

STRENGTHENING OPERATION AND MAINTENANCE FINANCING FOR SUSTAINABLE WATER RESOURCES MANAGEMENT

Presented in 6th General Meeting NARBO



Operational & Maintenance Cost in Water Resources Management

Water Law No 11/1974 :

- Water Users involve in Water Financing (Article 14).

Government Regulation No 22/1982 :

- Water Users involve in Water Financing (Article 46).

**Minister of Public Work and Housing
Regulation No. 06/2015 :**

- O&M Cost based on Actual Cost for O&M of Water Resources
- Actual Cost can be attract from :

Central Government funds

Private funds

Water Infrastructure's exploitation and maintenance fee which payed by water Users (called Water Service Fees).

**Minister of Public Work and Housing
Regulation No. 18/2015, component of
Water Service Fees are :**

System Information Cost

Planning Cost

Construction Cost

Operation & Maintenance Cost

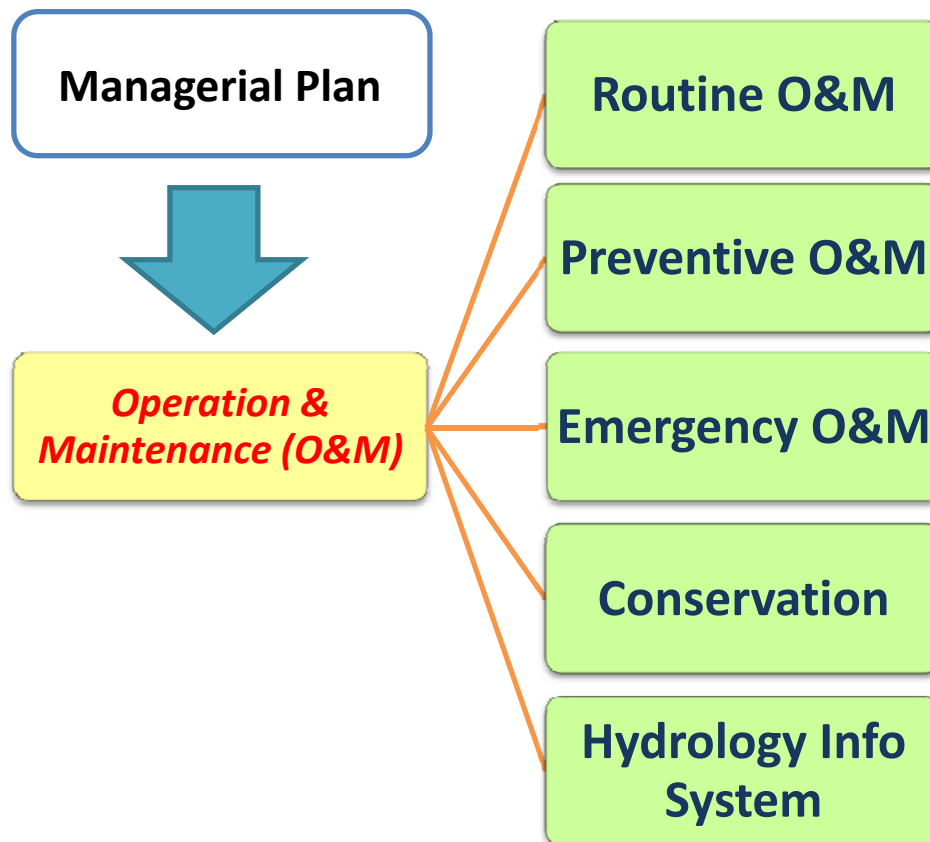
Monitoring, Evaluation & Public
Empowering Cost

Minister of Public Work and Housing Regulation No. 37/2015 :

- Water Service Fee should be payed by Water Users (Article 27).

