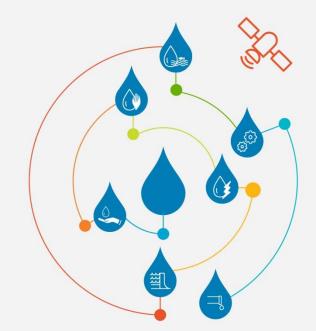
K-water's Appropriate SWM Application Procedure and Cases



Eunher Shin K-water



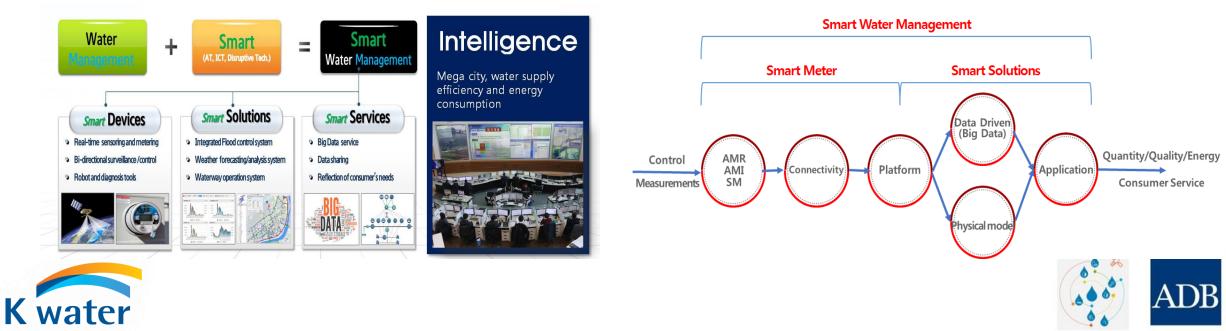
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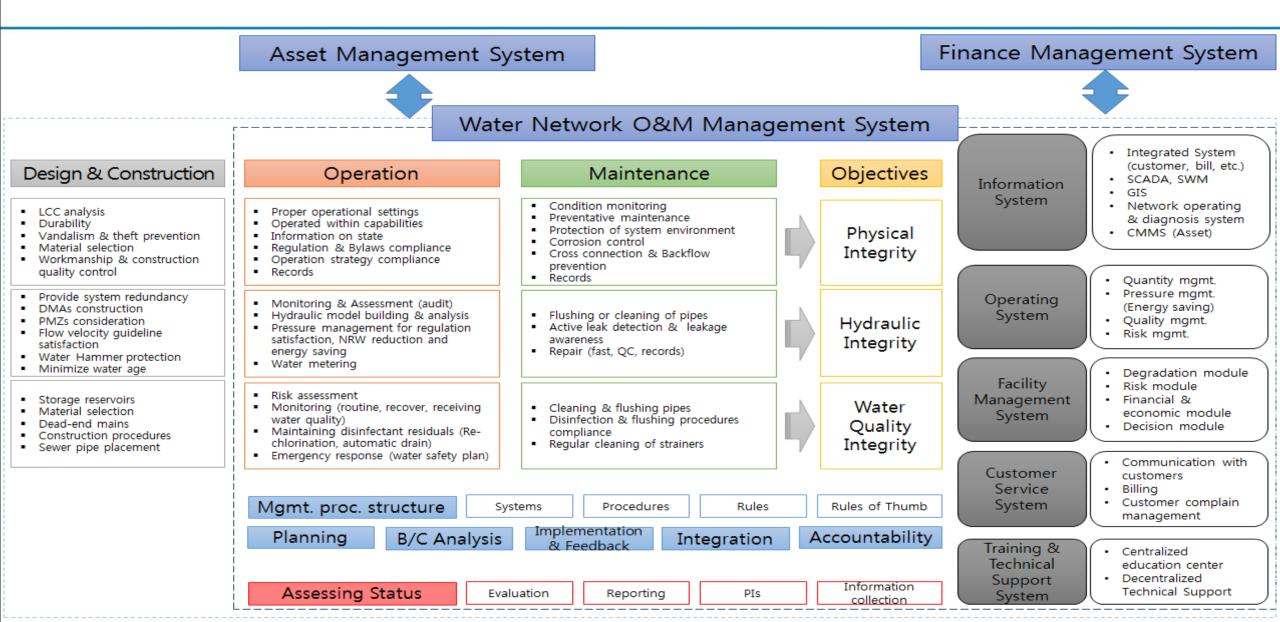
SWM Issues

How can we maintain the smart meters?

