

**BORNEO INTERNATIONAL WATER AND WASTEWATER
EXHIBITION & CONFERENCE (BIWWEC 2024 & SUTCON 2024)
BORNEO CONVENTION CENTRE, KUCHING SARAWAK
24 OCT 2024**



**HASLINA BINTI AMER , A.I.S
CHIEF ASSISTANT DIRECTOR
LEMBAGA URUS AIR SELANGOR (LUAS)**

**CHALLENGES AND WATER RESOURCES MANAGEMENT STRATEGIES
TOWARDS THE SUSTAINABILITY OF WATER RESOURCES IN
SELANGOR**

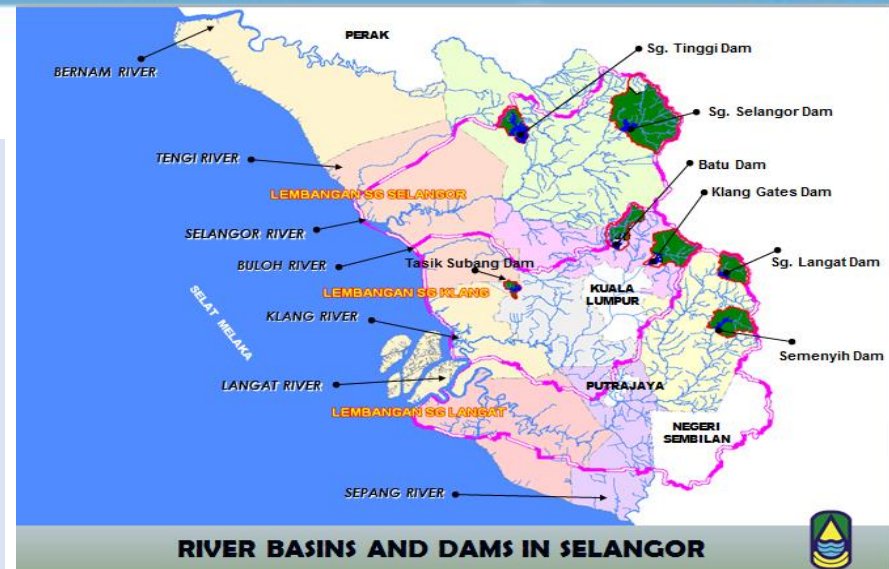


OUTLINE



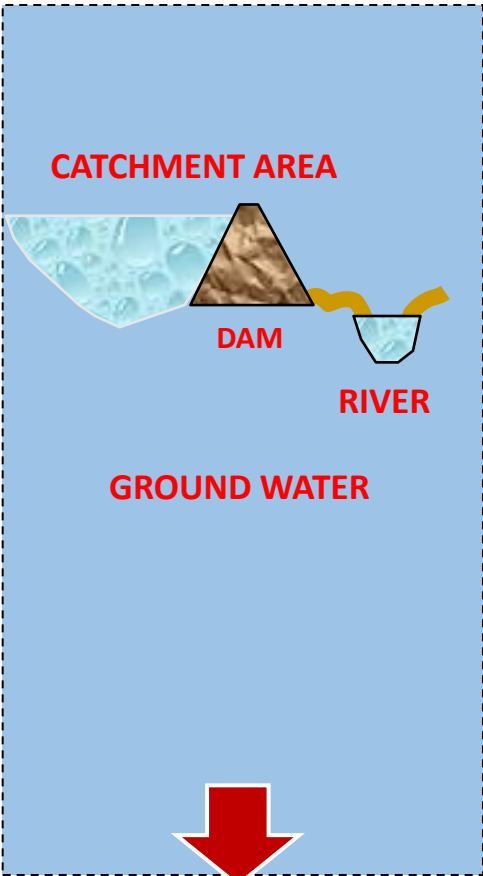
BACKGROUND

- LUAS is a local agency / River Basin Organization (RBO) for the management of water resources, river basins and coastal waters in the State of Selangor under the LUAS Enactment, 1999.
- “The river-basin approach to water management in Malaysia was initiated with the establishment of Lembaga Urus Air Selangor (LUAS) in 1999.” (Source: RMK- 8 (2001-2005))
- LUAS is also a MODEL for the implementation of Integrated Water Resource Management (IWRM) in Malaysia. (Source: “Transforming The Water Sector: National Integrated Water Resources Management Plan Strategies and Road Map Report”, 2017)

