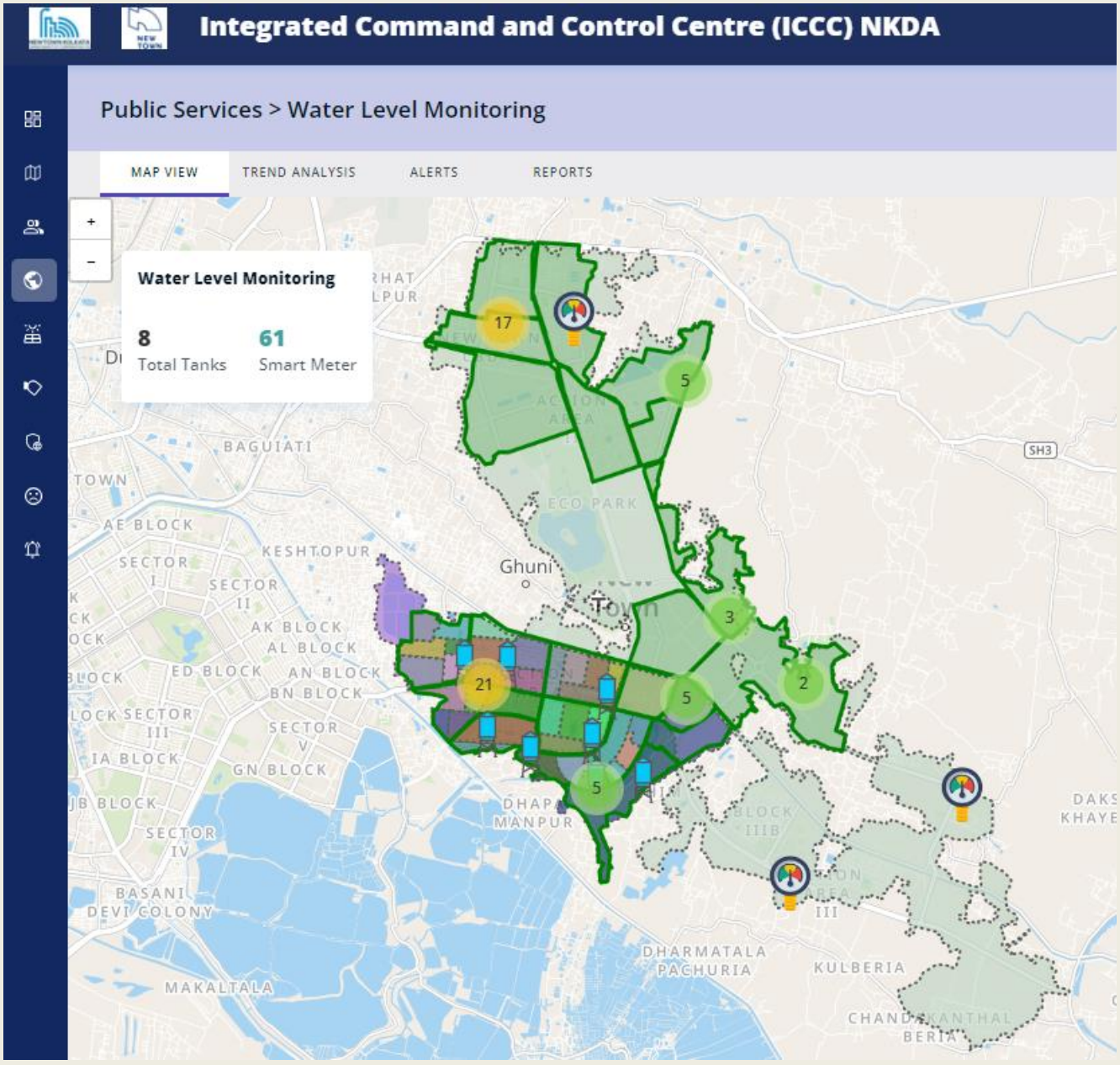
NEWTOWN KOLKATA
GREEN SMART CITY CORPORATION LTD

NEW TOWN ICCC CASE STUDY: #001- SCADA

Integration of SCADA Project with ICCC of New Town Kolkata



CASE STUDY: Contribution of ICCC in resolution of water supply related issues in New Town Kolkata

