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USING ASSET MANAGEMENT TO UNDERPIN THE RESILIENCE OF AN ASIAN WATER UTILITY

Presented By:
Ir. Md Fuad Bin Bakri
Ranhill SAJ

INTRODUCTION

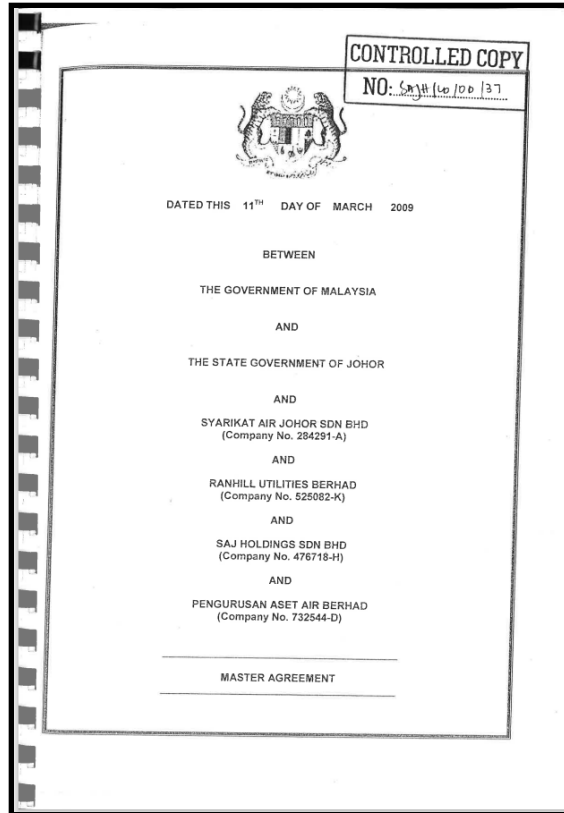
- ***Asset Management and Business Resilience***

An affective Asset Management system in a company is by improving its operation and understand its business resilience in the market. Business resilience is the ability of an organization have to face in integrating the risk or disruption while maintaining continuous business and understand the roles of asset information system and its function requirements.

- ***Asset Management Department (AMD) in Ranhill SAJ Sdn Bhd***

- ✓ Since year 2002 Planning division had established Technical Support section to manage data asset register in GIS. Later in 2020, uplifted as AM department.
- ✓ Since 2009 , Ranhill SAJ is licensed as water operator. No fixed asset in hand, which describe his business role as an Asset Light company.
- ✓ AMD manage assets that is govern under the **Master Agreement** dated 11th March 2009 that was signed between The Government of Malaysia and The State Government of Johor and Syarikat Air Johor Sdn Bhd and Ranhill Utilities Sdn Bhd and SAJ Holdings Sdn Bhd (Known as Ranhill SAJ; 2018) and Pengurusan Aset Air Berhad (PAAB).
- ✓ Meaning proposed CAPEX project will be finance by PAAB , a company under Ministry of Finance. And subjected to lease rental arrangements.

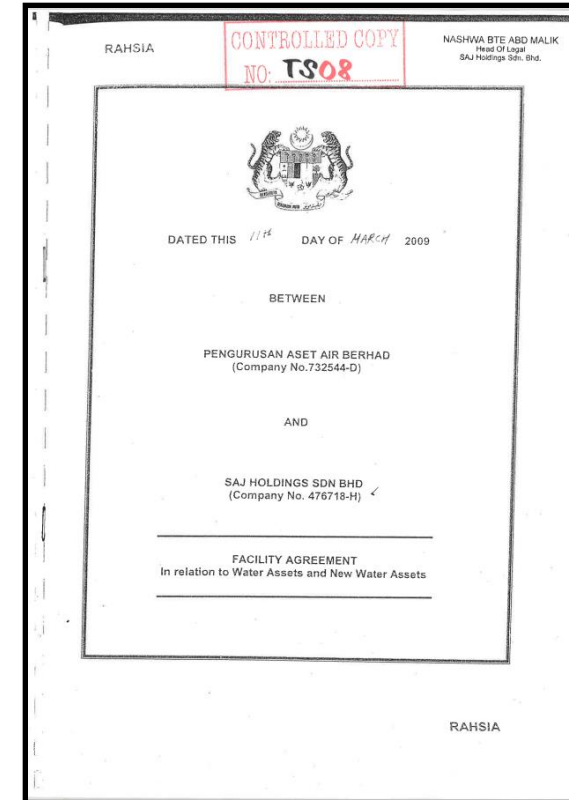
MASTER AGREEMENT



Master Agreement

Signed on 11th March 2009 between The Government of Malaysia and The State Government of Johor and Syarikat Air Johor Sdn Bhd and Ranhill Utilities Sdn Bhd and SAJ Holdings Sdn Bhd (Known as Ranhill SAJ Sdn Bhd since 2018) and Pengurusan Aset Air Berhad.

FACILITY AGREEMENT



Facilities Agreement

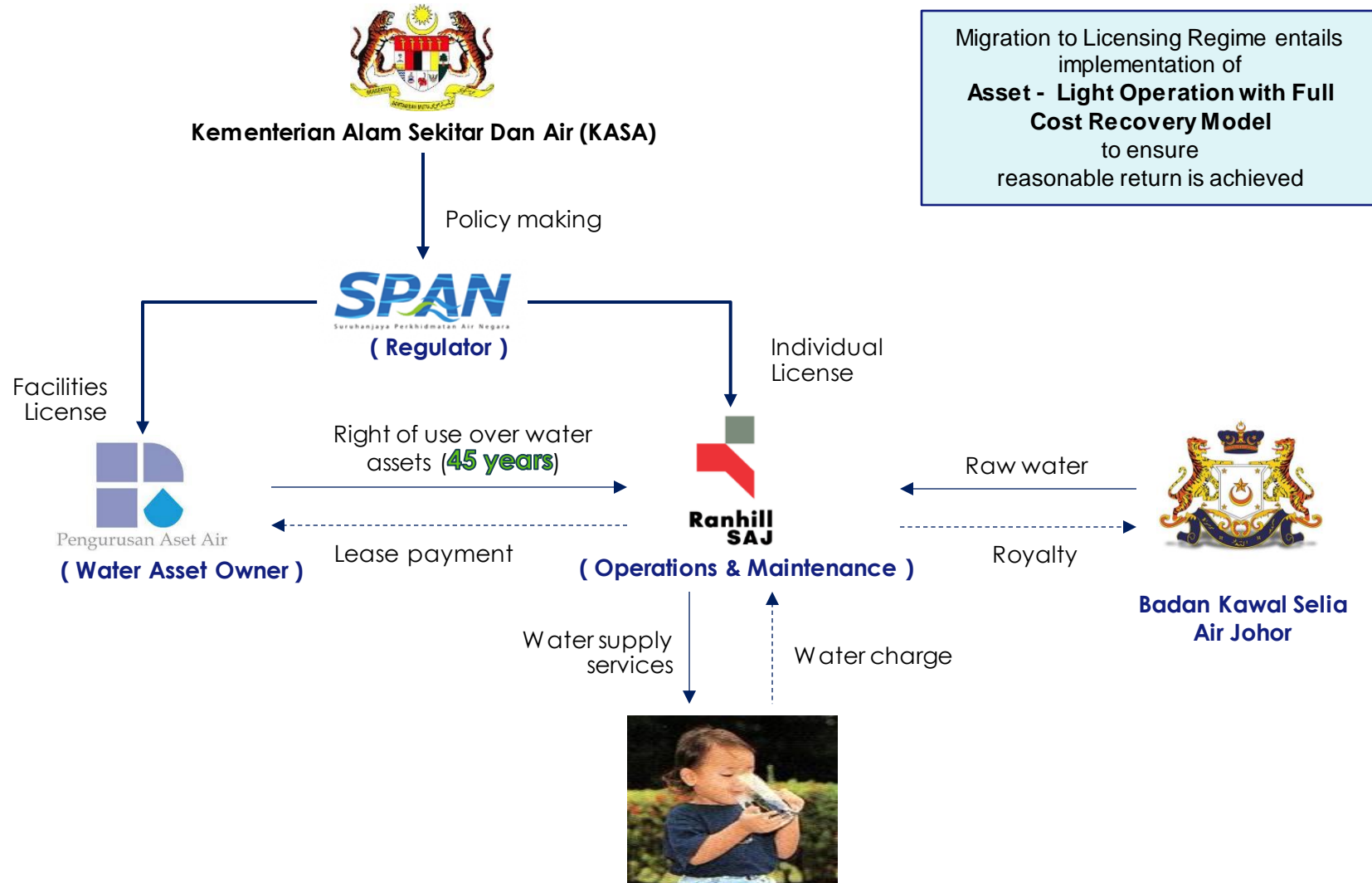
Signed on 11th March 2009 between Pengurusan Aset Air Berhad and Ranhill SAJ Sdn Bhd (formerly known as SAJ Holdings Sdn Bhd) Appointed as a License Water Operator to managed assets that were agreed under the agreement.



Ranhill
SAJ

Ranhill SAJ Background and Migration to Licensing Regime

Regulatory Framework of Water Industry



**RANHILL SAJ
SDN BHD**

VISION

To be the benchmark water services provider of the region

MISSION

We shall continuously satisfy our customer and stakeholders by optimizing available resources and delivering quality services.

