

OVERVIEW ON NRW PERFORMANCE IN MALAYSIA

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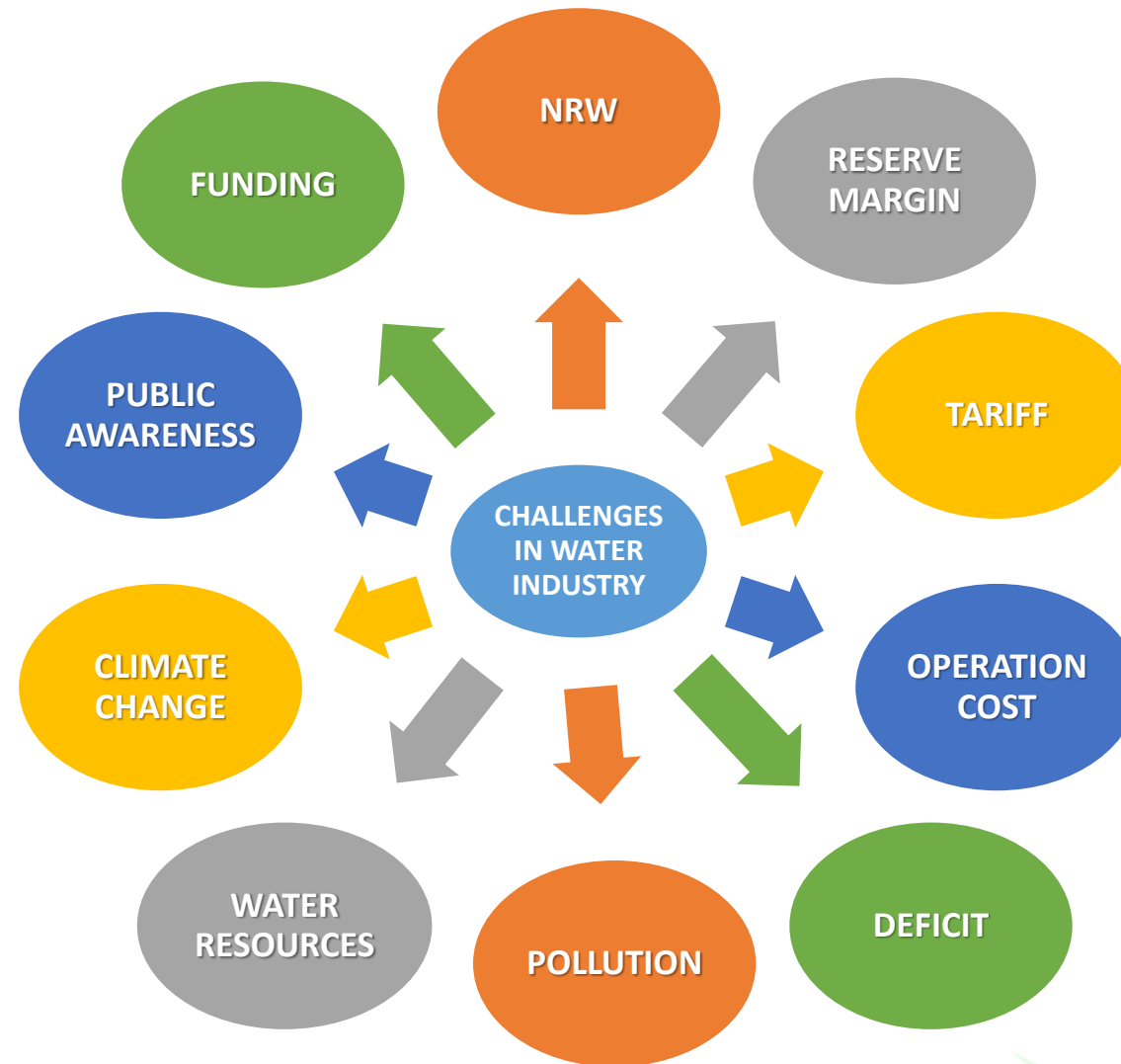
- CHALLENGES IN WATER INDUSTRY
- NRW MANAGEMENT IN MALAYSIA
- SPAN INITIATIVE ON NRW REDUCTION
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- PERFORMANCE INDICATOR
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- NRW EXPENDITURE UNDER PAAB
- GOVERNMENT PROGRAMS & INCENTIVES
- THEMATIC AUDIT FINDINGS
- TRANSFORMATION OF NRW CYCLE
- CONCLUSIONS

STATUS OF NRW (PENINSULAR MALAYSIA & FT LABUAN) 2017

Sistem Input Volume (SIV) 5,156,497,502.0 m3 100%	Authorised Consumption 3,457,964,520.2 67.1%	Billed Authorised Consumption 3,436,228,912.5 66.6%	Billed Metered Consumption 3,429,558,862 66.5%	Revenue water 3,436,228,913 66.6%
			Billed Unmetered Consumption 6,670,050 0.1%	
	Water Losses 1,698,532,981.8 32.9%	Unbilled Authorised Consumption 21,735,607.7 0.4%	Unbilled Metered Consumption 5,803,306 0.1%	Non-Revenue Water 1,720,268,590 33.4%
			Unbilled Unmetered Consumption 15,932,302 0.3%	
		Commercial/Apparent Losses 339,848,910.1 6.6%	Unauthorised Consumption 62,590,078 1.2%	
		Customer Metering Inaccuracies 277,258,832 5.4%		
	Physical/Real Losses 1,358,684,072 26.3%			