New Town Kolkata's **Integrated Command & Control Centre (ICCC)** acts as a center of operations for all city level services, day-to-day alert handling, and disaster/ emergency response planning. The ICCC is powered with information, communication, and technology (ICT) based sensors and cameras to monitor city wide safety and security, public transport, pollution, water and waste management, renewable energy generation, street lighting etc. to ensure efficient city administration, urban governance, and municipal service delivery. The ICCC can integrate up to 92 projects and as of October 2023, the integration of 24 projects has already been completed among which is SCADA.

ICCC in New Town Kolkata has become instrumental in addressing and resolving various citizen-centric issues well as maintaining the service level benchmarks for all municipal services.

One such example is illustrated below.

A. Background:

A citizen complaint was recorded by the City Help Line regarding receiving water below expected quality.

B. Addressal Mechanism Adopted:

The issue was referred to ICCC which has integrated SCADA, installed for the water supply management, as one of its services. The following quality assessment measures and analysis were undertaken:

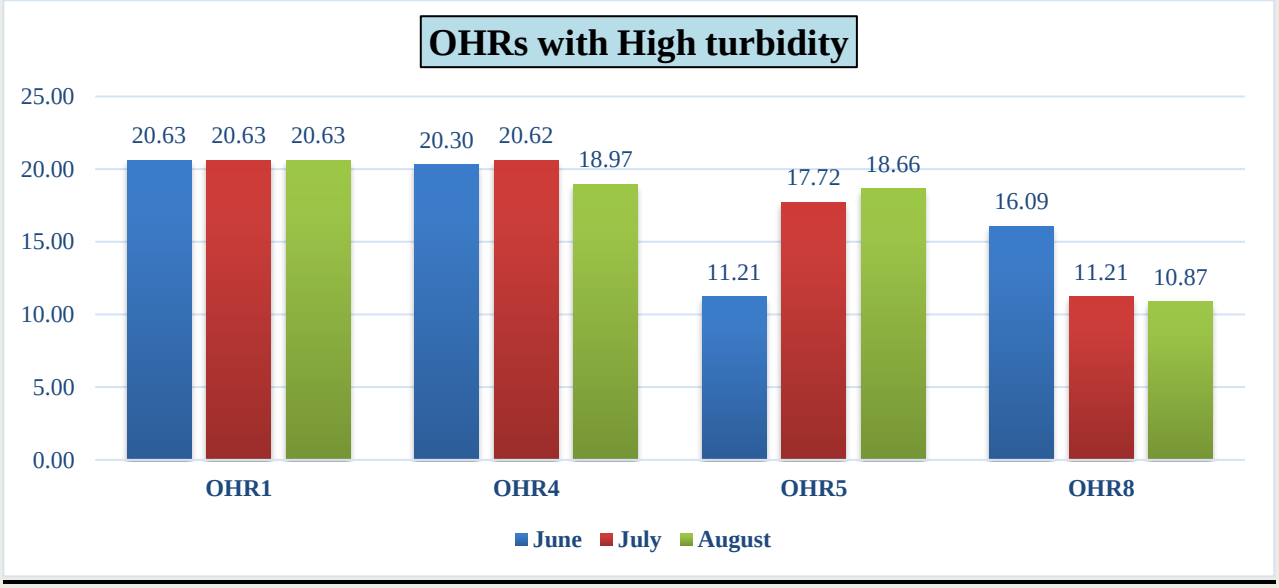
a) Water quality parameters like Residual chlorine, pH & turbidity were monitored for the concerned reservoir .