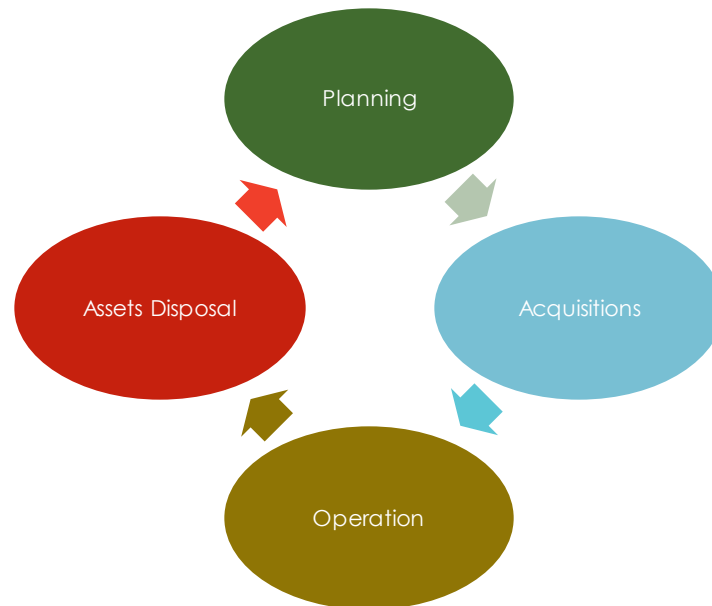
ASSET MANAGEMENT RSAJ

Introduction

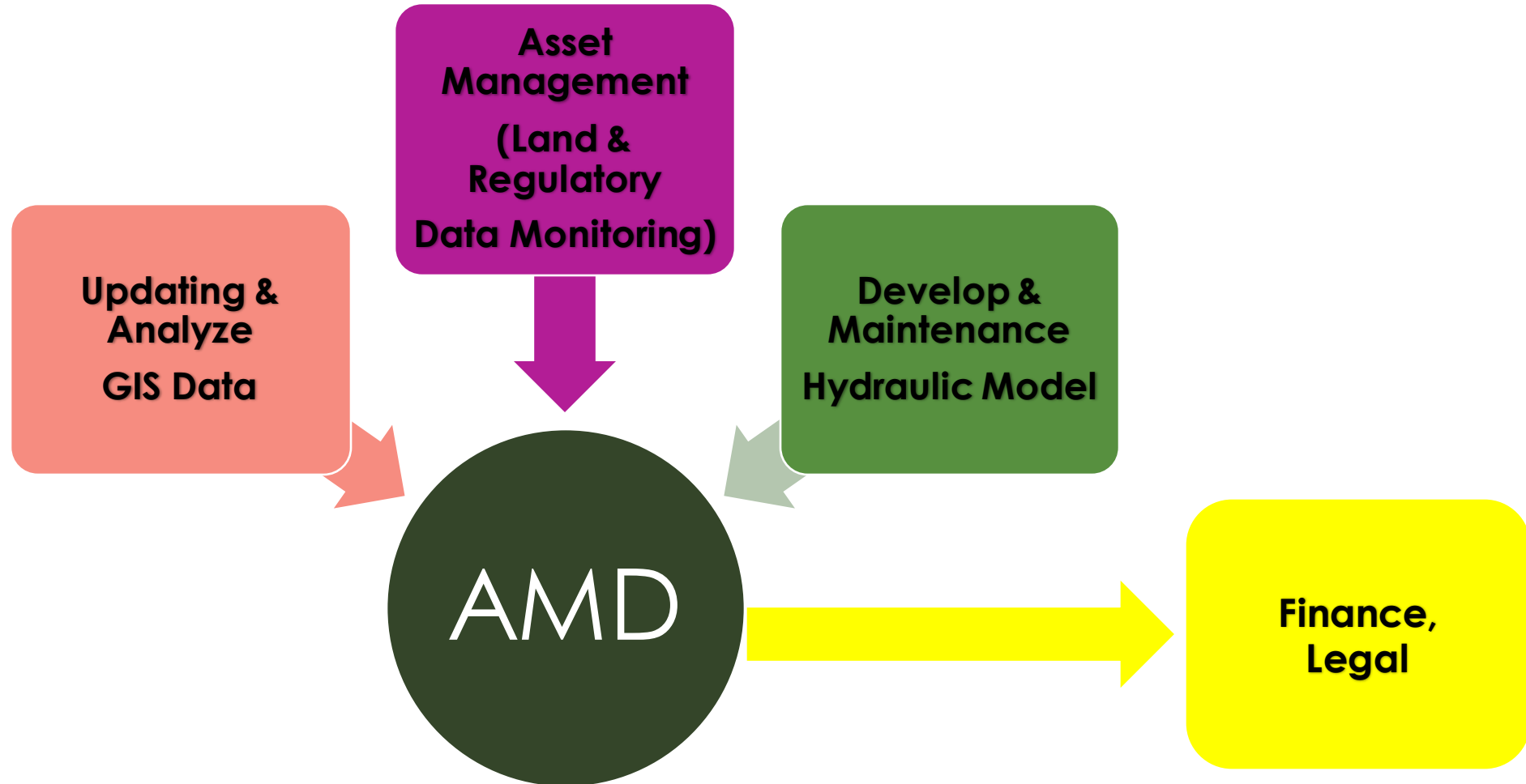
- ✓ A Licensed Water Operator that manages and assist water assets that belongs to PAAB, based on the Facility Agreement year 2009 and Johor States.

Objective

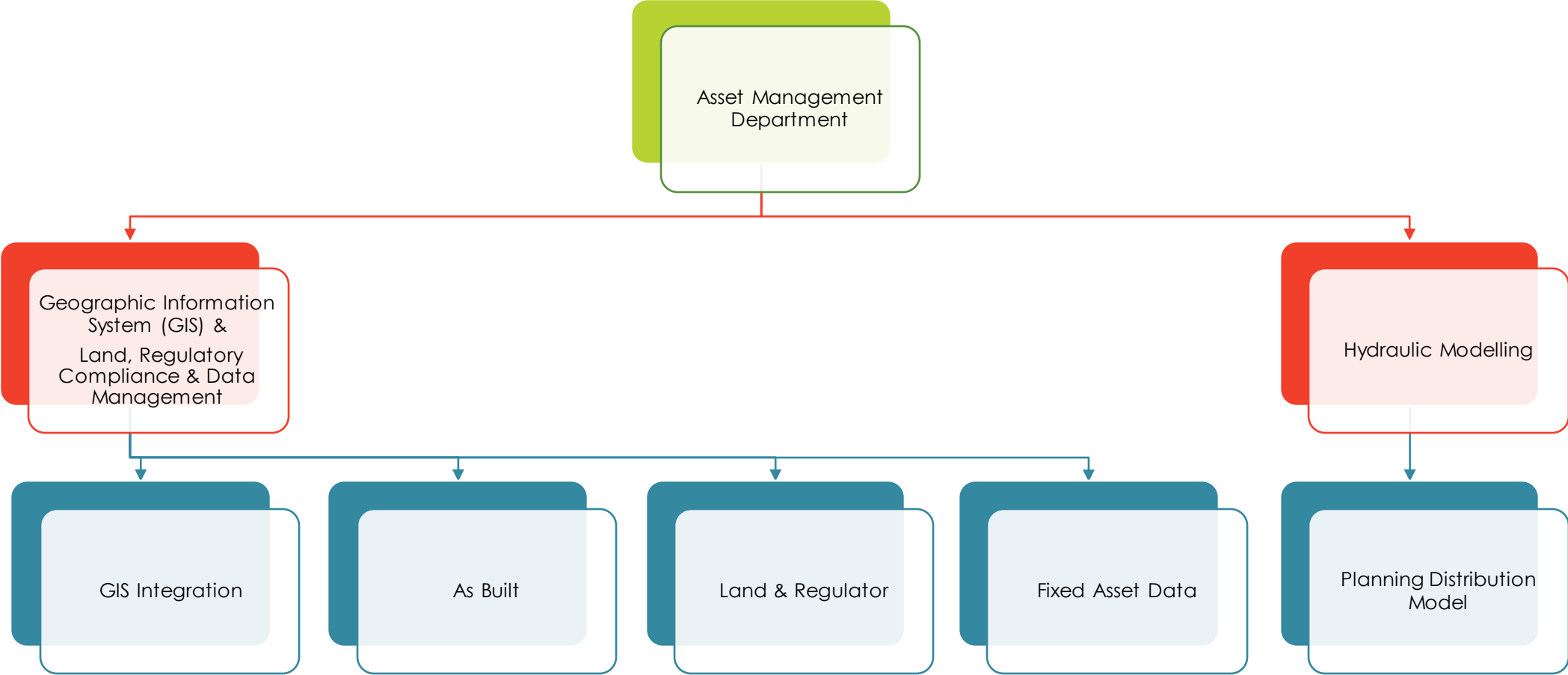
- ✓ To manage asset effectively. Which can be achieved by following an Assets Management philosophy ; Planning, Acquisitions, Operation and Assets Disposal of water assets in Johor.