- What kinds of smart solutions should be developed?
- What kinds of objectives are appropriate for SWM?
- How can we implement SWM in developed and developing countries?



O&M Management System



O&M Framework, Implementation and Good Partnership

- Systems
- Procedures(Guidance materials)
- Rules

K water

• Rules of thumb

Framework

Implementation

- Identification
- Selection
- Design
- Construction
- Monitoring
- Evaluation

• Effectiveness

- Efficiency
- Accountability
- Transparency
- Fairness
- Participation

Good Partnership

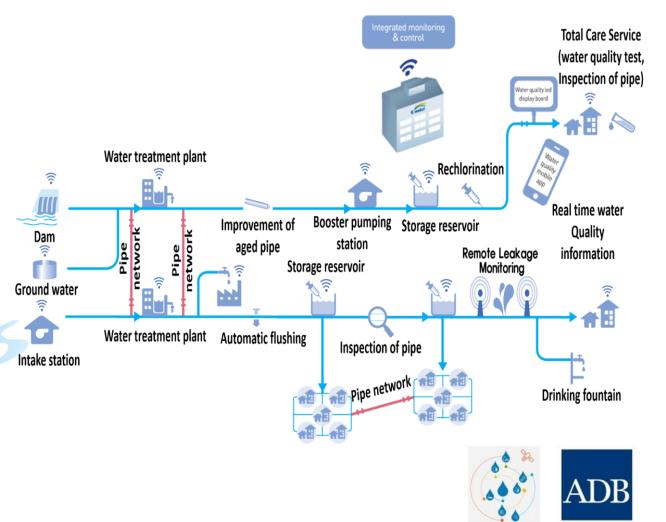


SWM in Paju, Korea

Implementing wholescale smart water management city(SWC)

Gaining consumer's credibility

- * real-time water quality monitoring, re-chlorination, automatic flushing device, etc.
- * providing real-time water quality information