Water Fee Based Services

Quality Assurance System



O&M Management Approach

- O&M planning takes into account the quality statement, quality policy and quality target at the corporate and unit level.
- Procedures, work instruction and manual based.
- Continuous improvement as basic of the whole activity

Flood Forecasting and Warning System (FFWS) Histories

- Installed and established at the end of 1990 and started its operation from the beginning of 1991. the hardware and software systems of FFWS 1st generation were installed in the Brantas River Basin through the Japanese Overseas Economics Cooperation Fund (OECE) Project.
- Additional 2 rainfall stations were installed at Tugu and Kampak in 1993.
- An extension of FFWS installed in 2000 supported by the Governemnt of Austrian through Indonesian Institute of Science (LIPI).
- The existing FFWS consist of observation system, telemetering system, flood analysis system, and communication system.

FLOOD FORECASTING AND WARNING SYSTEM (FFWS) BRANTAS RIVER BASIN (1990s)



MASTER STATION



REPEATER STATION



WATER LEVEL GAUGING STATION



RAINFALL GAUGING STATION

Problems on Existing FFWS

1. **Lack of spare parts** - The equipment has not been produced since 1996. The spareparts are now out of stock (discontinued).
2. **Processing of Telemetry Data** - Difficulties in changing H-V curves as they are memorized in the ROM of the Data Processing Equipment
3. **Telemetry Data Management** - Disconnection between the new database and the Data Storage Equipment
4. **Flood Analysis System** - The flood analysis system has not been applied yet to actual flood events since its establishment.
5. **Communication System** - Interfered with other wireless stations which using similar frequency band.
6. **Observation at Gauging Station** - Some water level gauged are not functioning due to sediment deposit especially in the dry season.