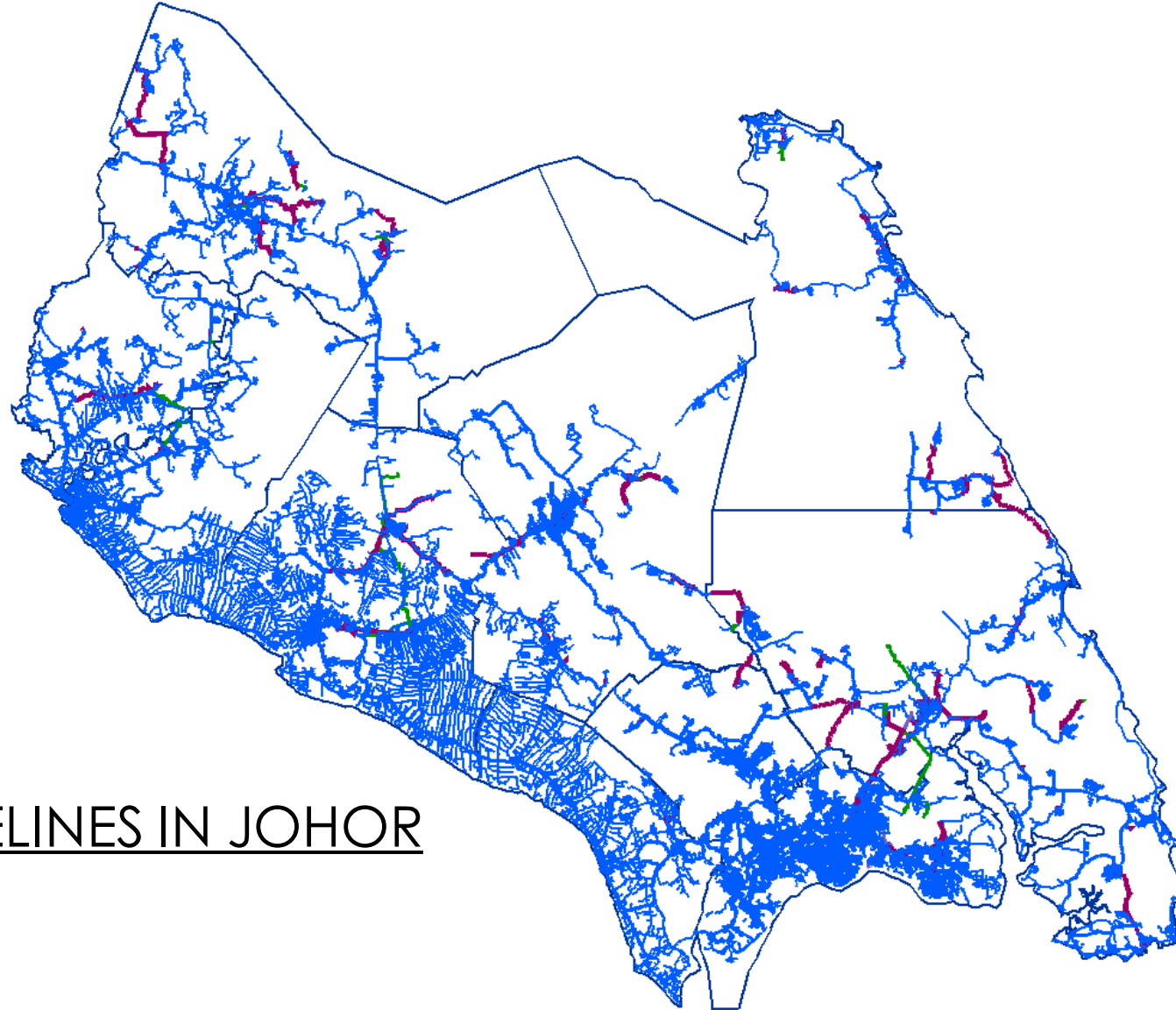
AMD SECTION



AMD STRUCTURE

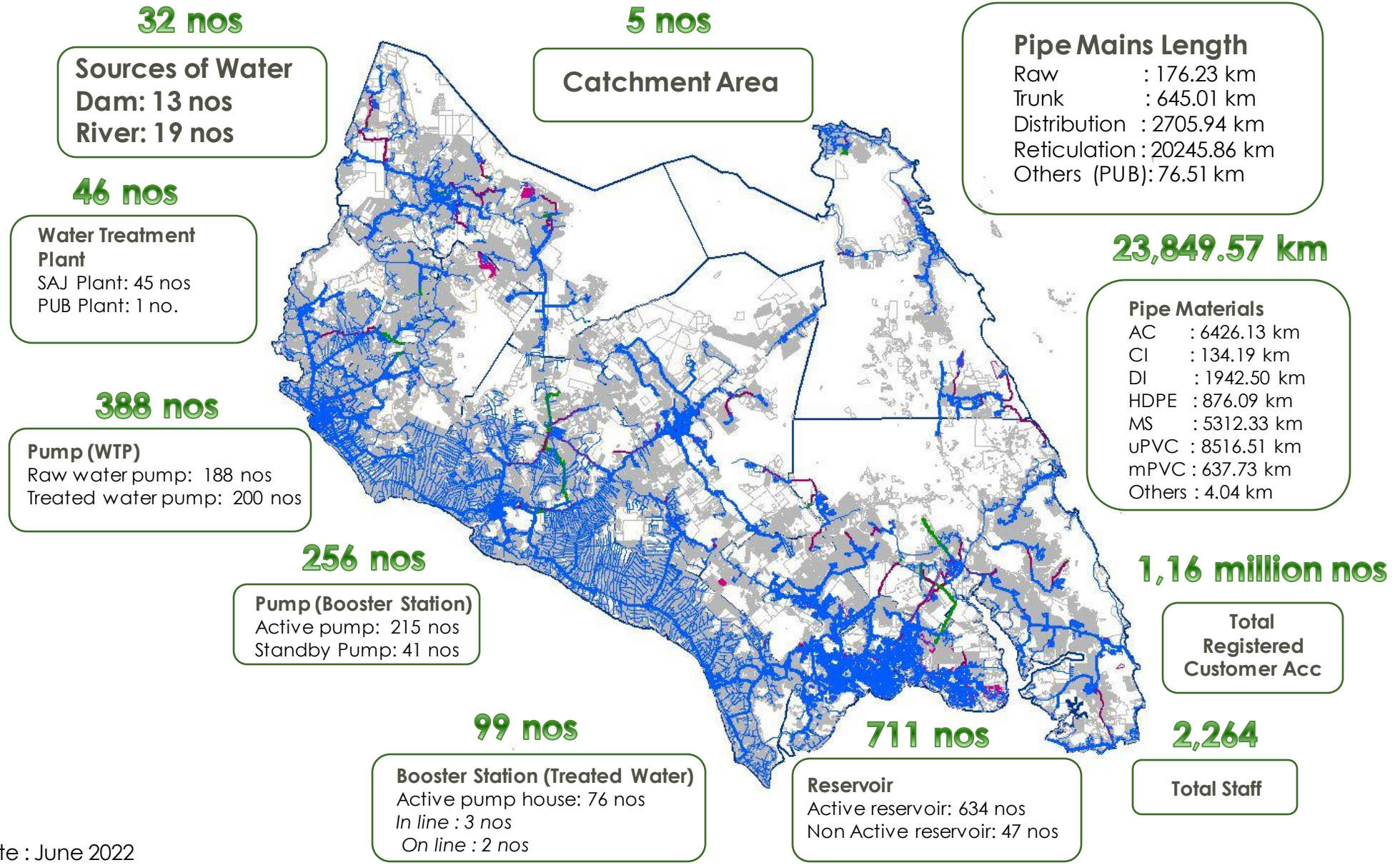


GIS, LAND REGULATORY & DATA MANAGEMENT SECTION



PIPELINES IN JOHOR

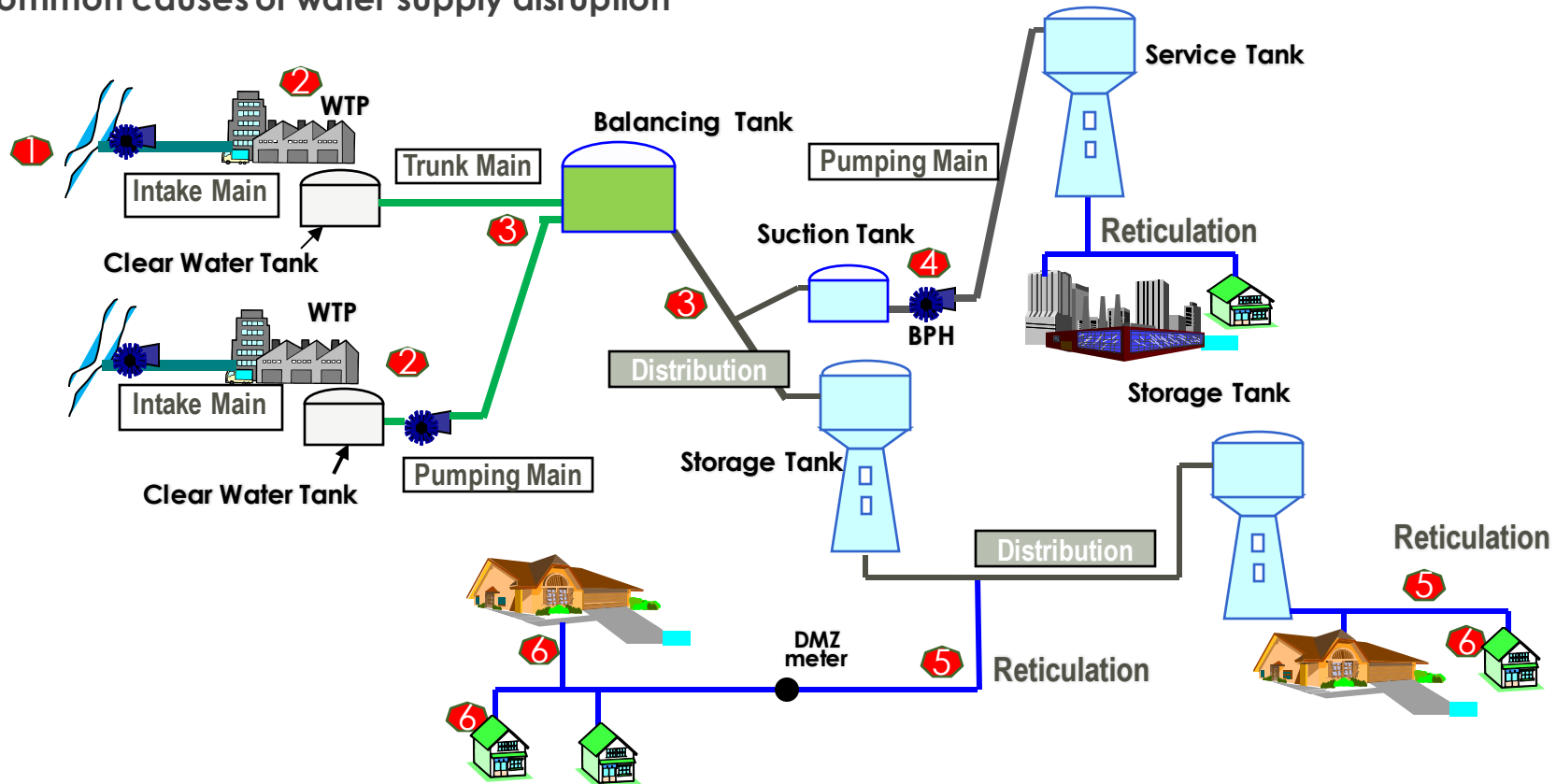
JOHOR WATER SUPPLY INFRASTRUCTURE



Johor Water Supply System

Operation

Common causes of water supply disruption



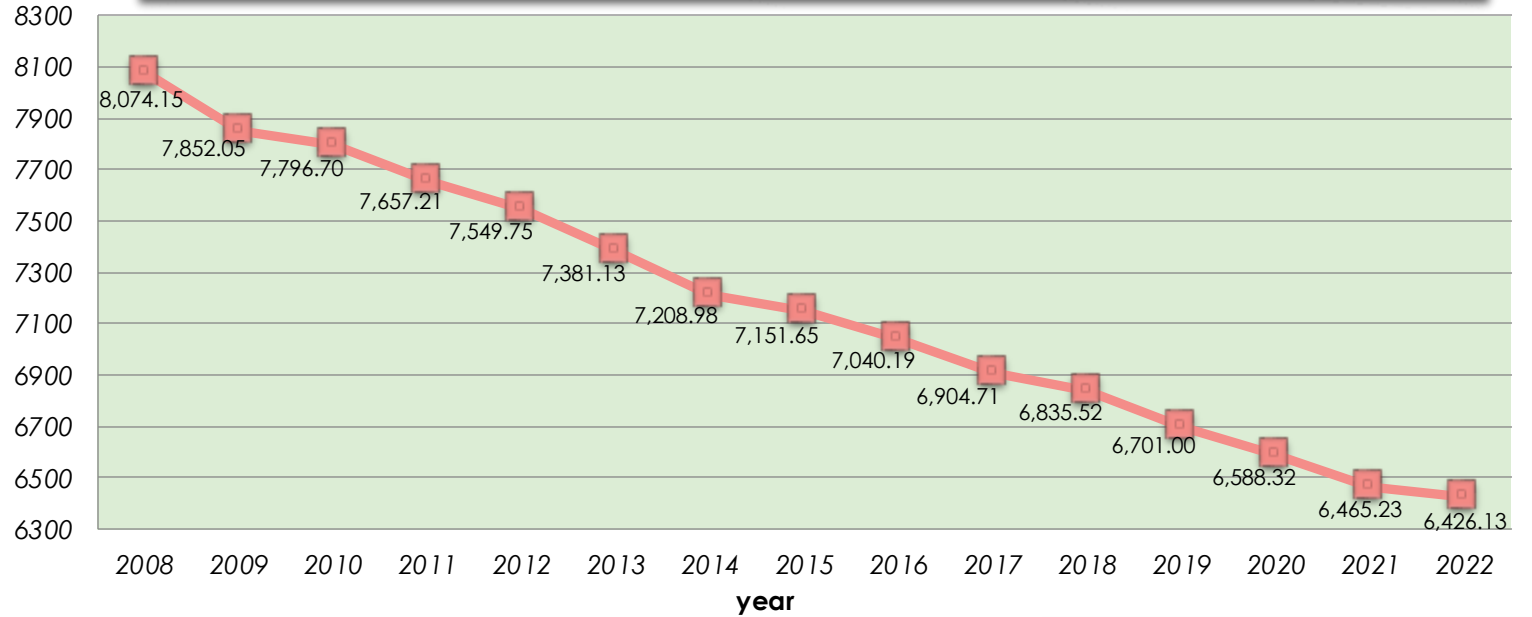
1	Raw water quality violation / scarcity	State Gov.		
2	Unplanned Shutdown <ul style="list-style-type: none"> M&E breakdown Power supply outage Planned Shutdown <ul style="list-style-type: none"> Maintenance Upgrading / improvement 	RSAJ		
3	<ul style="list-style-type: none"> Emergency repair works / trunk main burst 	RSAJ / 3 rd parties		
4	Unplanned Shutdown <ul style="list-style-type: none"> M&E breakdown Power supply outage Planned Shutdown <ul style="list-style-type: none"> Maintenance Upgrading / improvement 		RSAJ	
5	<ul style="list-style-type: none"> Emergency repair works / pipe burst (AC) New installation / connection / tee-off 		RSAJ 3 rd parties	
6	<ul style="list-style-type: none"> Unplanned development / rural area Tapping / comm. pipe / meter check 			KKLW RSAJ

REHABILITATION PROGRAMME



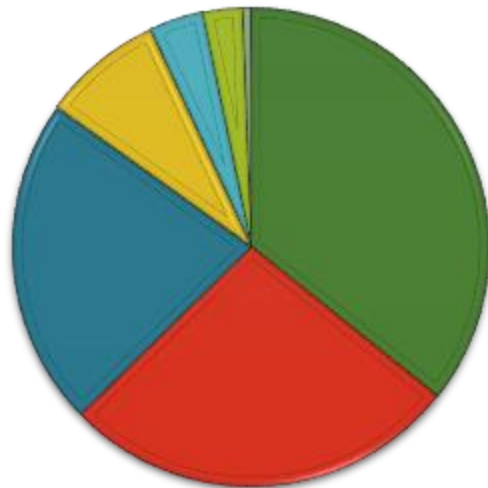
km

Pipe Rehab Programme on AC Pipes up to 2022