Water Health Monitoring from ICCC through SCADA

b) The same analysis was conducted by the ICCC operators for all other reservoirs to

arrive at the predictive analysis of the related issue, if any.

c) It was inferred that the turbidity was higher than the desired level for some specific OHRs. The OHRs with high turbidity values was identified & monthly changes in turbidity values were checked. 4 OHRs out of 8 are found with high turbidity. The accepted level of turbidity is between 0.3 - 2.5. However, the level was well above the desired level for the identified reservoirs.



d) Analysis on residual chlorine and pH was also performed for trend analysis and was found to be within acceptable limits

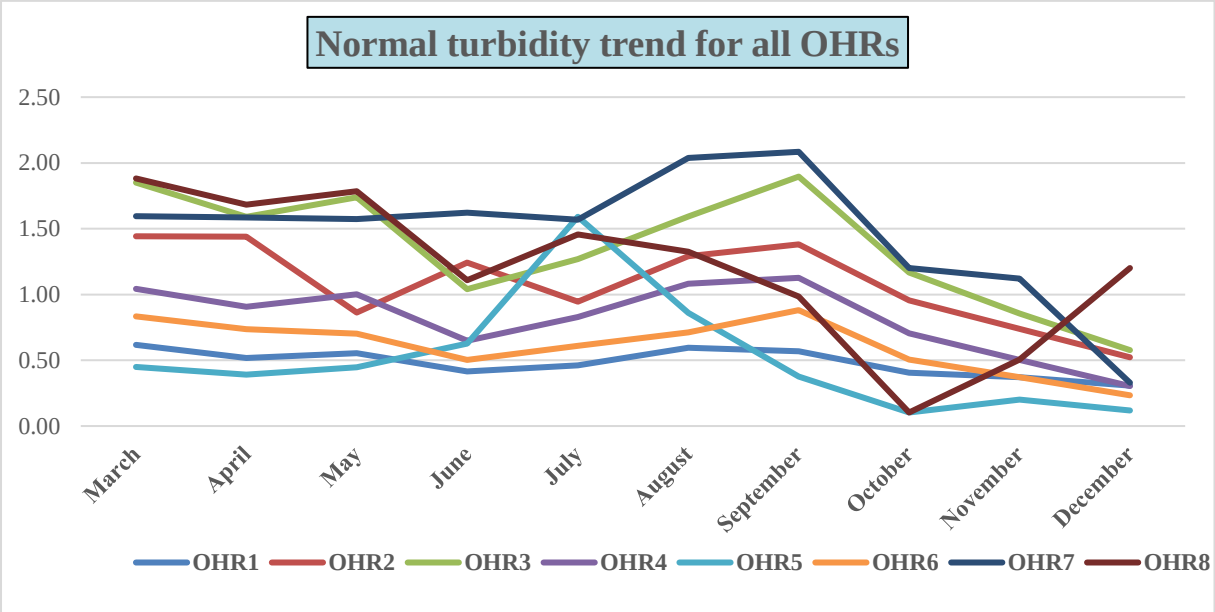
C. Action Taken:

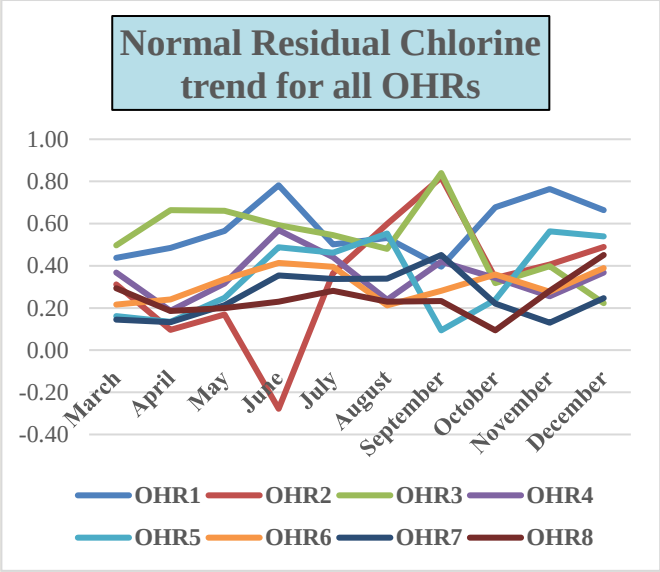
a) Respective Engineers of PHED Department were informed and necessary arrangement at the Water Treatment Plant, OHR, etc. were made.