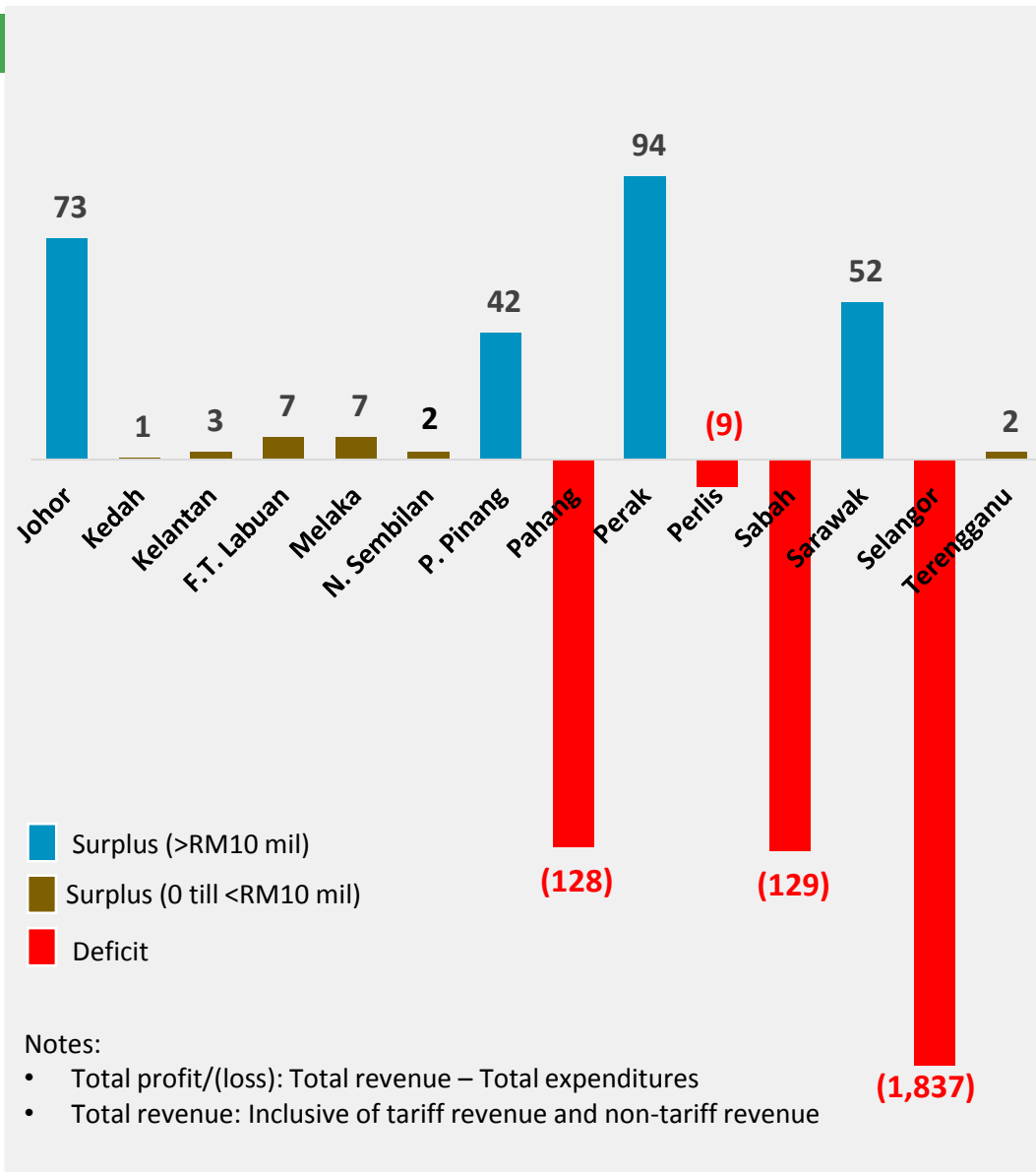
CHALLENGES IN WATER INDUSTRY

WATER INDUSTRY CHALLENGES



TARIFF - NRW CHALLENGE

Total Profit/(Loss) 2017 (RM million)



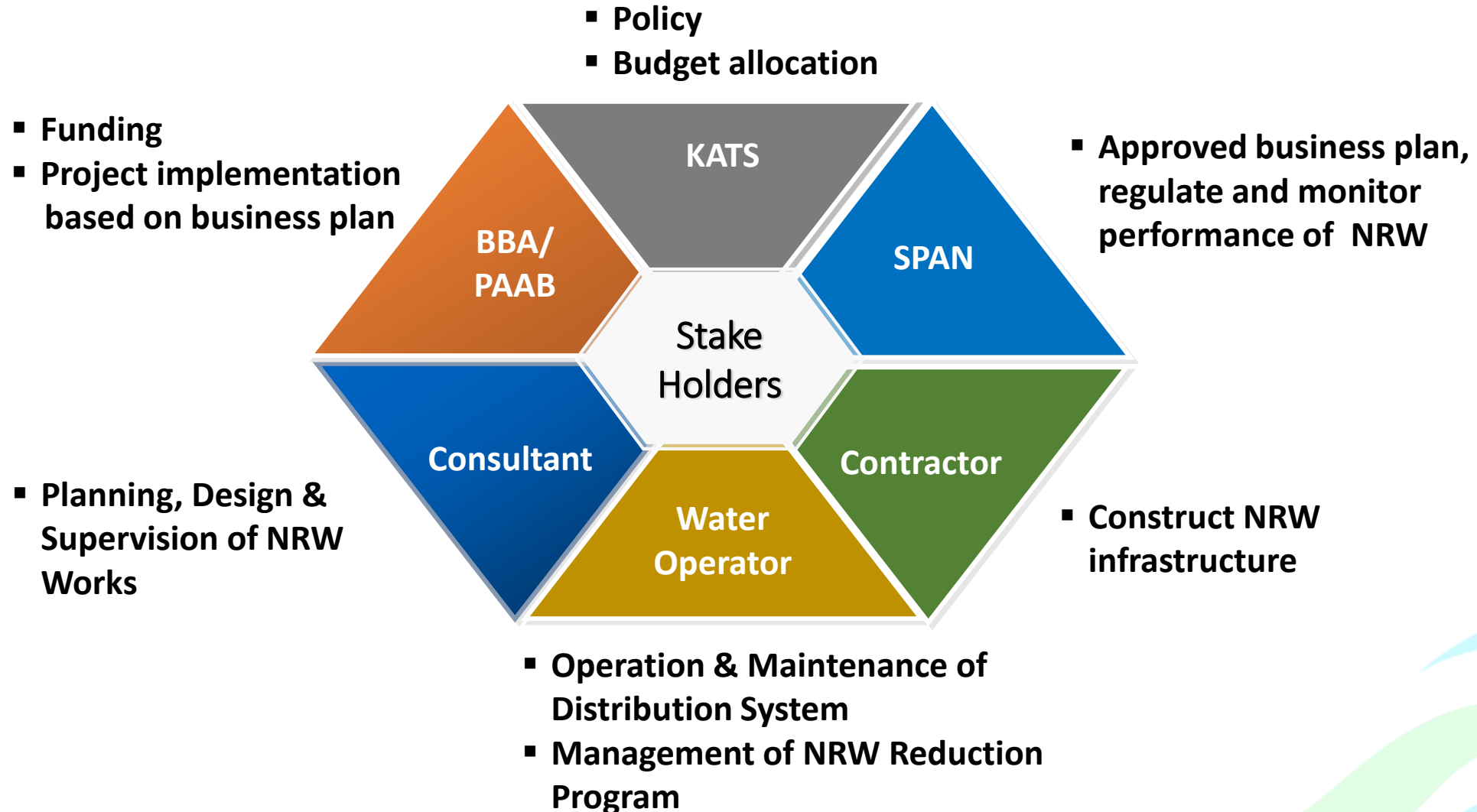
State	Last Tariff Review	Years of Last Tariff Review	Average Tariff (RM/m ³)
Pahang	1983	35	0.78
Sarawak ¹	1984	34	0.83
Sarawak ²	1992	26	
Sarawak ³	1995	23	
Perlis	1996	22	0.84
Terengganu	1997	21	0.83
Perak	2006	12	1.01
Selangor	2006	12	1.50
Kedah	2010	8	1.11
Kelantan	2013	5	1.12
Sabah	2015	3	1.58
P. Pinang	2015	3	0.99
N. Sembilan	2015	3	1.39
JBA Labuan	2015	3	1.88
Johor	2015	3	2.20
Melaka	2016	2	1.47
National Average			1.28

