

Before COVID-19

We focused on the resilience of infrastructure to **climate and weather-related risks**

(i) Smart water technologies:

- forecast and provide early warning for urban flooding
- improve water supply and wastewater treatment operations, overall efficiency, and planning for network extension
- detect network anomalies and quickly react to incidents and leakages
- monitor water quantity, quality, timing for re-chlorination and automatic flushing, and wastewater epidemiology

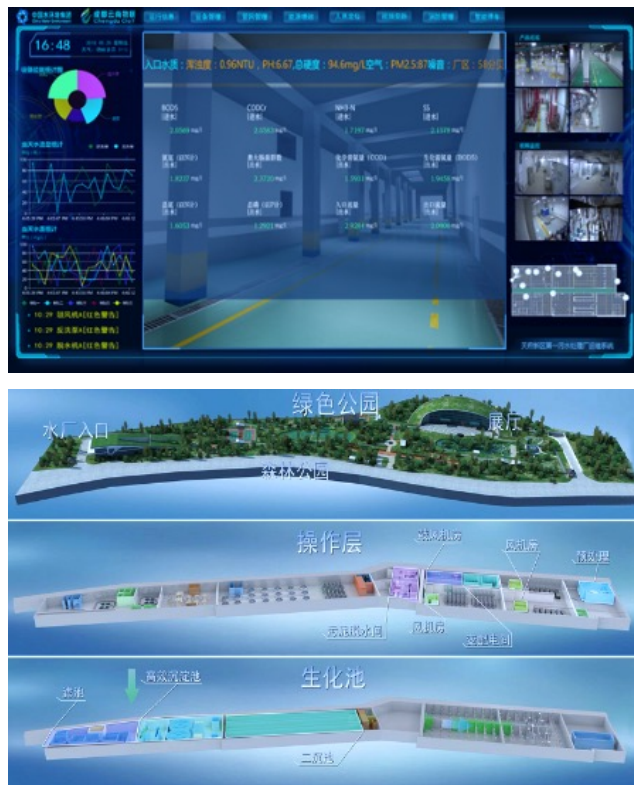
(iii) Climate- and disaster-resilient techniques to mitigate urban flooding caused by excessive rainfall

(iv) Wastewater reuse as a cost-effective solution to water scarcity

(v) Improving energy efficiency



Following COVID-19



We witnessed

- (i) Water and wastewater projects continued essential services with some adjustments such as
 - additional support to vulnerable people with free water
 - water kiosks
 - enhanced staff safety
 - increased quality testing frequency and locations
- (ii) Digital solutions played a crucial role during lockdown
- (iii) New investment opportunities to upgrade the existing water plants to meet higher quality standard and test new solutions to prepare for next wave of pandemic.

Lessons Learned

Resilience plans have to be upgraded to **cope with uncertainty**:



Supply chain disruption. Delays in construction and maintenance



Unexpected demand fluctuations (industrial/commercial users)



Longer lead times to obtain the governments' approvals/licenses



End-user payment moratorium/deferring water and sanitation bills



Significant delays in commercial bank approval processes