IMPACT

AquaWatch can be used by:

- Water testing laboratories
- Rural health departments
- NGOs monitoring safe drinking water
- Government intervention programs
- 

Impact:

- Faster contamination response
- Reduced human error
- Safer drinking water for communities
- Scalable monitoring across districts

# TECH STACK

## Frontend:

- React.js + Tailwind CSS
- Recharts Dashboard Visualization

## Backend:

- Automated WHO formula computation
- Risk classification engine

## Other Tools:

- Google Sheets Import
- PDF Report Export (jsPDF)

# WORKFLOW

- Lab technician enters village sample values
- Data imported manually or via Google Sheets
- System computes WQI + HPI automatically
- Risk levels classified instantly
- Alerts + Advisory recommendations generated
- Authority-ready PDF report exported

# FUTURE SCOPE

- District-wide monitoring dashboards
  - SMS alerts to village officers for critical cases
  - GIS-based contamination risk mapping
  - Historical trend analysis over months
  - AI anomaly detection for suspicious patterns
- AquaWatch can become a national-scale water safety platform.

# CONCLUSION

AquaWatch is not just a project.  
It is a real solution that ensures:

- Faster water safety decisions
- Reduced manual workload
- Early contamination intervention
- Better protection for rural communities

“Safe water is not a luxury — it is a right.”