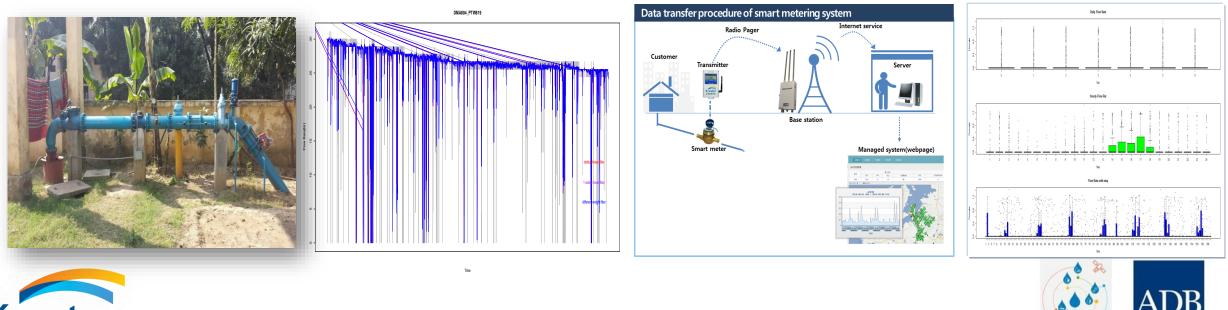
SWM in Dhaka, Bangladesh

Evaluating feasibility of RF method and compart it to GSM method

- * Analyzing RF signal acquisition ratio and range
- * Smart meter maintenance

Implementing data-driven analysis

* Exploratory data analysis, data quality assessment





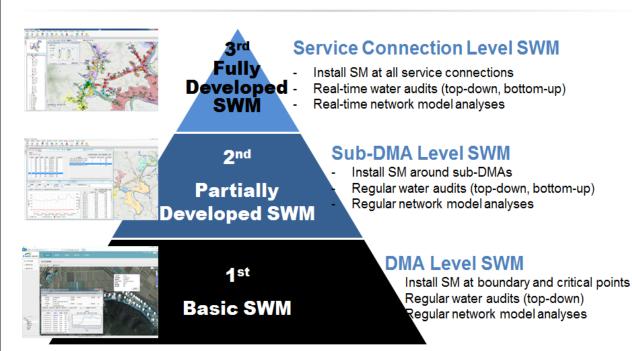
SWM in Colombo, Sri Lanka

Establishing virtual DMA (Level 1) for water audit

- * Monitoring the boundaries, large consumers and low pressure areas
- * Water audit is performed regularly, DMA hydraulic condition is evaluated using smart solution

Analyze priorities' demand pattern

3 Stages of SWM Implementation for DMAs

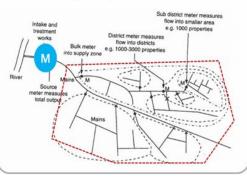


As-Is 🔪

 Flow rate & pressure mgmt. by 1 DMA

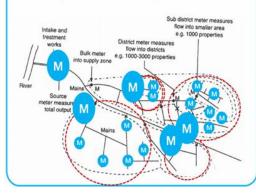
(1 Flow[™] + general meter for customer)

- 500 ~ 1500 customer/DMA
- Monitoring Only 1 MNF
- · NRW mgmt. by month



To-Be

- 1 DMA + 3~5 SDMA
 (1 Flow[™] +3~5 SM+ SM for every customer)
- about 300 customer/SDMA
- Hourly base monitoring by SDMA
- Daily base NRW mgmt.



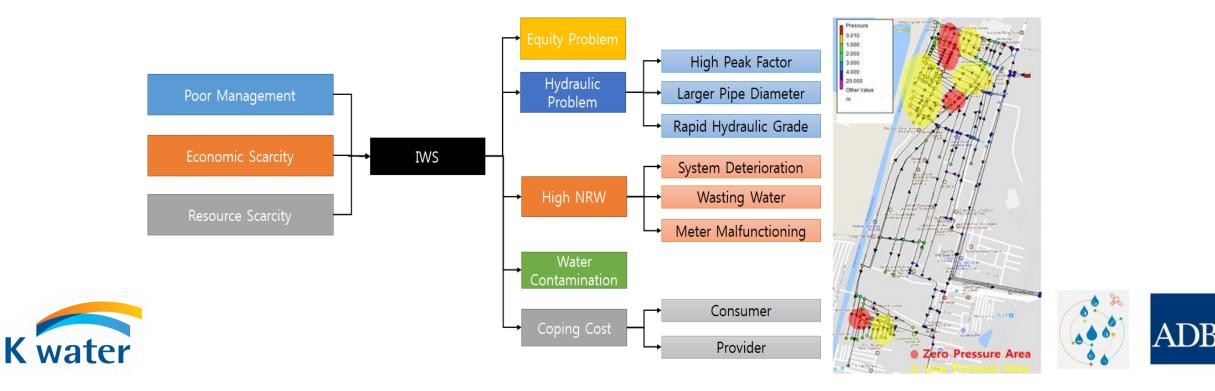
SWM in Chennai, India

Evaluating current serious intermittent water supply problems

* Equity, high peak factor, rapid hydraulic grade change

Establishing virtual Sub-DMA (Level 1) for water audit

* Developing the sub-DMA based on field diagnosis and hydraulic modeling



Conclusions

- There are various issues such as SM maintenance, smart solution, SWM implementation
- With SWM, water utilities can operate system more efficiently, but it don't guarantee for water utilities to operate system more easily
- SWM can be implemented in developed and developing countries
- The objectives and designs of SWM should be suggested with

considering current system state