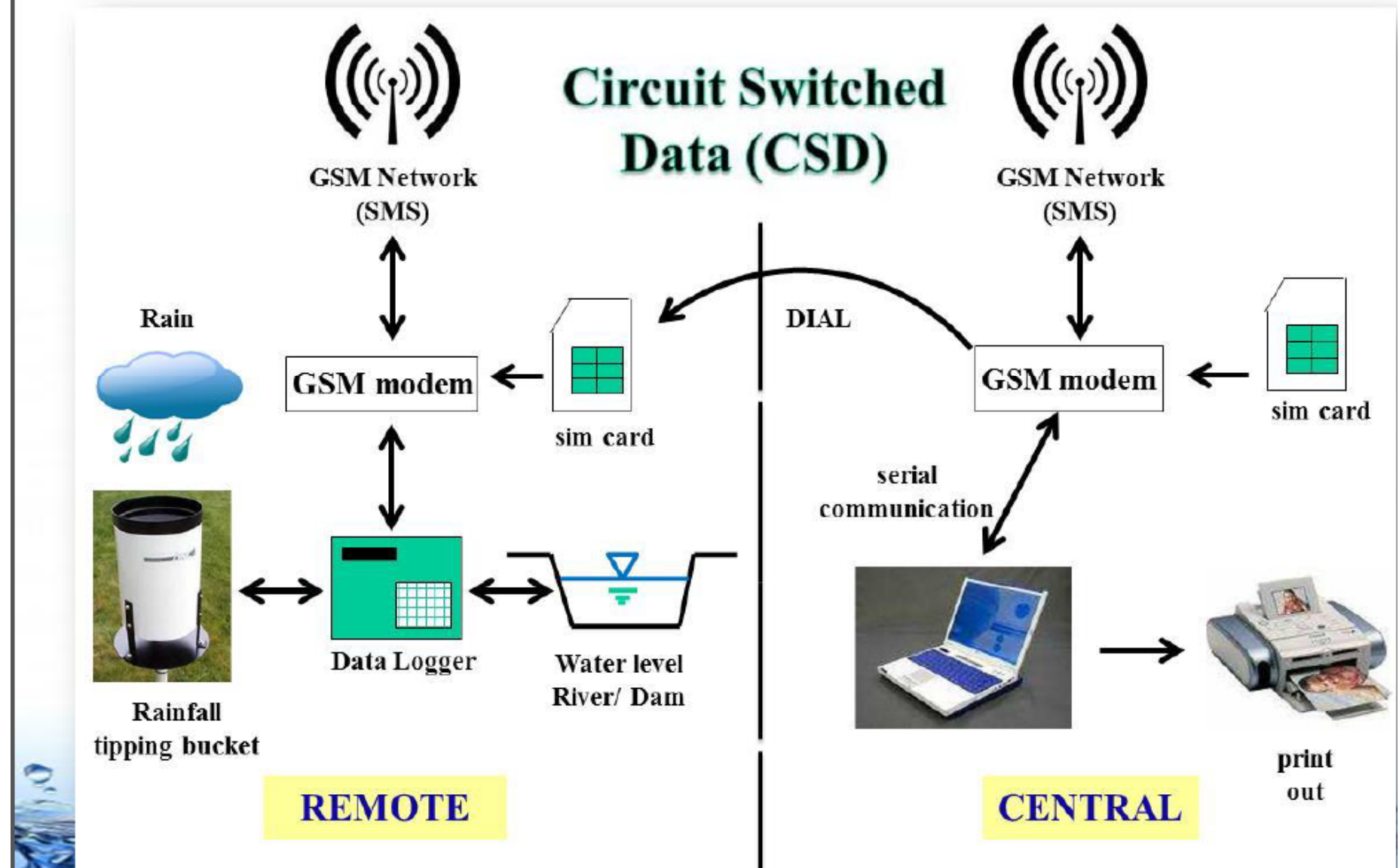
GSM System
Development

GSM System
Web-based
Development

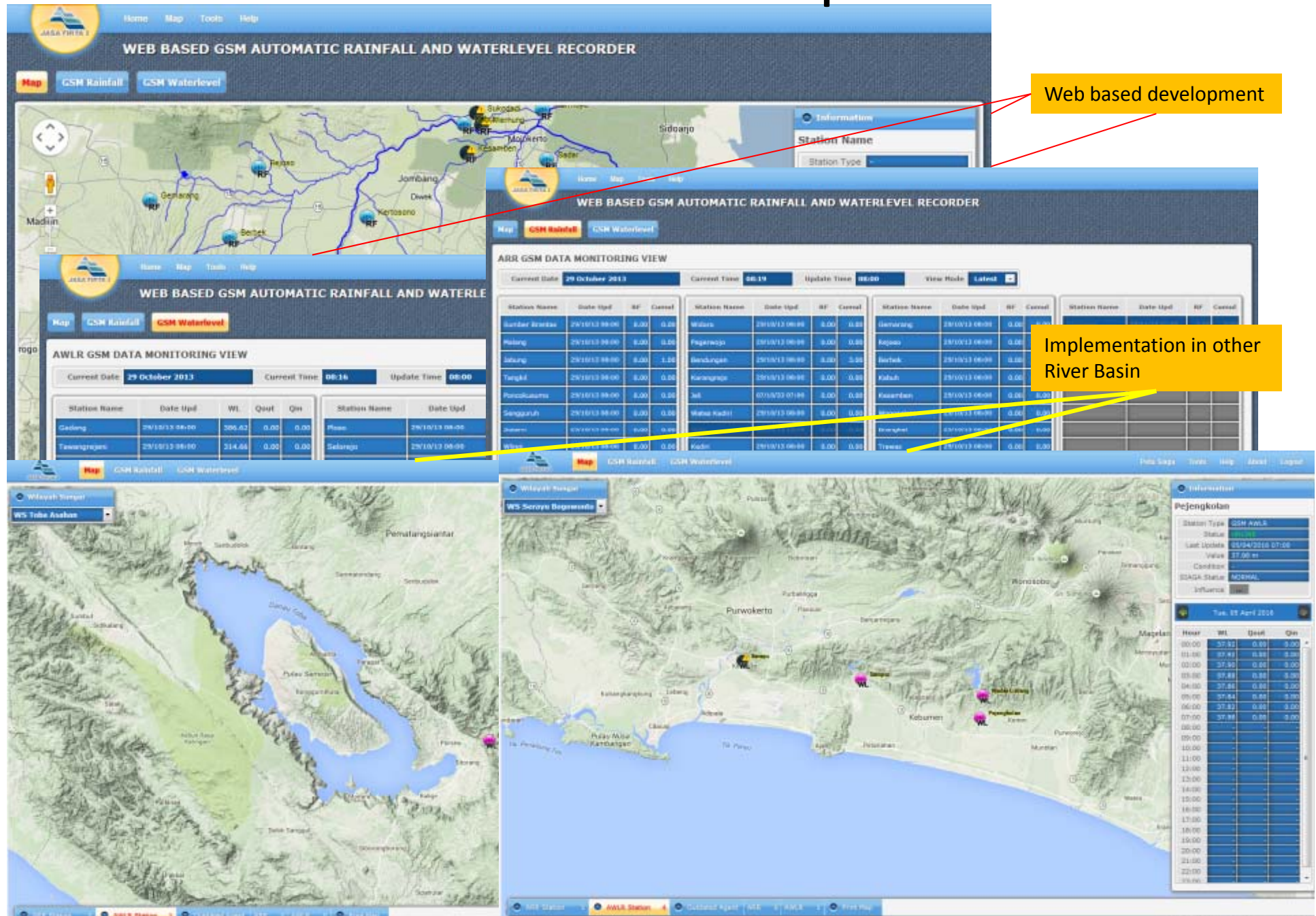
Android based
GSM Telemetry
Development

Ultrasonic
Sensor
Development

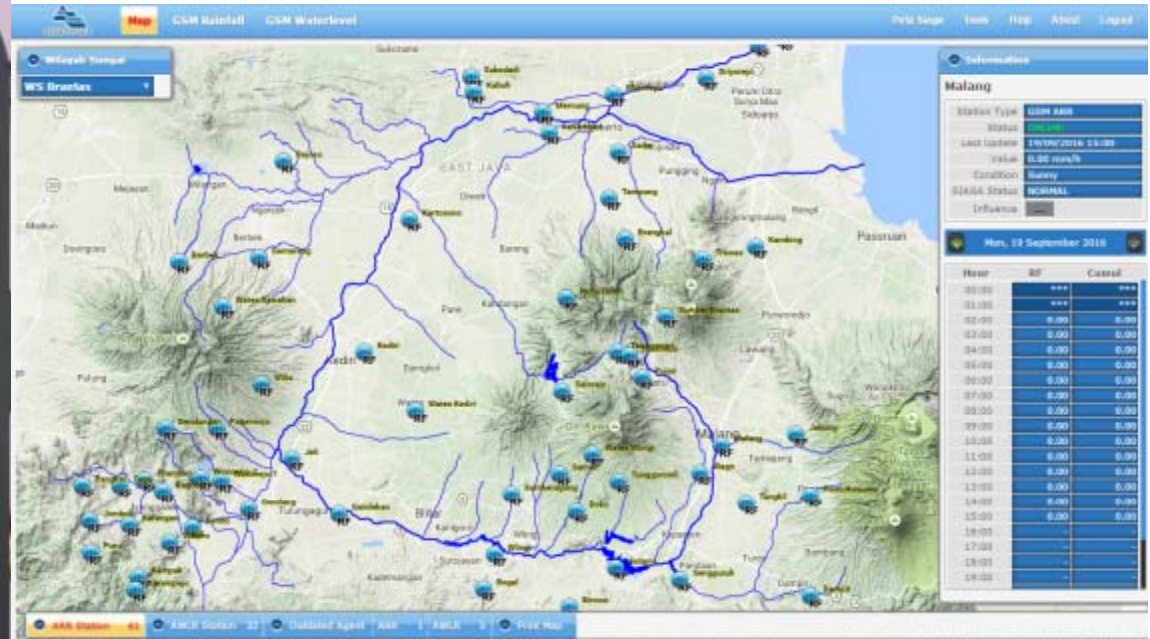
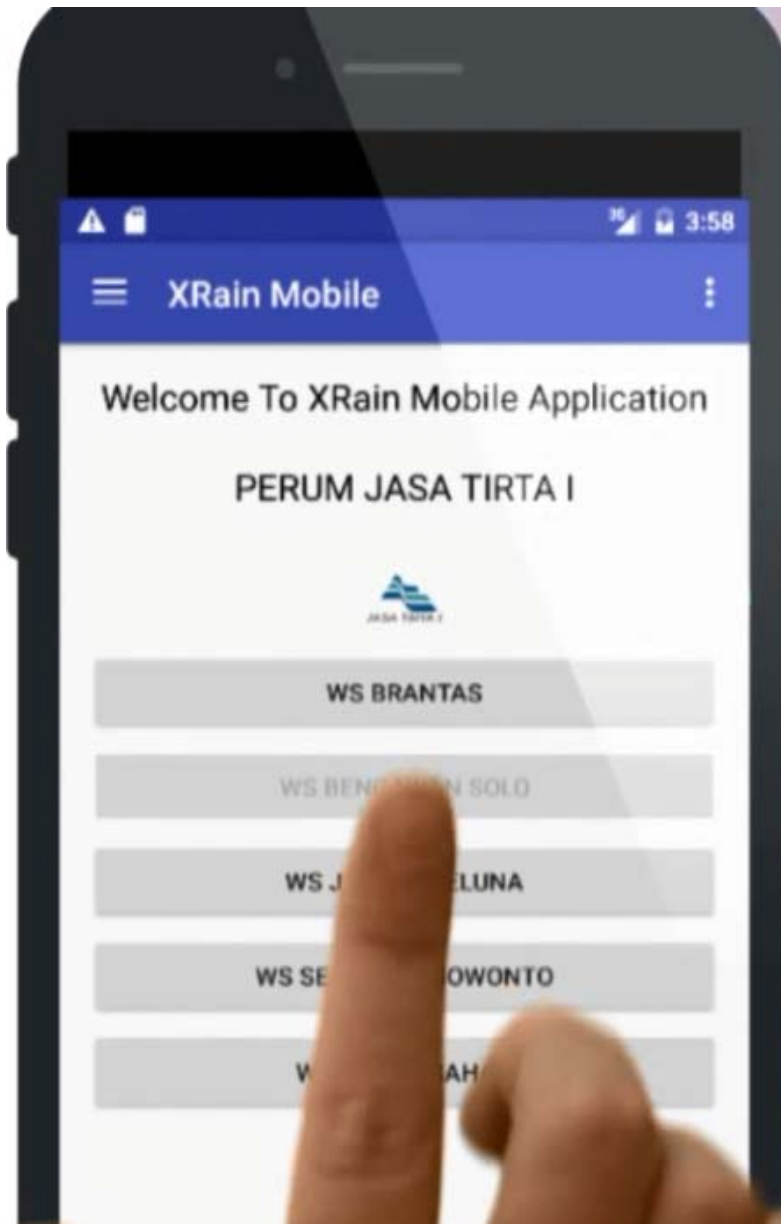
Monitoring System Based on Global System for Mobile (GSM)



GSM Web-Based Development



Android based GSM Telemetry Development



Comparison between JRC Telemeter System and GSM Telemeter System

Aspect	JRC Telemeter System	GSM Telemeter System
Data Cost	- (via Radio frequency)	IDR 120k /station/month
Number of Station	40	98
Maintenance Worker Cost	IDR 150k /station/month	IDR 150k /station/month
Electricity, spare part replacement, etc.	IDR 15million /month	IDR 5million /month

Repeal of Water Resources Law No 7/2004



**Verdict from Indonesia's
Constitutional Court
No. 085/PUU/XI/2013
On February 18, 2015**



- Indonesia's Constitutional Court, on February 18, 2015, revoked the 2004 Law on Water Resources
- The Court also reinstated the previous, 1974 Water Law as the controlling legislation until a new measure is adopted