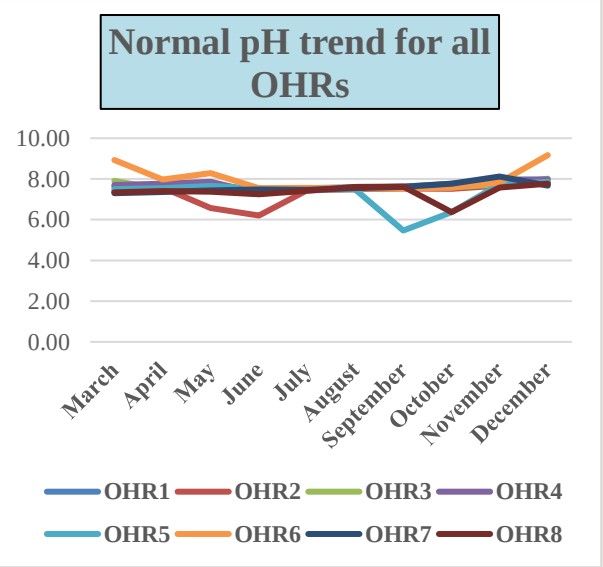
b) Further analysis was performed to understand actual trends of the parameters.

c) Predictive analysis had also been performed to find the extent of turbidity may occur in future.

d) Normal turbidity condition was restored and water was delivered with normal turbidity value; with right proportion of chlorine & pH is within desired range.







D. Key Takeaways:

New Town Kolkata now closely monitors parametric measures and season-specific impact on water quality for sustainable maintenance of the service to ensure better citizen support. New Kolkata through its ICCC and SCADA maintains a detail data for all water related parameters as shown below:

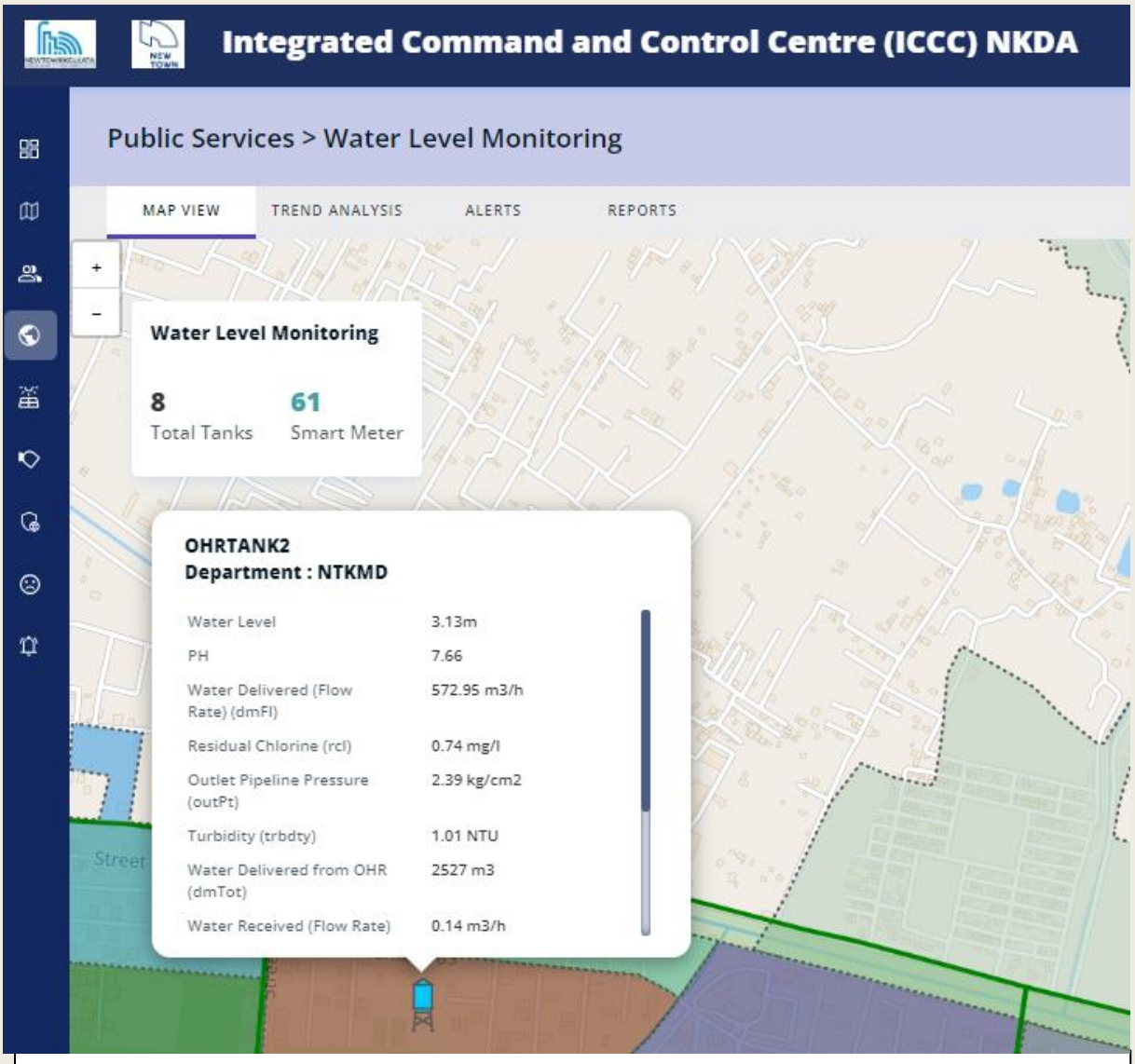
The SCADA system monitoring can be divided into two categories:

a. **Over Head Reservoir (OHR) Monitoring**: 8 nos. of OHRs are monitored through SCADA. More no. of OHRs are being incorporated into the SCADA system. OHRs are overhead water tanks that receive water from the Water Treatment Plant and distribute it to the end consumers (both individual and bulk users).

1. Supply of Water from WTP to OHR

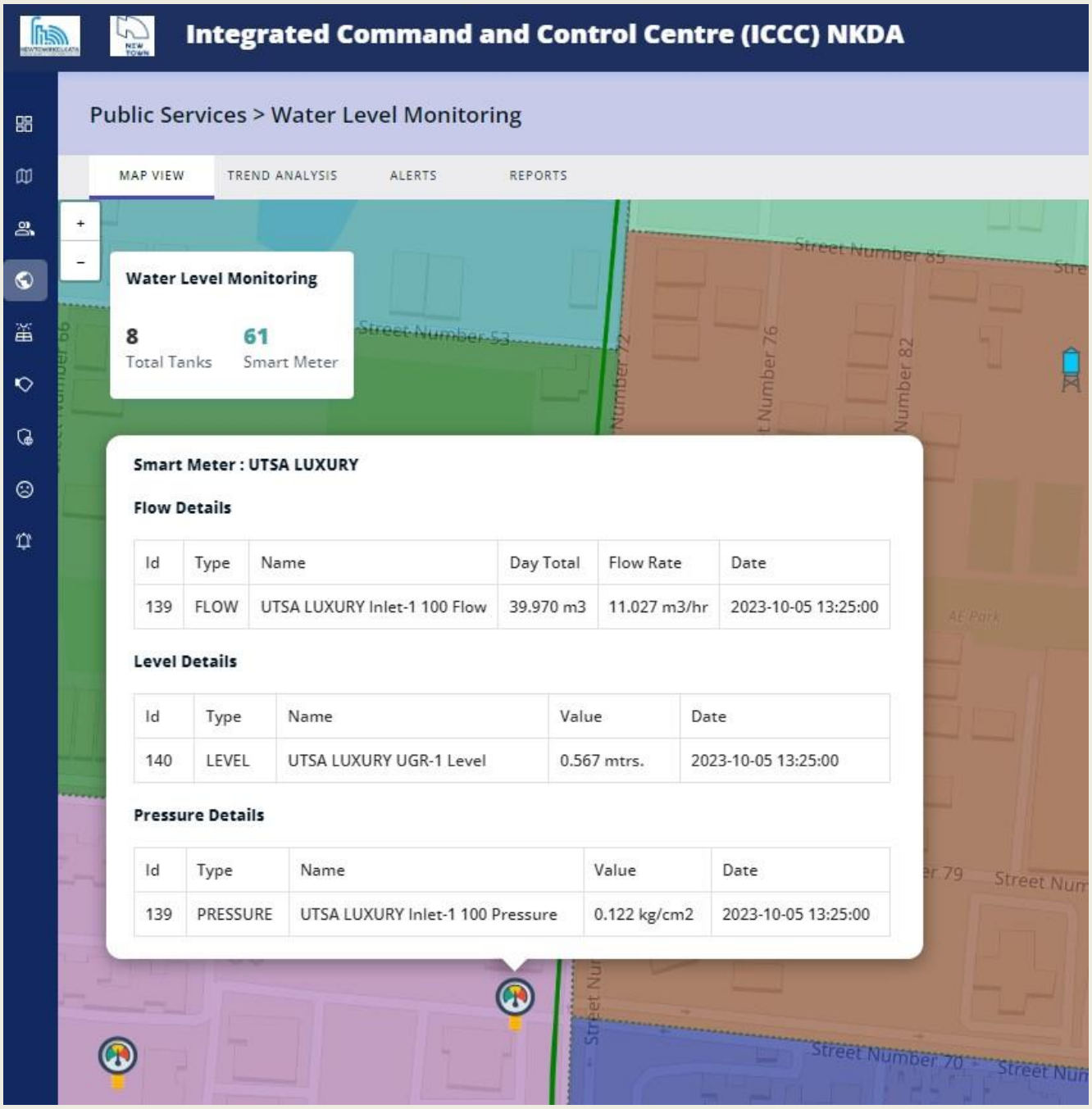
2. Water is supplied to OHR based on its water level
- Water level below min value: Supply Starts
- Water level above max. value: Supply Begins