Impact the rationale of the water industry reformation towards achieving sustainability and full cost recovery by 2050

NRW MANAGEMENT IN MALAYSIA

NRW MANAGEMENT IN MALAYSIA

– THE KEY ROLE PLAYERS



- NRW has been included as one of **technical aspect** to be regulated by SPAN **since January 2008**



- It is one of the **KPI** imposed on all water distribution operators
- **Auditing** are carried out by SPAN to **monitor progress and performance**
- All operators are required to submit **NRW quarterly report** to SPAN
- **NRW performance** are being monitored at the **regulatory meeting** with each operator.

SPAN INITIATIVE ON NRW REDUCTION

SPAN INITIATIVE ON NRW REDUCTION PROGRAM: NRW ACTION PLAN

1. Holistic NRW Management

2. Applying 'preventive' concept rather than 'reactive'

3. Preparation of investment funds for NRW works financing

4. Effective NRW monitoring mechanism

5. The establishment of an effective organizational structure

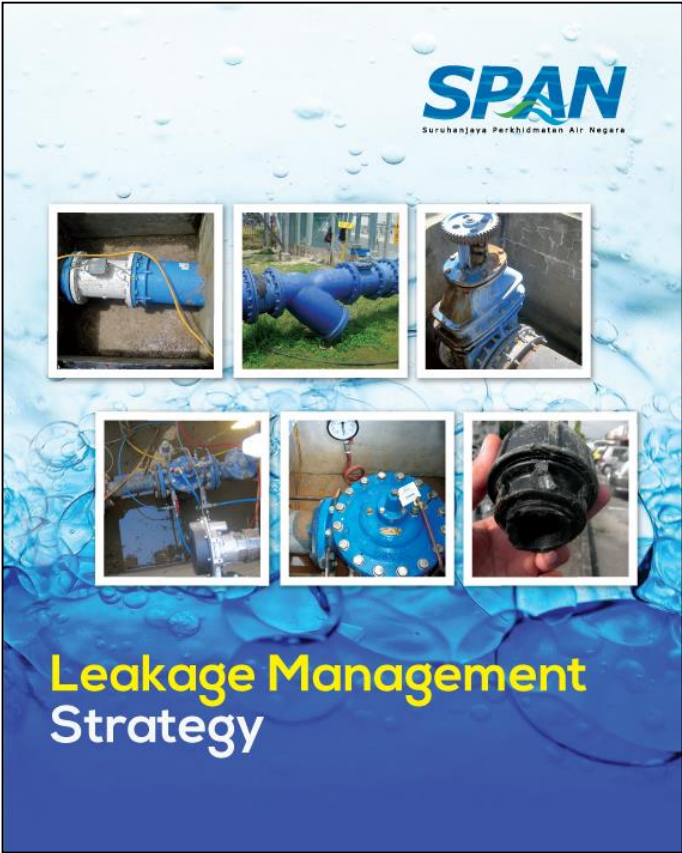
6. Human capital development in NRW management