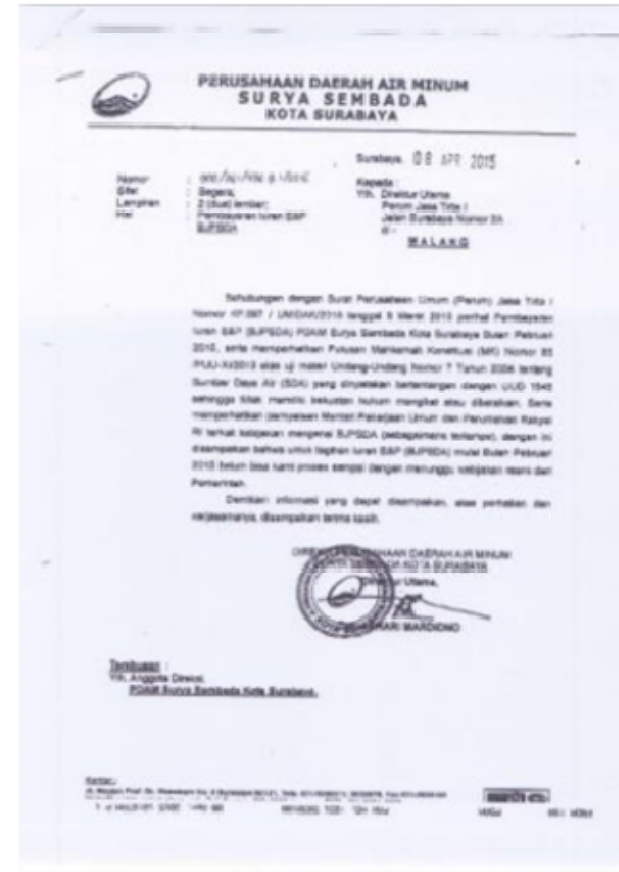


In March – June 2015 there are many retention from Users to pay Water Service Fee. Their reasons is



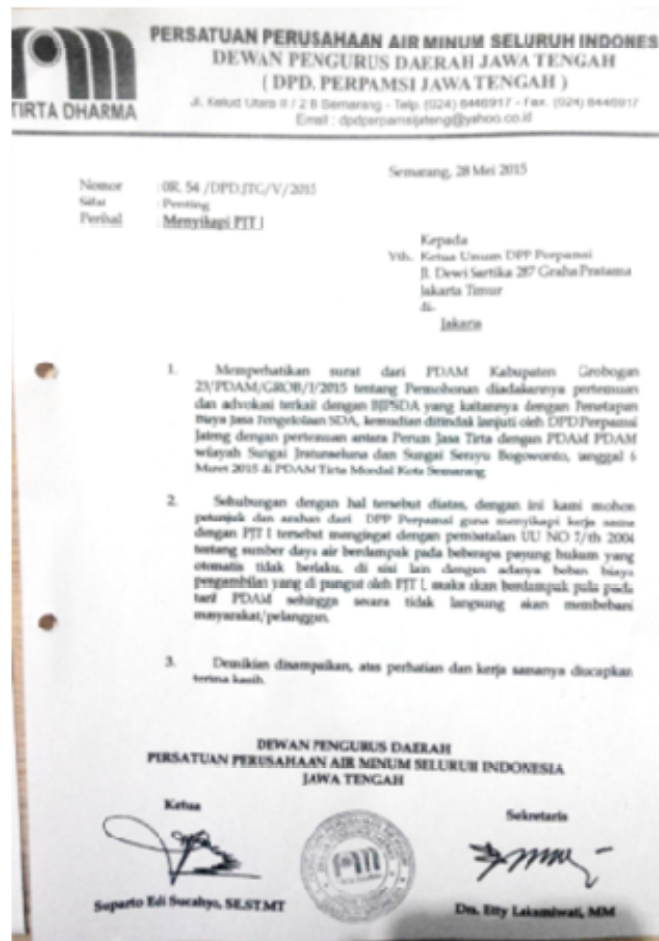
Ministry of Public Works and Housing has releases 21 * Minister regulation and 1 Government Regulation of Law Replacement to reduce the impact of Water Law's repeal.