Pipe Length (km)

- uPVC
- AC
- MS
- DI
- HDPE
- mPVC
- CI
- Others



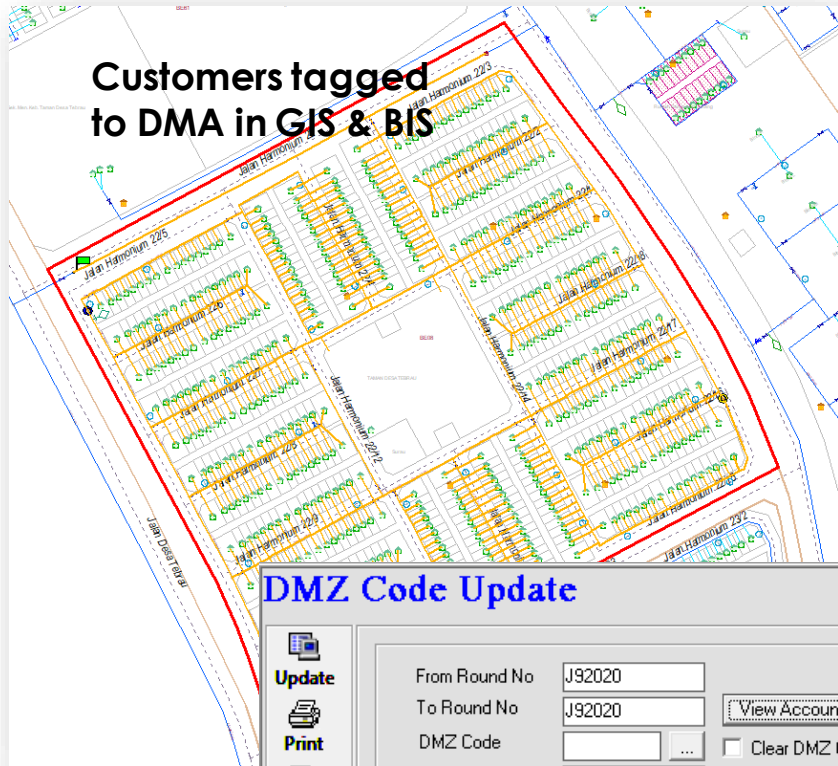
Pipe Length

- uPVC : 8,516.51 km
- AC : 6,426.13 km
- MS : 5,312.33 km
- DI : 1,942.50 km
- HDPE : 876.09 km
- mPVC : 637.73 km
- CI : 134.19 km
- Others : 4.04 km

23,849.57 km



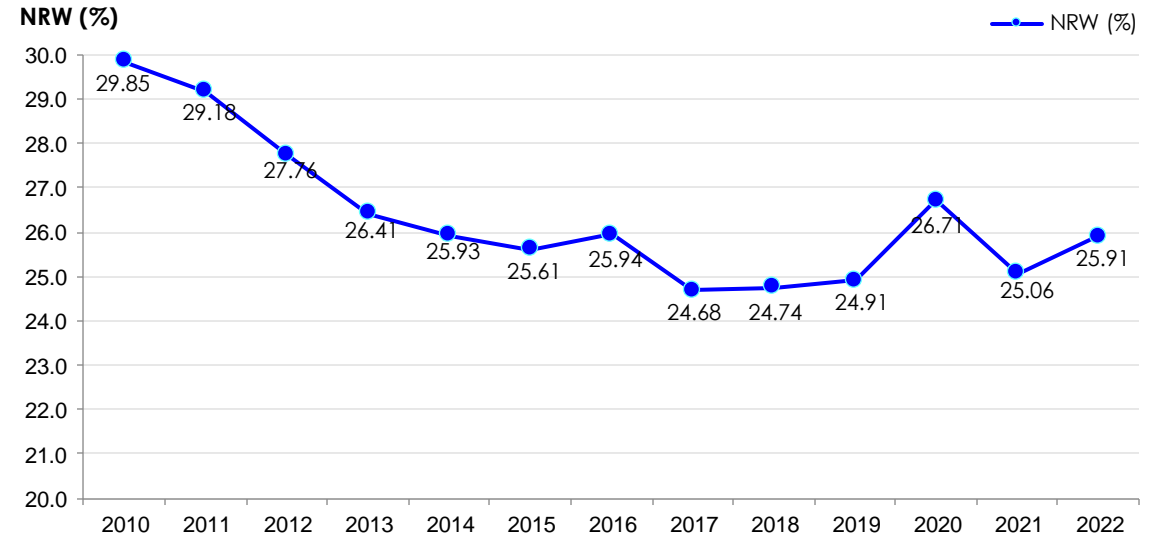
GIS CUSTOMER TAGGING ON NRW PROGRAMME



DMZ Code Update

From Round No: J92020
 To Round No: J92020
 DMZ Code: Clear DMZ Code
 DMZ Tag Date:

No	Account No	Sel (Y/N)	DMZ	DMZ Date	Round	WalkSeq	Address
9	97683134-J6685768	N	BE08	28/10/2005	J92020	50	60 (PT)
10	97683107-J6685731	N	BE08	28/10/2005	J92020	60	58 (PT)
11	97683072-J6685704	N	BE08	28/10/2005	J92020	70	56 (PT)
12	95389457-J6664870	N	BE08	28/10/2005	J92020	80	54 (PT)
13	95357311-J6626868	N	BE08	28/10/2005	J92020	90	52 (PT)
14	97682929-J6685553	N	BE08	28/10/2005	J92020	100	50 (PT)
15	97682901-J6685535	N	BE08	28/10/2005	J92020	110	48 (PT)
16	97325968-J6232169	N	BE08	28/10/2005	J92020	120	46 (PT)
17	95363180-J6685517	N	BE08	28/10/2005	J92020	130	44 (PT)
18	81685858-J6685517	N	BE08	28/10/2005	J92020	130	44 (PT)
19	97682885-J6685517	N	BE08	28/10/2005	J92020	130	44 (PT)
20	81250452-J6530024	N	BE08		J92020	140	42 (PT)
21	97553097-J6530024	N	BE08	28/10/2005	J92020	140	42 (PT)