7. Research, development and innovation in NRW management

8. Education and awareness on NRW management

STRATEGY

SPAN INITIATIVE ON NRW REDUCTION PROGRAM: LEAKAGE MANAGEMENT STRATEGY



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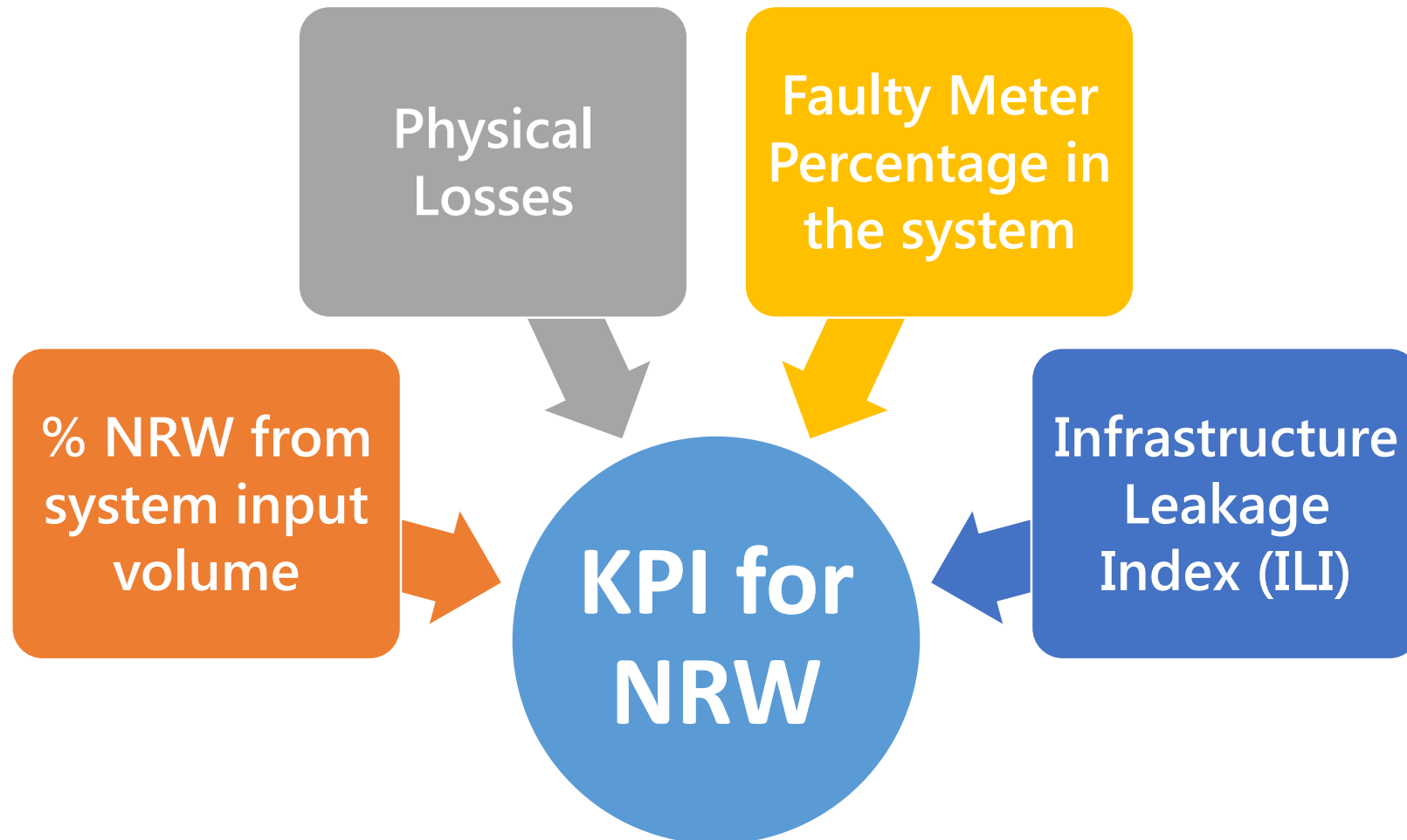
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SPAN INITIATIVE ON NRW REDUCTION PROGRAM: MONITORING MECHANISM



ACTIVITIES	RESPONSIBILITIES
REGULATORY MEETING	WATER REGULATORY DEPARTMENT, MARKET REGULATORY DEPARTMENT & REGIONAL OFFICE
OPERATIONAL AUDIT	REGIONAL OFFICE
THEMATIC AUDIT	WATER INDUSTRY AUDIT DIVISION
PRODUCT AUDIT	INDUSTRY DEVELOPMENT DIVISION
KPI MONITORING	WATER REGULATORY DEPARTMENT, MARKET REGULATORY DEPARTMENT & REGIONAL OFFICE
ENFORCEMENT	ENFORCEMENT DIVISION & REGIONAL OFFICE

SPAN INITIATIVE ON NRW REDUCTION PROGRAM: KEY PERFORMANCE INDICATOR



CURRENT INITIATIVE

1. **Tariff Setting Mechanism (TSM)**
 - ✓ TSM Implementation across Peninsular Malaysia and FT Labuan on 1st April 2019
2. **Controlling Material and Product Quality**
 - ✓ To date, a total of 847 products in category A and 511 products in category B have been registered with SPAN.
3. **Human Capital Development In NRW Management**
 - ✓ SPAN has been working with the CIDB to carry out courses for plumbers registration (permit holders A1 and A2).
 - ✓ Refresher course for permit A has been completed and Permit C is currently in progress.
4. **Collaboration with the Department of Skills Development (DSD)**
 - ✓ Development of National Occupational Skills Standard (NOSS) for NRW (Level 1 – 5)
5. **Development Of Training Modules for NRW – writing instruction manuals (WIM)**
 - ✓ Plan to develop WIM for NRW - 2019.
6. **Competency Requirements in KPIs**
 - ✓ Competency has been made a requirement under operators KPIs.
7. **Enforcement of Water Thefts**
 - ✓ Improvement in enforcement activity. Up till now there are 439 cases that have been investigated and 63 others have been brought to justice.