Delaying of Water Service Fee's payment from User



After Water Law's Repeal, PT PJB and PDAM Surabaya delay their payment on Water Service Fees

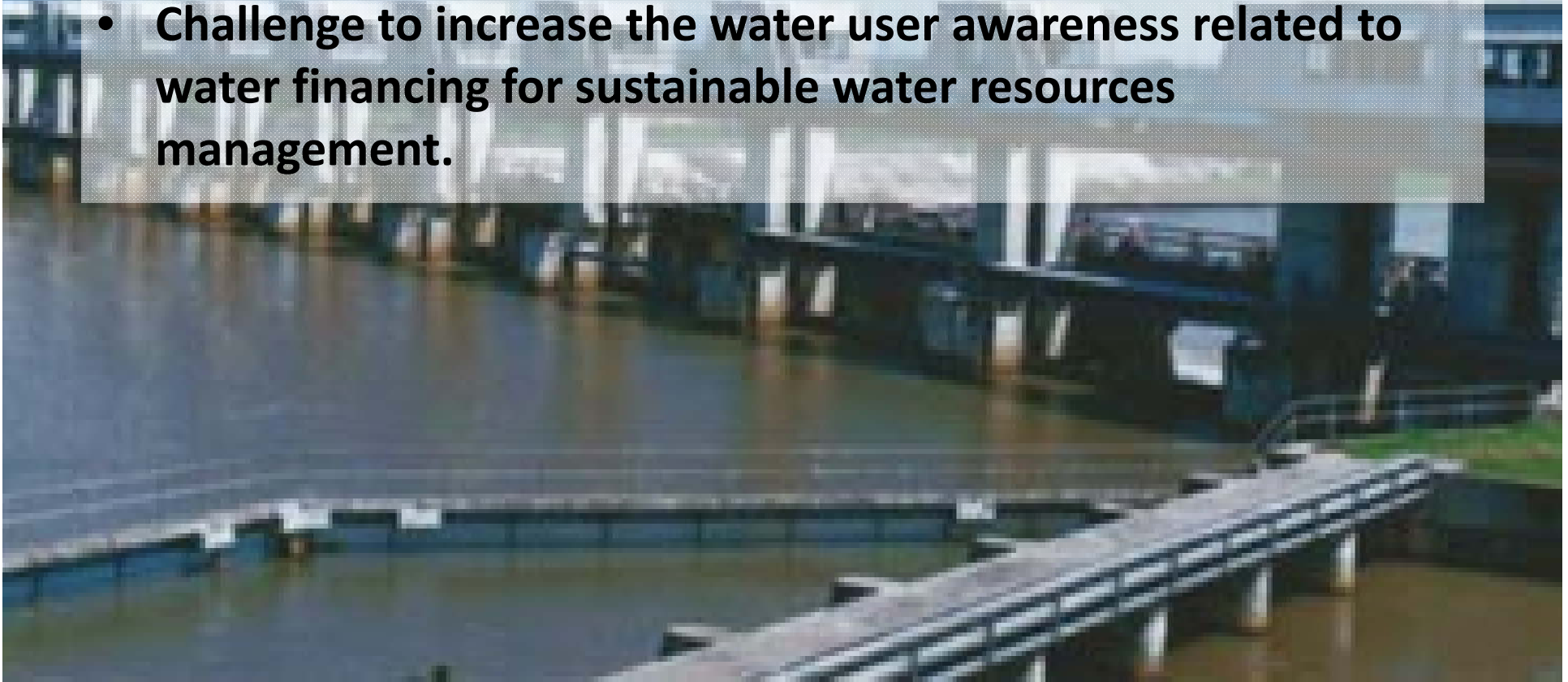
Delaying of Water Service Fee's payment from User



After Water Law's Repeal, PDAM West Java delay their payment on Water Service Fees

Next Challenging Issues in Water Financing

- **Repeal of Water Law No 7/2004 increase water user's retention to pay the Water Service Fee although new regulation has released to reduce the effect of those repeal in 2015.**
- **Challenge to increase the water user awareness related to water financing for sustainable water resources management.**



Our Expectation to NARBO

- What NARBO can suggest to members how RBOs strengthen their water financing scheme through alternative financial resources exclude Water Service Fees?



THANKS FOR YOUR ATTENTION