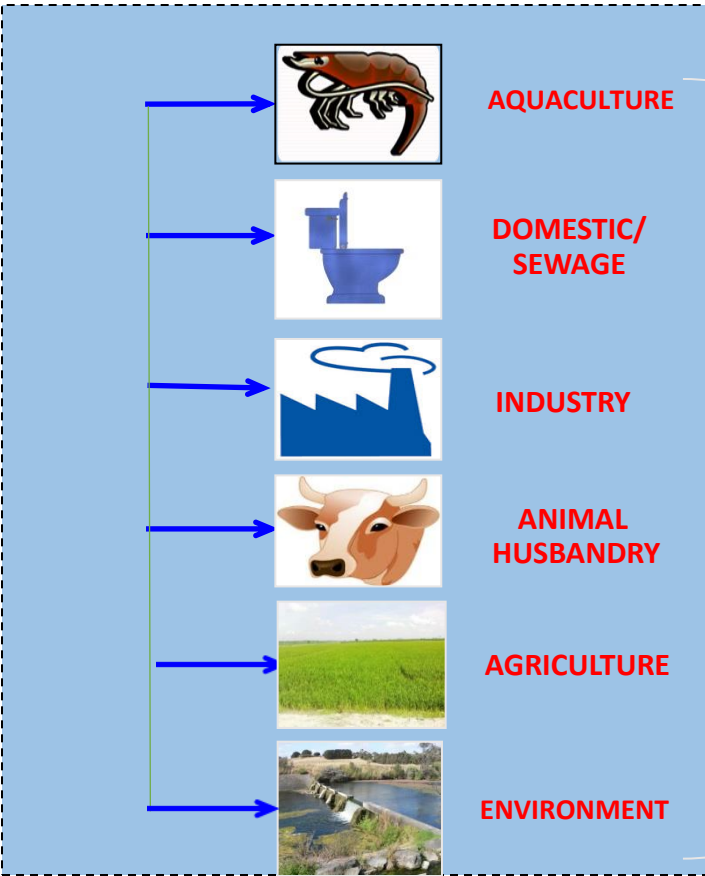


JURISDICTION

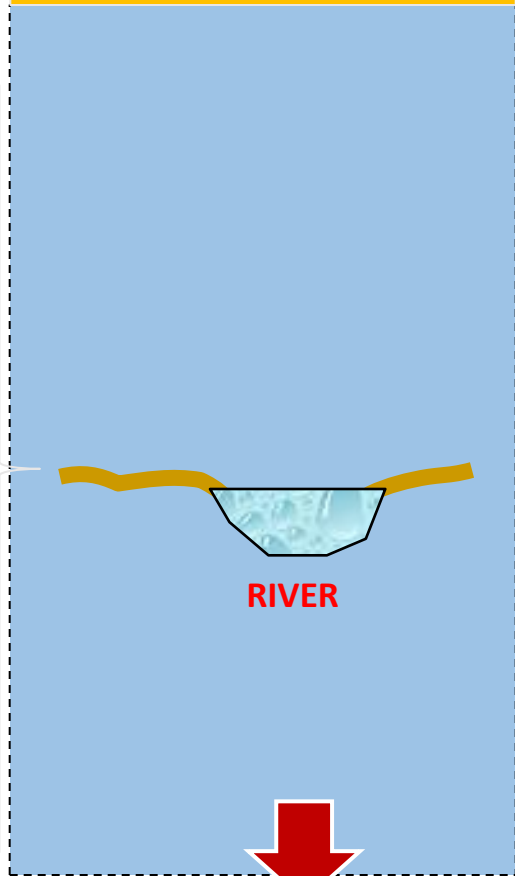
WATER RESOURCES



WATER USAGE



EFFLUENT/ USED WATER



- **LUAS : LUAS Enactment 1999**
 - DOE : EQA 1974
 - LOCAL AUTHORITY: Local Government Act 1976, ACT 133
 - Related Agencies

QUALITY CONTROL

- **LUAS : LUAS Enactment 1999**
 - DOE : EQA 1974
 - LOCAL AUTHORITY: Local Government Act 1976, ACT 133
 - Related Agencies

WATER RESOURCES IN SELANGOR

WATER RESOURCES



6,205 MCM

- 7 river basin (surface runoff)
- 2,190 mm rainfall/year
- 1,025 rivers
- Length: 3,956 km