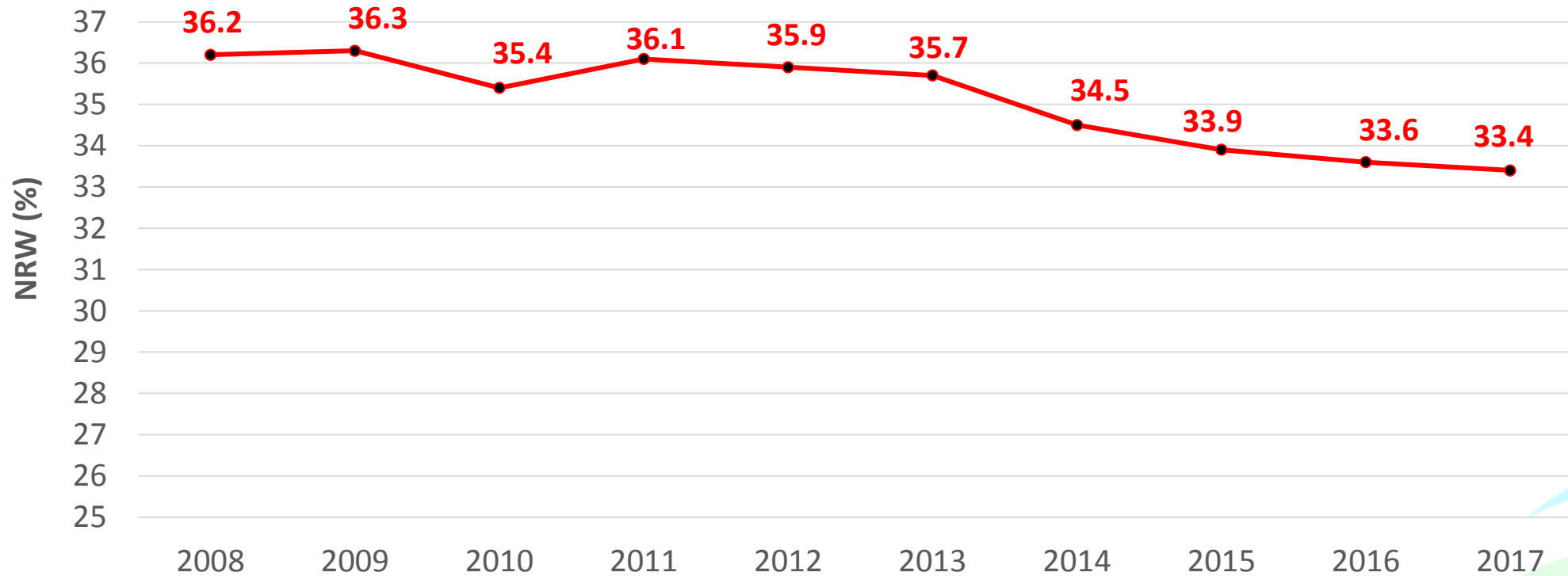
NRW LEVEL AND TRENDING

NRW LEVEL 2008 – 2018 FOR MALAYSIA

State	NRW (%)										
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
1 Melaka	30.1	29.7	26	25.1	23.8	22.1	21.4	19.3	19	19.6	20.9
2 Pulau Pinang	16.9	19.1	18.2	18.4	17.6	18.2	18.3	19.9	21.5	21.9	21.7
3 Johor	31.3	31.9	29.9	29.2	27.8	26.4	25.9	25.6	25.9	24.7	24.2
4 Terengganu	38	37.9	39.4	37	36.8	33.8	31	31	30	30.4	34.6
5 Perak	31.2	30.7	29.4	30.4	30.1	30.4	30.6	30.3	30.4	30.9	30.0
6 Selangor	34	32.5	32.4	32.3	33.1	34.5	33.6	32	32.2	31.5	30.5
7 Negeri Sembilan	50.5	49.2	43.4	44.6	40.4	36.3	35.9	34.8	32.7	32.6	30.9
8 Labuan	33.2	25.8	24.9	22	20.4	25.9	29.5	30.9	30.5	32	31.6
9 Pahang	52.9	59.9	55.3	56.2	54.2	52.7	53.1	52.8	47.8	47.5	49.1
10 Kedah	45	45	44.9	47.8	50.6	50.9	46.1	46.7	46.7	47.5	48.5
11 Kelantan	49.4	48.3	52.4	55.7	53.9	53.1	49.4	49	49.4	49.3	49.3
12 Perlis	41.7	44.7	51.3	59.8	66.4	62.4	55.8	56.3	60.7	63.1	63.8
13 Sabah	55.7	49.4	57.4	50.9	49.9	53.2	51.7	55.1	52.0	53.8	52.5
14 Sarawak	29.4	29.5	29	30.5	29.4	31.3	32	33.3	36.0	37.8	43.1
Peninsular Malaysia & FT Labuan	36.2	36.3	35.4	36.1	35.9	35.7	34.5	33.9	33.6	33.4	33.4
Malaysia	36.9	36.6	36.4	36.7	36.4	36.6	35.6	35.5	35.2	35.3	35.7

NRW TRENDING

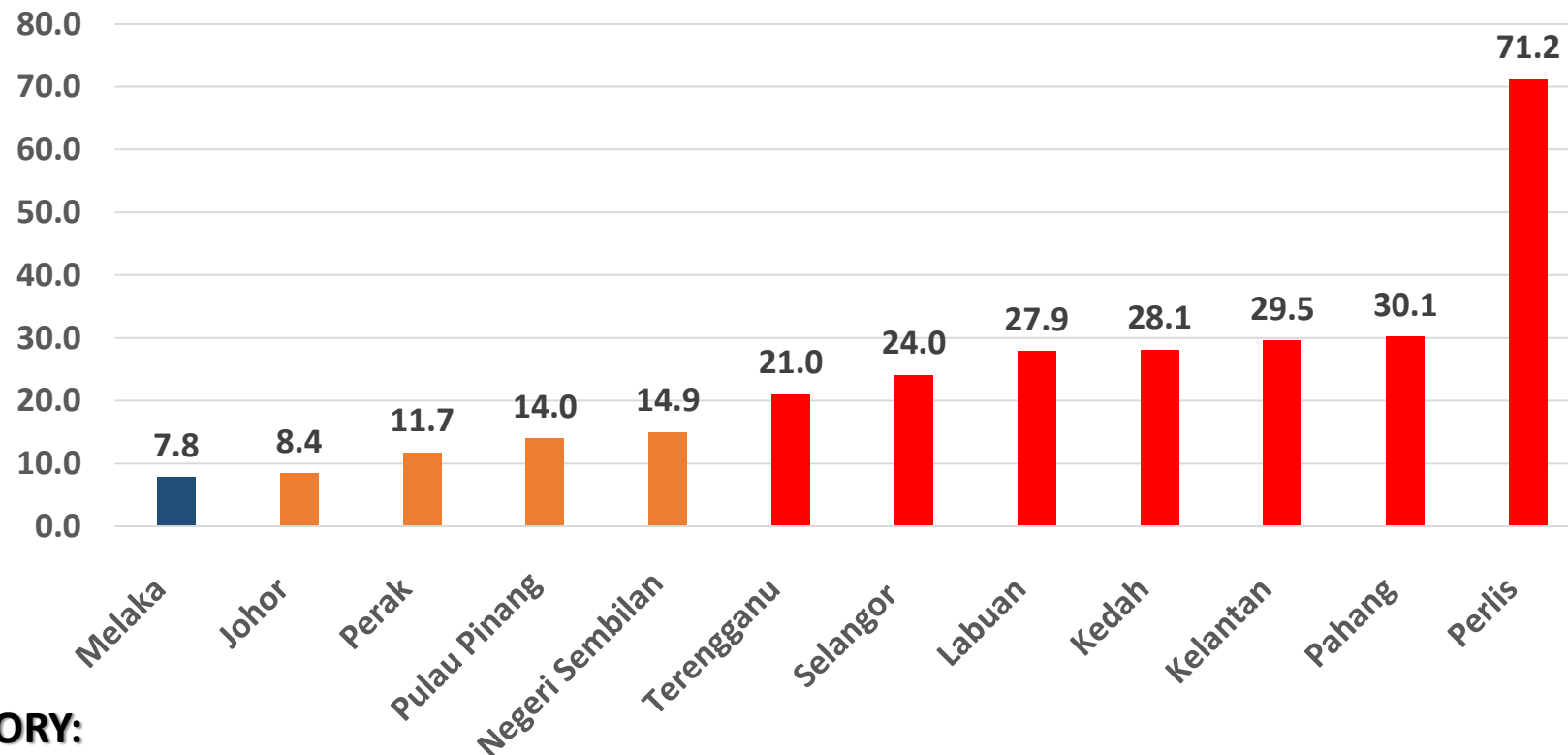
NRW level for Peninsular Malaysia and FT Labuan