3. Water is supplied to users on 3 time slots: 6-11 AM, 1-3 PM, 6-9 PM



Screenshot of sample data of the OHRs represented in the SCADA Dashboard of ICCC.

b. **Critical Measurement Point (CMP) Monitoring:** 61 nos. of CMPs are monitored through SCADA. The CMPs are points in the SCADA system that monitor critical parameters of the water distribution to bulk consumers such as water pressure, level and flow.



Screenshot of sample data of the CMPs as represented in the SCADA Dashboard of ICCC.

OHR KPIs Monitored in ICCC			Common Parameters		
Sl	**Parameters**	**Proposed Alerts**	**Min**	**Max**	**Unit**
1	**Water Quantity**				
A	**Water received from WTP to OHR**				
i	Flowrate	- If water level in OHR is less than minimum water level of OHR, *then flow rate must be* >50 m^3/hr *(i.e. water being supplied)* - If water level is more than maximum water level of OHR, then the flowrate must be less than 1 m^3/hr i.e. *near 0 (water not being supplied)*			
ii	Water total	- No alert required. Refers to the quantity of water received from WTP daily			m^3
B	**Water delivered from OHR to users(distribution)**				
i	Flowrate	If less than 50 m^3/hr between the distribution times of 6-11 AM, 1-3 PM, 6-9 PM. *(It is not 0, as the instruments never show true 0.)*			
ii	Water total	- No alert required. Refers to the quantity of water delivered from OHR daily			m^3
2	**Water Quality**				
A	pH	If less than 6.5 and more than 8.5	6.5	8.5	
B	Chlorine	- If less than 0.2 mg/l -If more than 0.7 mg/l	0.2	0.5/ 0.6/ 0.7	mg/l
C	Turbidity	- If less than 0.1 NTU - If more than 5 NTU	0.1	5.0	NTU
3	**Operational parameters**				
A					
B	Water Level	- It should not be less than min value of the respective OHR. *(If, less it means receive value is not automatically opening)* - It should not be more than max value of the respective OHR *(In which case receive value is not automatically closing)*			meter
C	Inlet Pressure	- Should be more than 1 kg/cm^2 at least 10 times (readings taken at 10 min intervals) during the water distribution intervals from 6-11 AM, 1-3 PM, 6-9 PM			

Water Level Monitoring of OHR 1 (Example)			
Parameter	MIN	MAX	EMPTY
metre	3.4	4.4	7.2

- If the water level is below MIN value, then water is supplied to OHR. Flowrate shows value and level increases
- If level above MAX value, then water is not supplied to OHR. Flowrate shows near 0 value