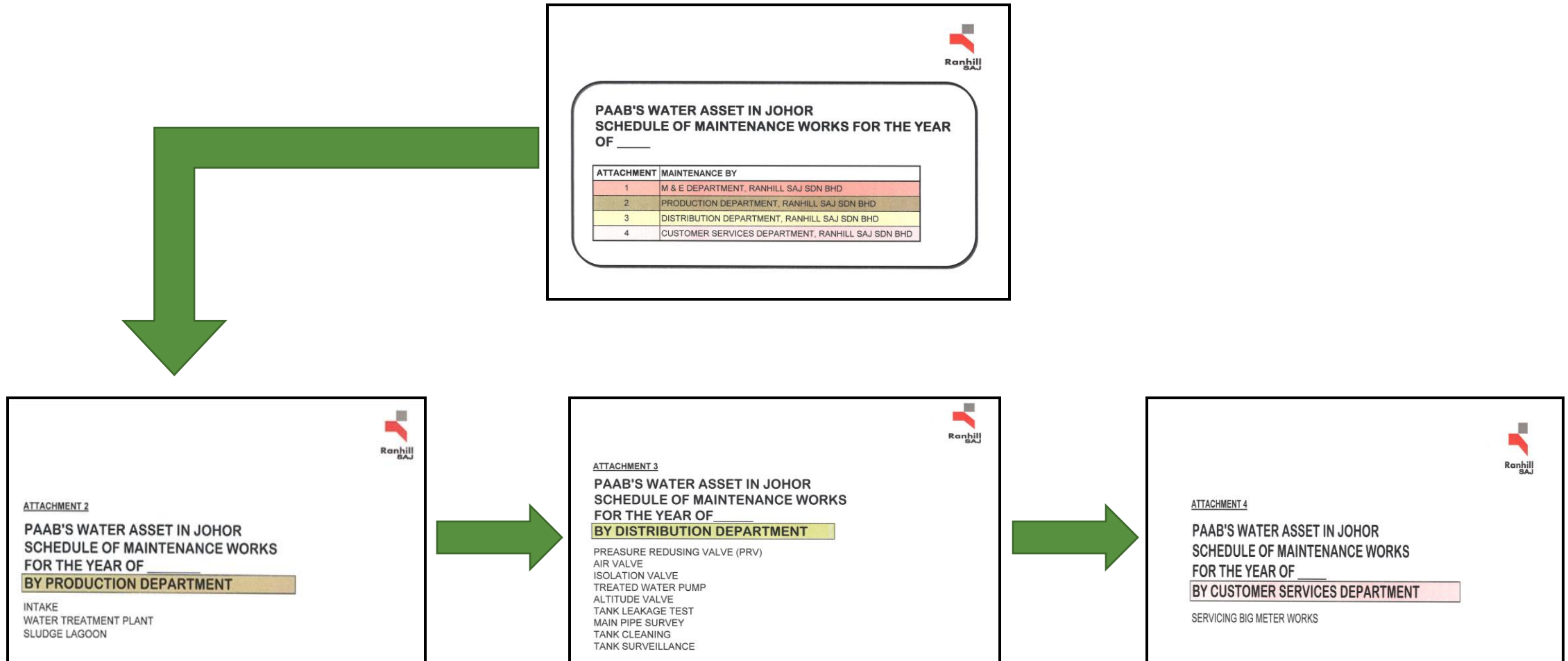


WATER ASSET DATA REPORT SAMPLE

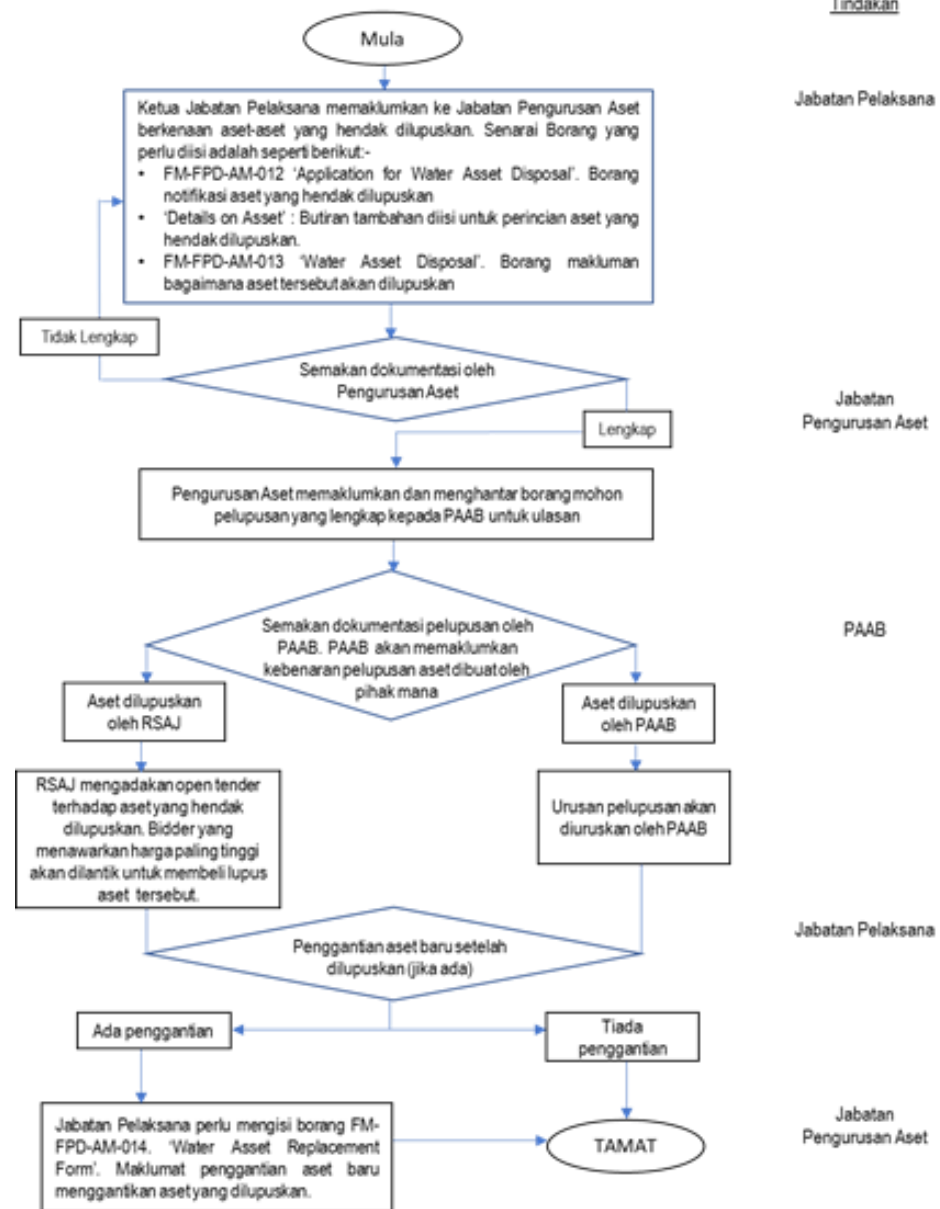


Ranhill
SAJ

A. Report submission to Pengurusan Aset Air Berhad (PAAB)



FLOWCHART FOR WATER ASSETS DISPOSAL UNDER PAAB'S

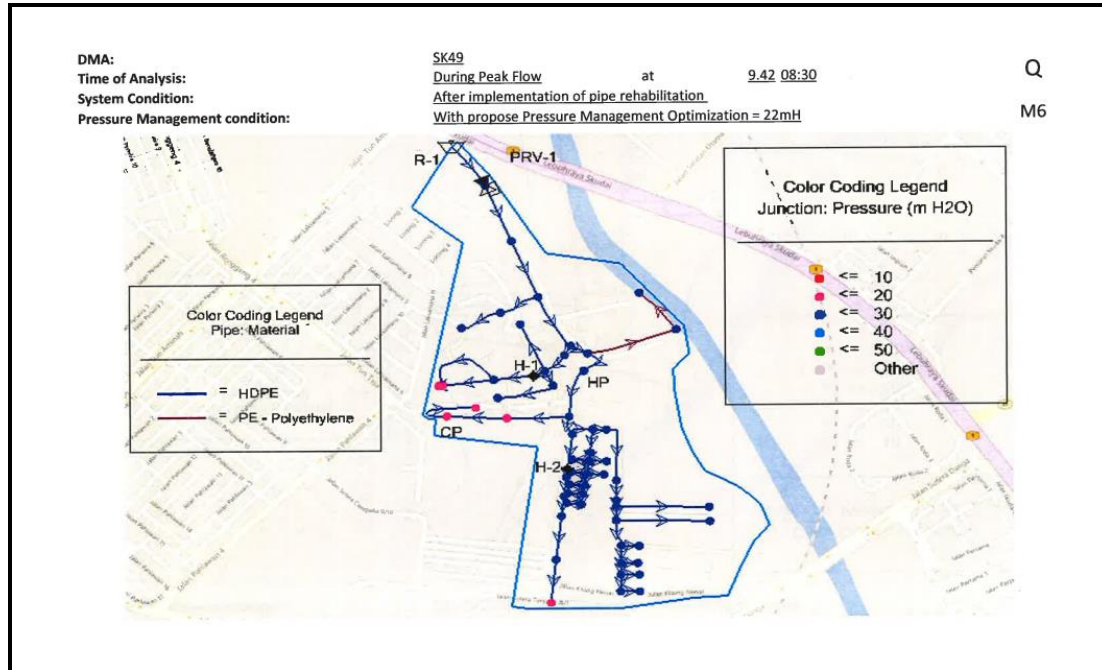


Ranhill
SAJ

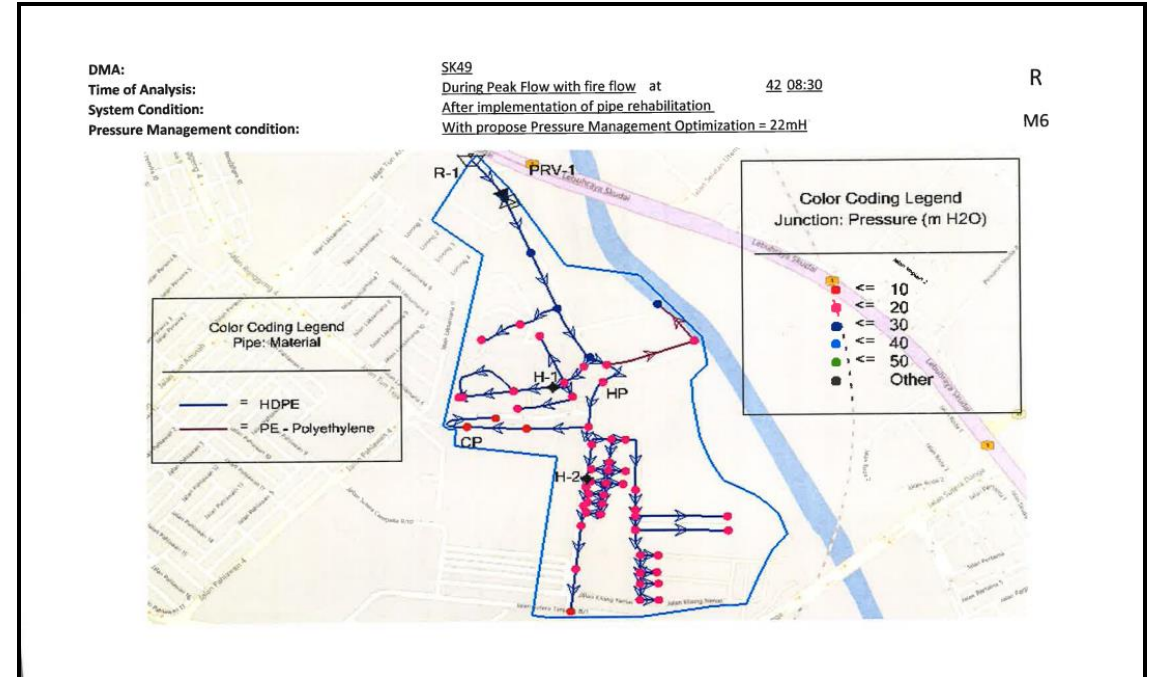
IMPLEMENTATION OF PIPE REHABILITATION FOR NRW PROGRAM



Ranhill
SAJ

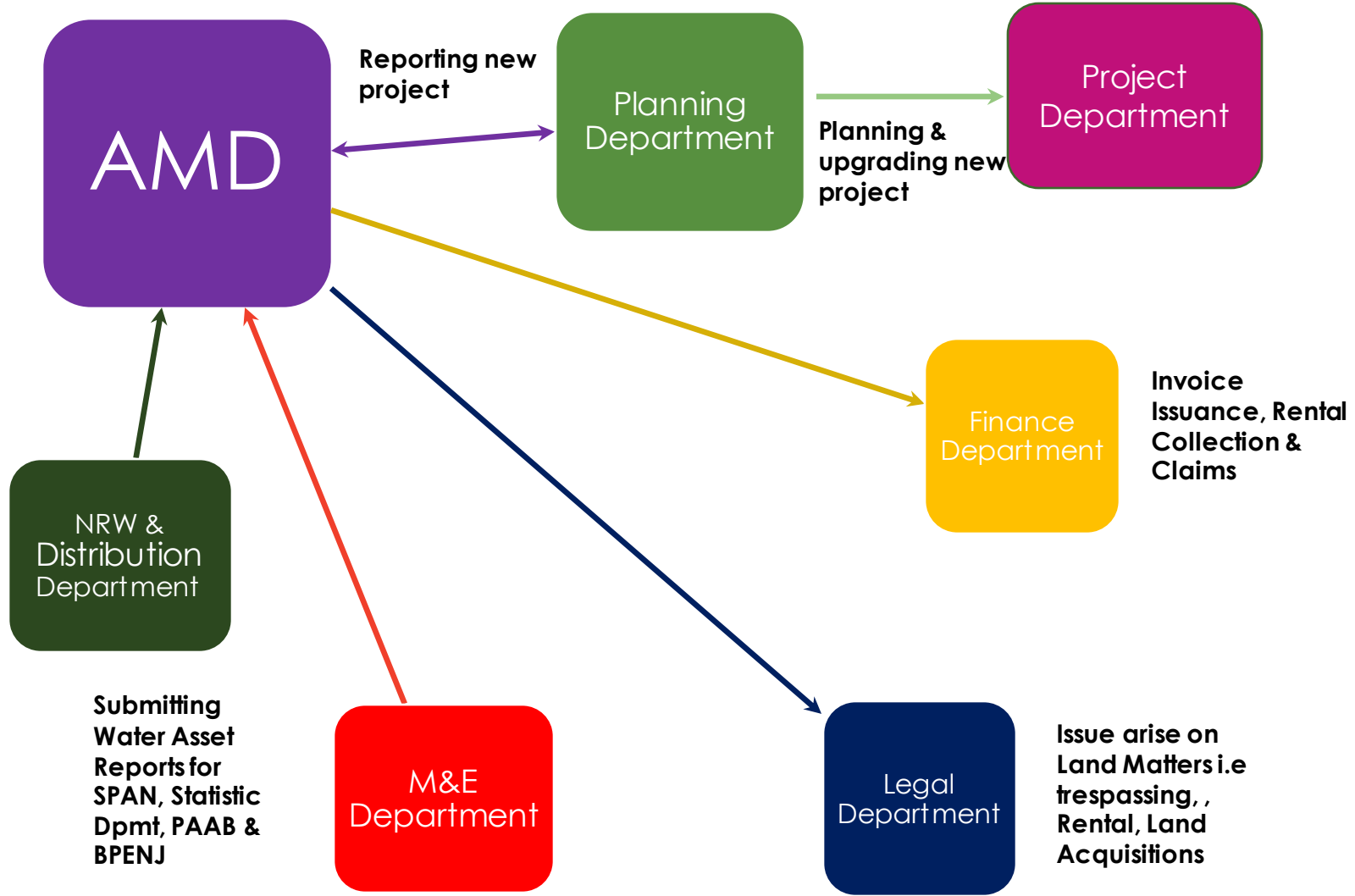


Before



After

AM WORK FLOWCHART



LIST & LOCATION FOR RANHILL SAJ MANAGEMENT SYSTEM CERTIFICATIONS

QUALITY MANAGEMENT SYSTEM (QMS)

- HQ
- 8 WTPs
 - Semangar WTP, Kota Tinggi
 - Tenglu WTP, Mersing
 - Gersik WTP, Muar
 - Sg. Sayong WTP, Kota Tinggi
 - Sg. Lebam WTP, Kota Tinggi
 - Sg. Johor WTP, Kota Tinggi
 - Sultan Iskandar WTP, Pasir Gudang