PERFORMANCE INDICATOR

INFRASTRUCTURE LEAKAGE INDEX (ILI): *PENINSULAR MALAYSIA & LABUAN for 2017*

ILI 2017

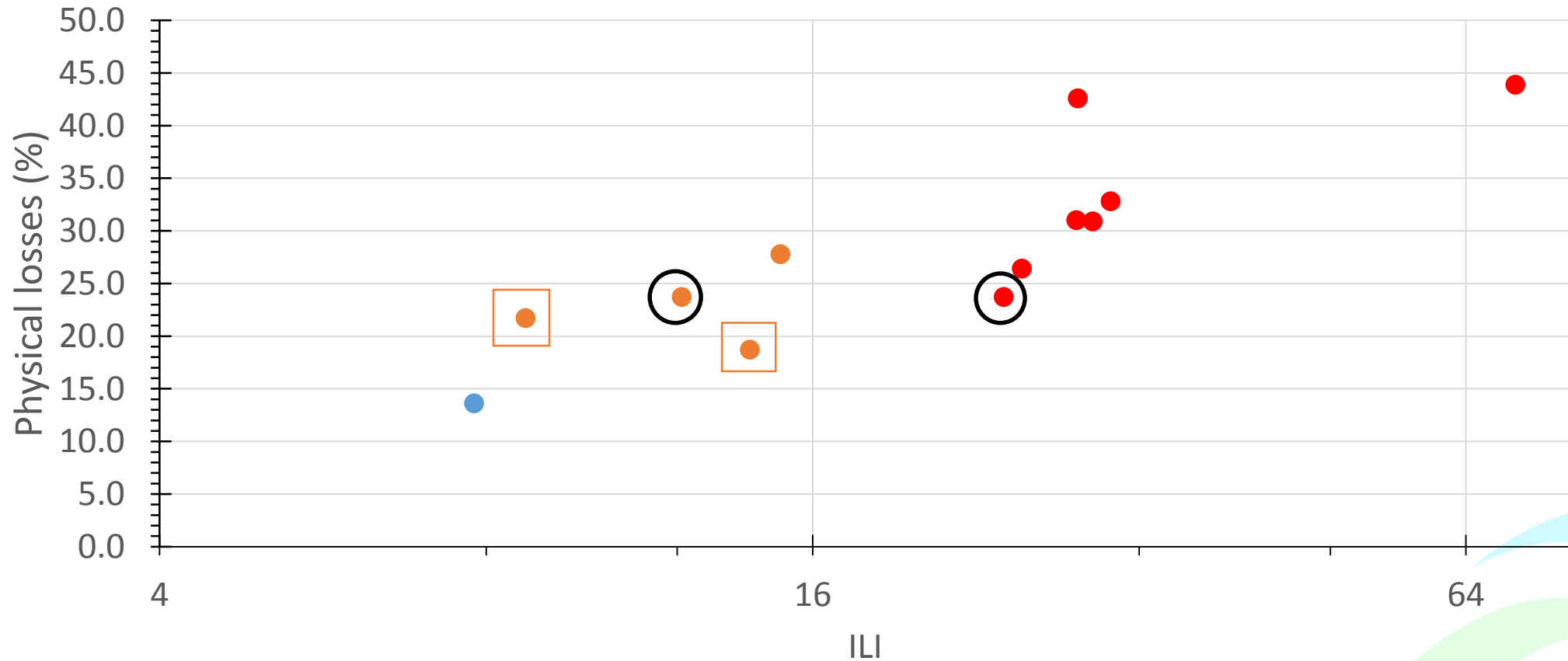


PERFORMANCE CATEGORY:

- 1 – 4 **EXCELLENT** - no specific intervention required
- 4 – 8 **GOOD** - no urgent action required although should be monitored carefully
- 8 – 16 **POOR** - requires attention
- > 16 **VERY BAD** - requires immediate water loss reduction interventions