ISO
9001

SISTEM AKREDITASI MAKMAL MALAYSIA (SAMM)

- Sri Gading Central Laboratory, Batu Pahat
- Muar & Kota Tinggi Mini Laboratory

ISO/IEC
17025

ISO
45001

OCCUPATIONAL HEALTH & SAFETY MANAGEMENT SYSTEM (OHSMS)

- 8 WTPs
 - Semangar WTP, Kota Tinggi
 - Tenglu WTP, Mersing
 - Gersik WTP, Muar
 - Sg. Sayong WTP, Kota Tinggi
 - Sg. Lebam WTP, Kota Tinggi
 - Sg. Johor WTP, Kota Tinggi
 - Sultan Iskandar WTP, Pasir Gudang

ENERGY MANAGEMENT SYSTEM (EnMS)

- HQ
- 5 WTPs
 - Semangar WTP, Kota Tinggi
 - Sg. Johor WTP, Kota Tinggi
 - Sg. Sayong WTP, Kota Tinggi
 - Gersik WTP, Muar
 - Sultan Iskandar WTP, Pasir Gudang

ISO/IEC
27001

ISO
50001

INFORMATION SECURITY MANAGEMENT SYSTEM (ISMS)

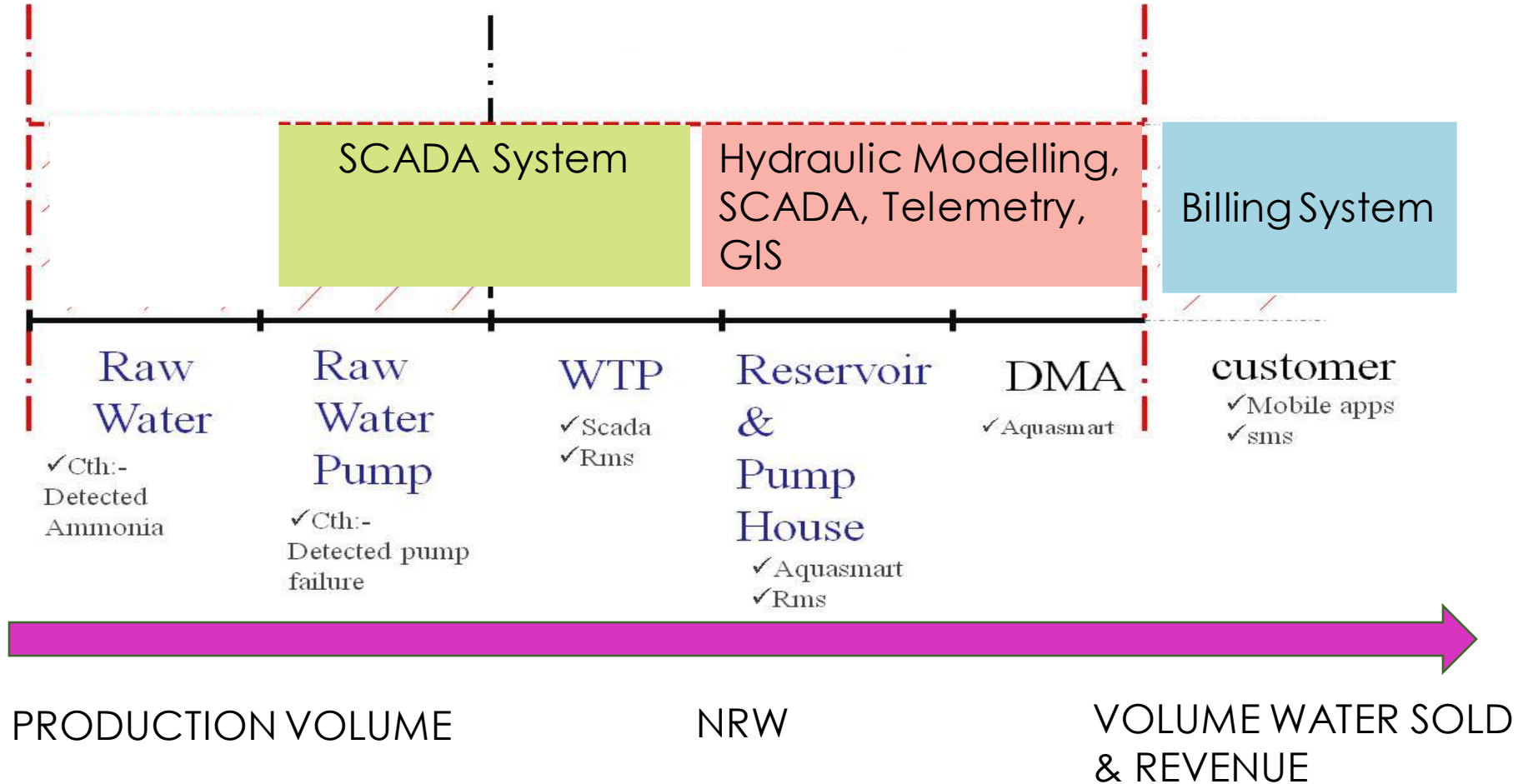
- Customer Services Department
- Johor Bahru Agency

MS
1480

HAZARD ANALYSIS AND CRITICAL CONTROL POINT (HACCP)

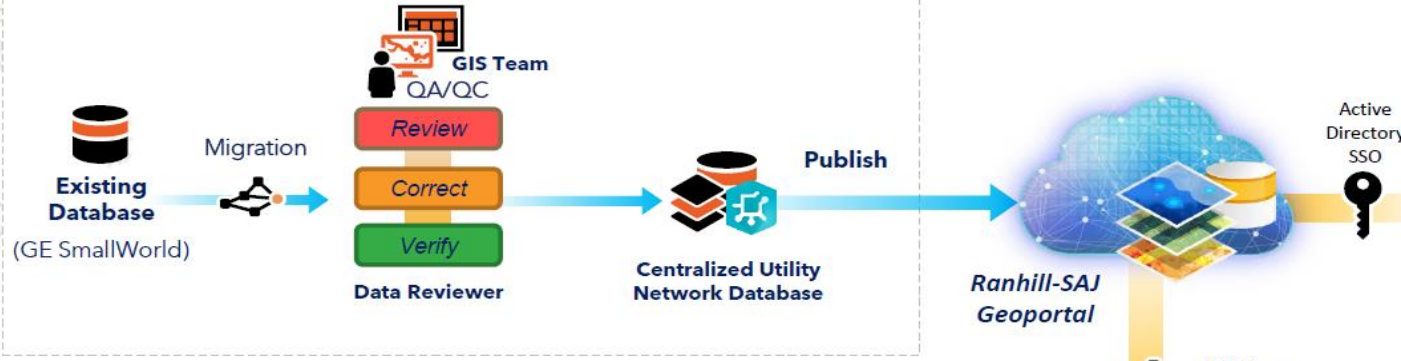
- 44 WTPs with exclusion of Buloh Kasap WTP and Pagoh WTP

COMMON WATER SUPPLY BUSINESS SYSTEM



AM BUSINESS SYSTEM SOLUTIONS & CURRENT TECHNOLOGY

1 Utility (Water Distribution) Network Migration Module



2 Central Asset Repository Module



3 Water Billing Information Dashboard Module

4 Water Utility Dashboard Module

5 Job Management Dashboard Module

6 NAMS Spatial Enablement Module

7 Land-Asset Integration Module

8 Asset Registration & Monitoring Module

Other teams

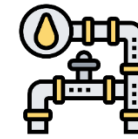
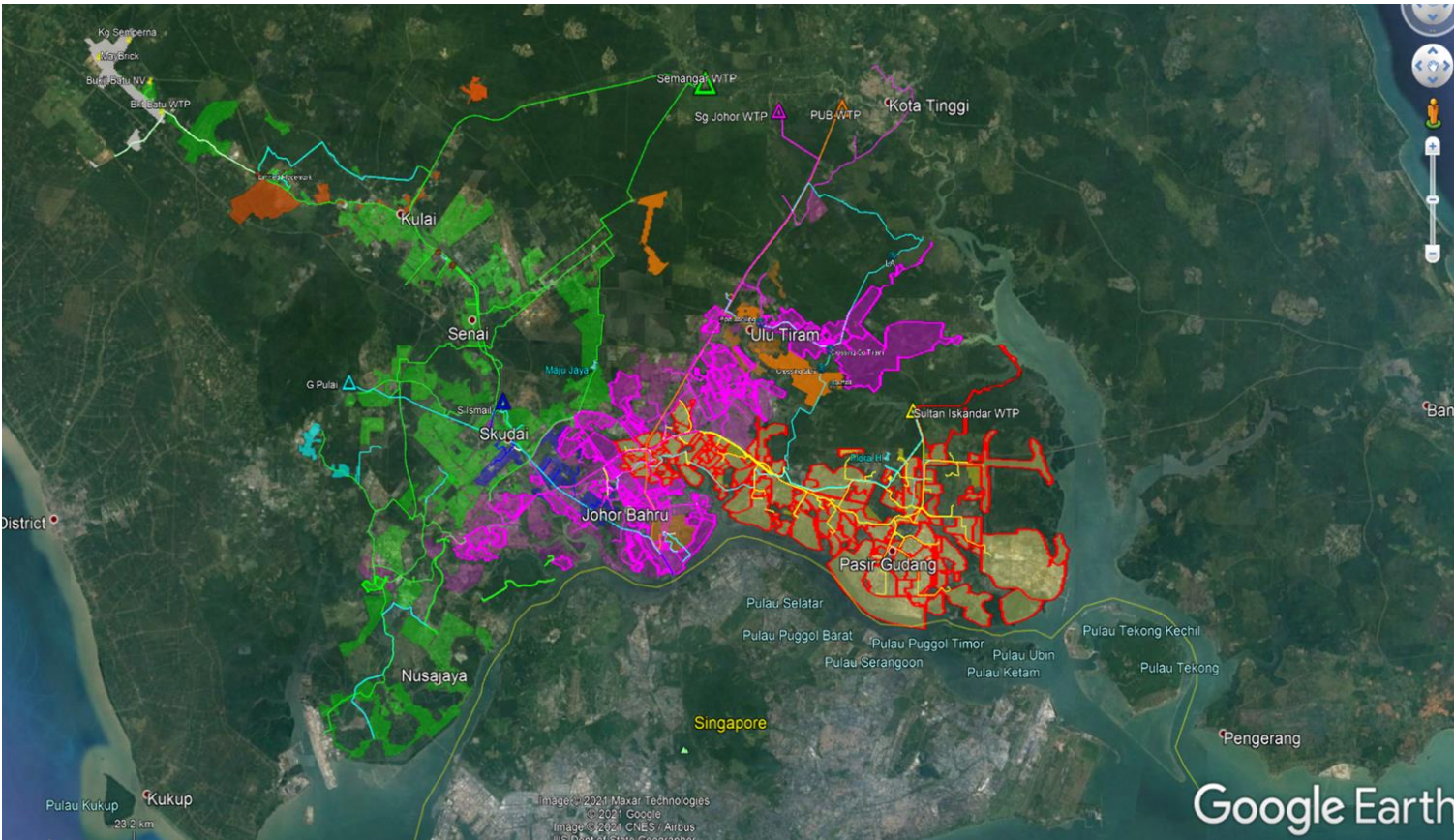
Fieldworkers

Executives

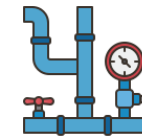
GIS Team & Administrator

WATER DISTRIBUTION MONITORING BY COMMAND CENTRE

Water Supply System



Hydraulic Modelling



Inter-Connectivity Water Supply System



Distribution Valve



Pressure Management



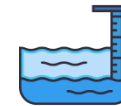
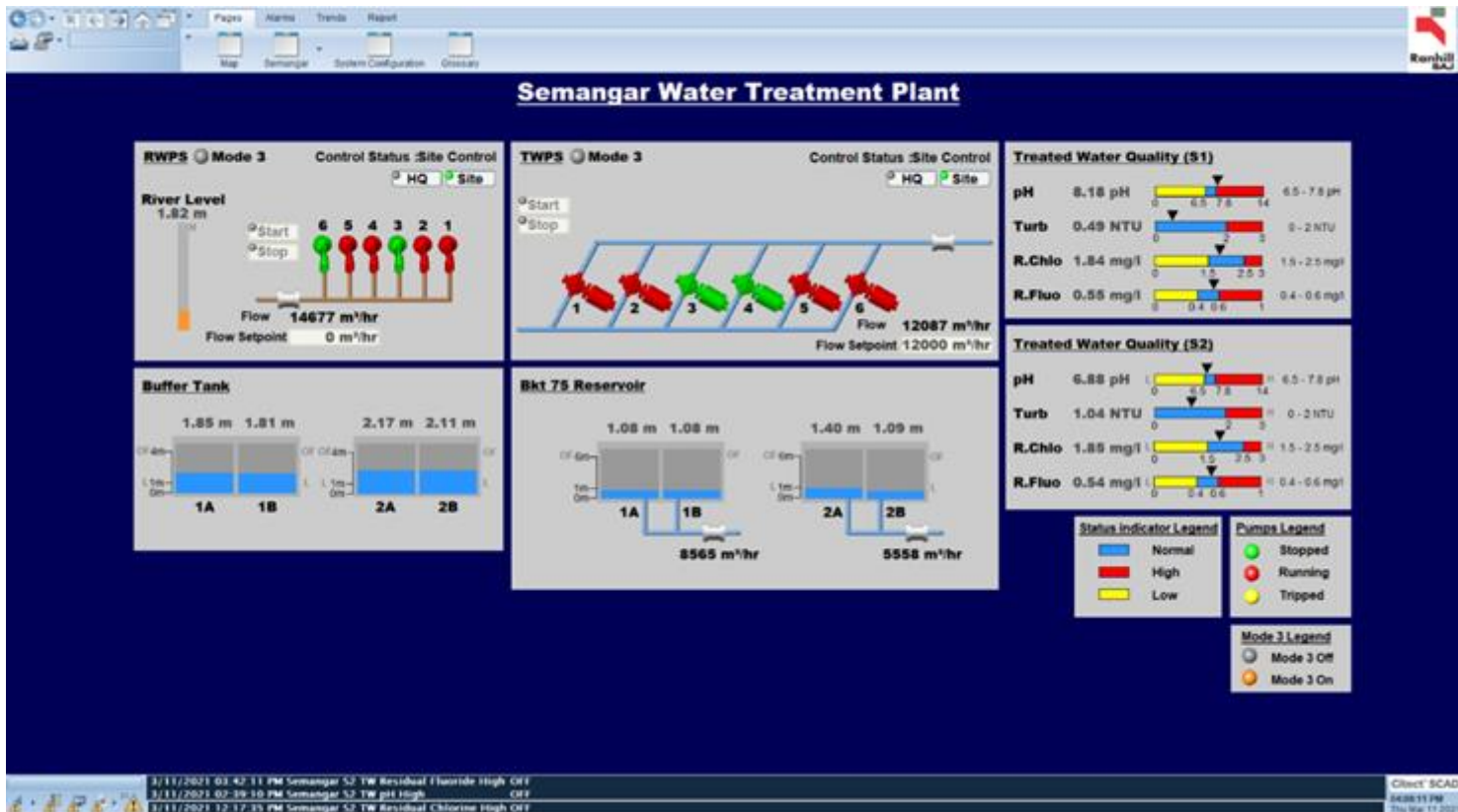
Demand and Consumption