PHYSICAL LOSSES vs ILI: PENINSULAR MALAYSIA & LABUAN 2017

Physical losses vs ILI 2017



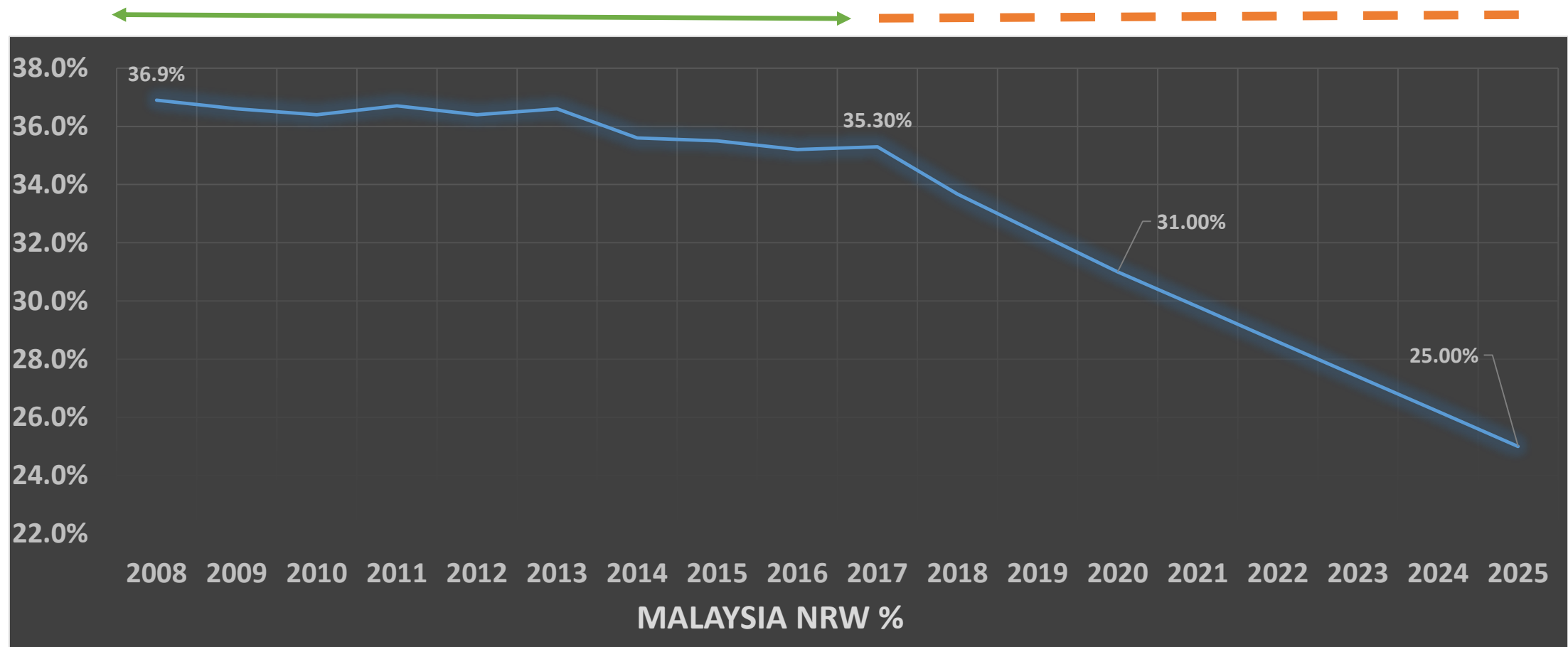
NRW PROJECTION

PERFORMANCE OF NRW & PROJECTION FOR MALAYSIA **SPAN**[®]

Suruhanjaya Perkhidmatan Air Negara

Actual NRW Performance
NRW Reduction = 1.6%;
Annual Average Reduction = 0.2%

NRW Projection 2020-2025
NRW Reduction = 4.3%;
Annual Average Reduction = 1.4%



NRW EXPENDITURE UNDER PAAB

PAAB CAPEX EXPENDITURES YEAR 2009 TO 2018 FOR NRW WORKS & PIPE REPLACEMENT

No.	Water Operator	Work Category (RM Mil)	Approved Budget by SPAN (RM Mil)	Approved Budget by PAAB (RM Mil)	Awarded Amount (RM Mil)	Amount Paid (RM Mil)
1	Johor (RSAJ)	Penggantian Paip	1,390.42	668.27	330.62	246.20
2	Kelantan (AKSB)	Program NRW	313.77	120.35	7.46	-
3	Perak (LAP)	Penggantian Paip	64.31	26.00	3.99	-
4	Melaka (SAMB)	Penggantian Paip	288.96	165.36	87.25	82.06
		Program NRW	11.82	-	-	-
5	N.Sembilan	Penggantian Paip	260.07	70.81	66.56	57.88
		Program NRW	93.35	64.66	24.47	10.49
	TOTAL		2,422.70	1,115.45	520.35	396.63

GOVERNMENT PROGRAMS & INCENTIVES

NATIONAL NRW REDUCTION PROGRAM

- Intervention of the Federal Government through two (2) approaches:

APPROACH 1: Accurate NRW Data Measurements – BBA, KATS

APPROACH 2: Continuous NRW Management - SPAN

- Under the 11th Malaysia Plan (RMK-11)
- An allocation of RM 1.371 billion for NRW National Approach 2;
- The program starts in January 2018 until December 2020;
- Reimbursement in year 2019 (for achievement in 2018) to 2021 (for achievement in 2020).