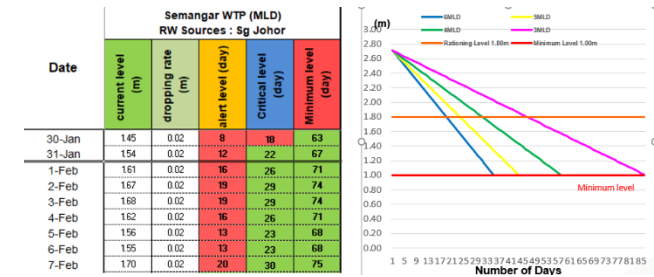
Non Revenue Water

WATER TREATMENT MONITORING BY COMMAND CENTRE

Water Treatment Plant



Intake Level Monitoring



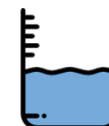
System Input Volume (SIV)



Raw Water and Treated Water Quality

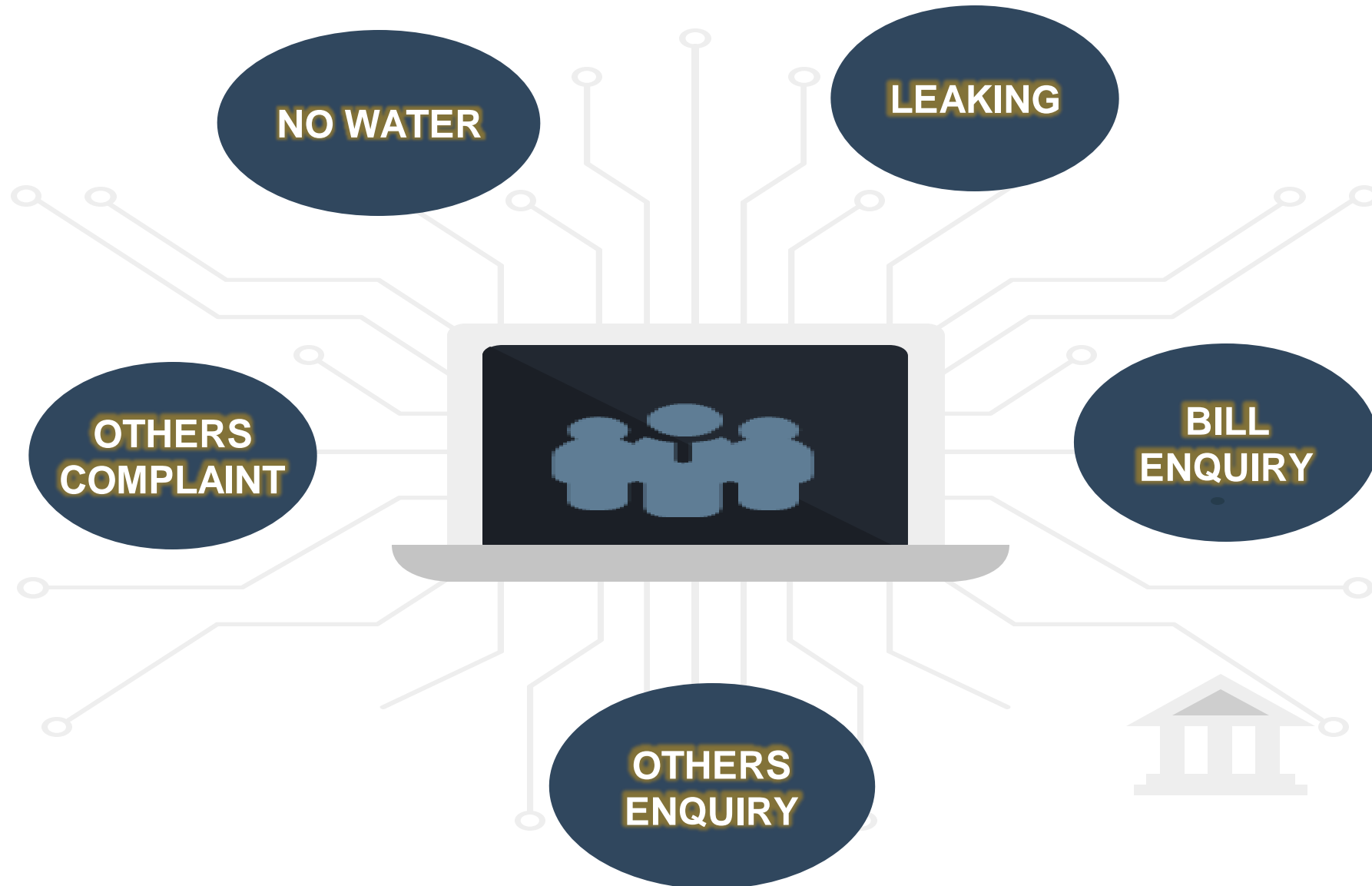


Raw and Treated Water Pump

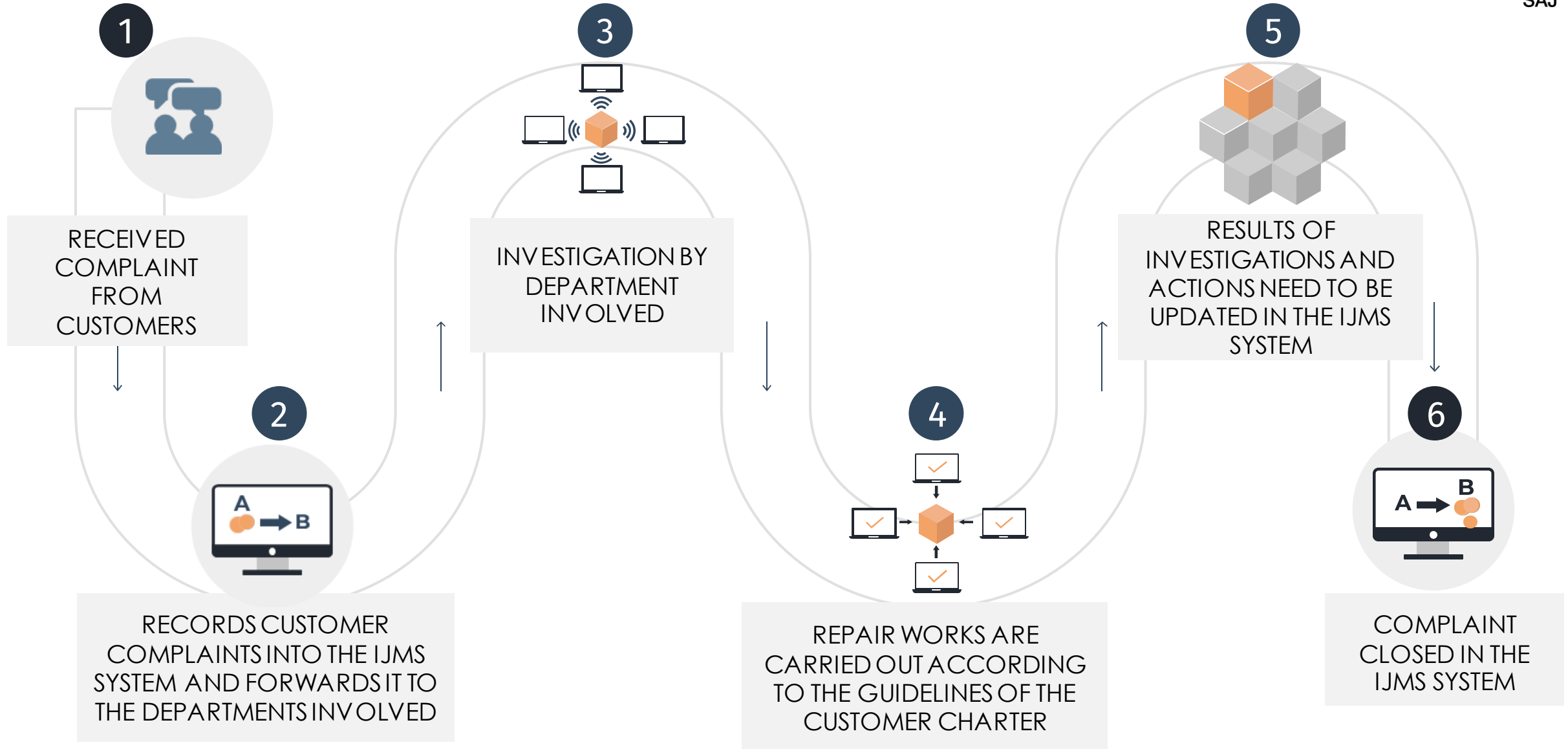


Clear Water Tank and Balancing Reservoir Level

TYPES OF COMPLAINT



COMPLAINT MANAGEMENT



End ...