THEMATIC AUDIT FINDINGS

COMMON AUDIT FINDINGS on NRW

Lack of asset
management &
information

Lack of expertise
and competent
staff

**NRW
implementation
not holistic**

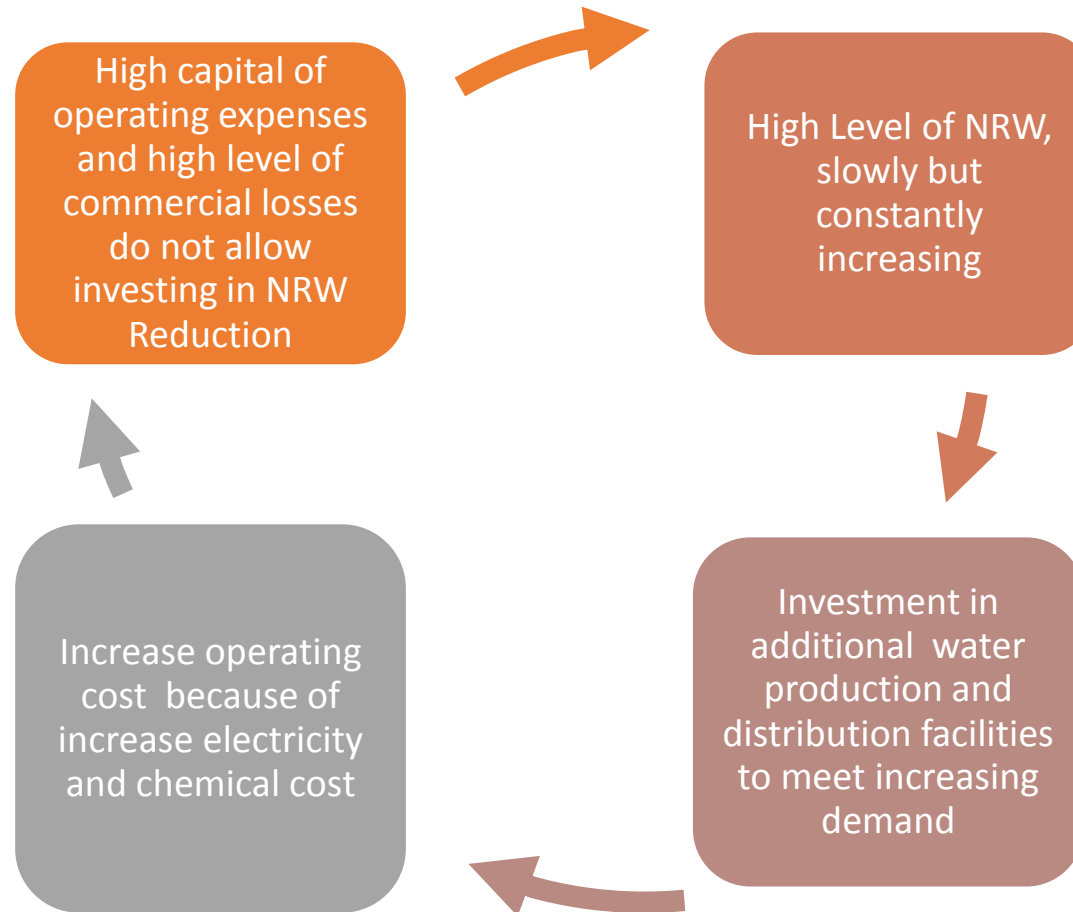
Lack of focused
and support from
management

Poor maintenance
of NRW
infrastructure

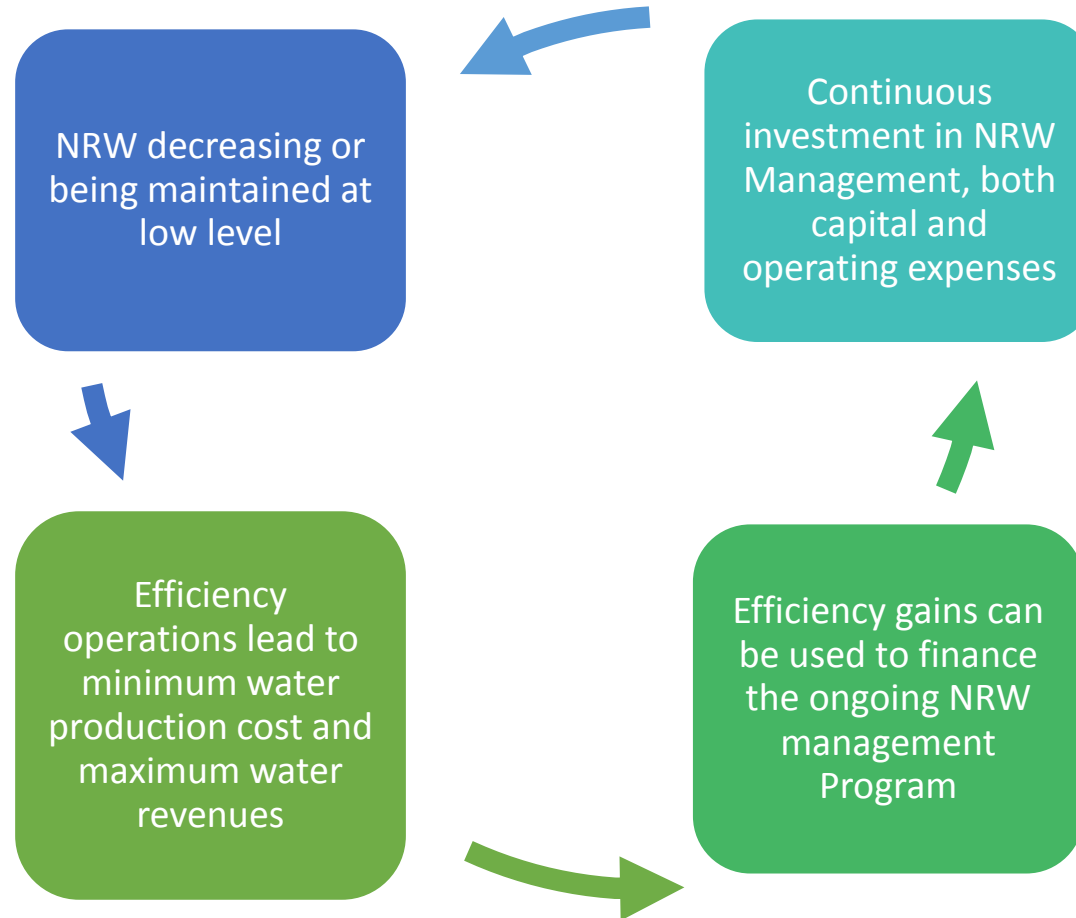
Poor
workmanship

TRANSFORMATION OF NRW CYCLE

THE VICIOUS OF NRW CYCLE



THE VIRTUOUS OF NRW CYCLE



CONCLUSION

- **AWARE THE IMPORTANT OF NRW**
- **FULL SUPPORT**
- **GOOD QUALITY MANAGEMENT FOR CONTINUOUSLY IMPROVE & MANAGE NRW EFFECTIVELY**

LEADERSHIP



- ❖ **EDUCATION AND TRAINING ON NRW**
- ❖ **SUFFICIENT IN NUMBERS TO CARRY OUT ALL THE TASKS**
- ❖ **NRW PROGRAMME AS PER PLANNED**

FUND



- ✓ **TRAINED STAFF FOR COMPETENCY**
- ✓ **SKILLED ENOUGH TO CARRY OUT NRW ACTIVITIES**
- ✓ **MOTIVATED ENOUGH TO PERFORM**

EXPERTISE



Thank You