494.46 MCM

- 7 Dams Storage
- Life span : 6 months



117.19 MCM

- Alternative water resources
- 100 ponds
- Life span : 3 months



1,069.45 MCM
Groundwater



WATER DEMANDS



Domestic & Industries **1,935.23 MCM**

- 5,000 MLD
- 8.4 million users
- 34 WTP



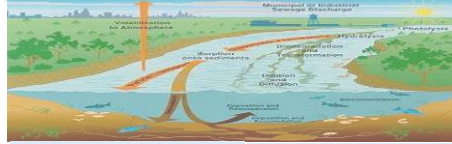
Agriculture & Irrigation **635 MCM**



Aquaculture **262 MCM**

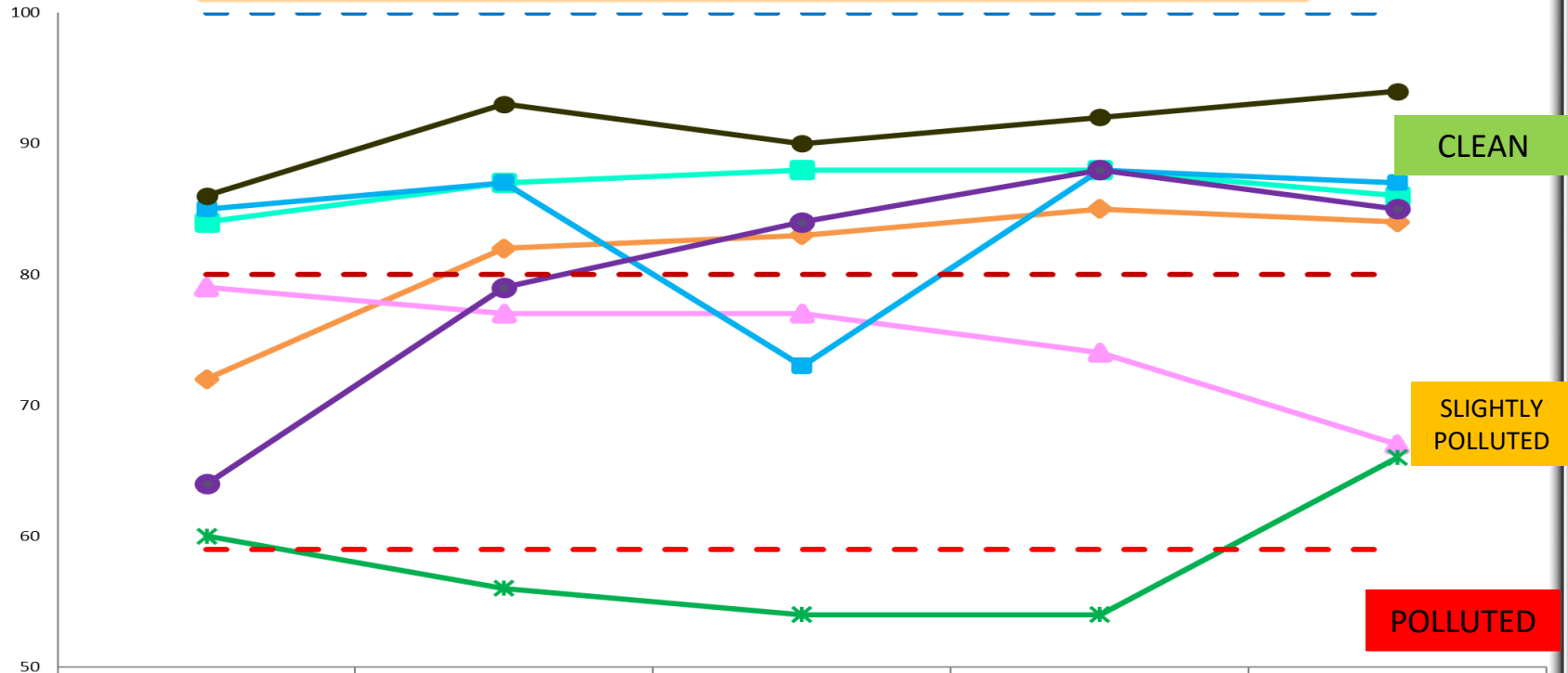


Animal Husbandry **12 MCM**



Environmental Flow
example: Kelip-kelip **620.5 MCM**
109.5 MCM

RIVER WATER QUALITY TREND IN SELANGOR



	2020	2021	2022	2023	Apr-24
Sg. Langat	72	82	83	85	84
Sg. Selangor	84	87	88	88	86
Sg. Klang	79	77	77	74	67
Sg. Tenggi	85	87	73	88	87
Sg. Buloh	60	56	54	54	66
Sg. Sepang	64	79	84	88	85
Sg. Bernam	86	93	90	92	94
Bersih (81-100)	100	100	100	100	100
Sederhana Tercemar (60-80)	80	80	80	80	80
Tercemar (0-59)	59	59	59	59	59

ISSUES & CHALLENGES

- Rapid urbanisation and industrial development that have resulted in water, land and related resources within the basin becoming increasingly under stress
- Threat of climate change, creating extreme variability in climate
- Deterioration of river water quality
- Degradation on environment
- Trans-boundary nature of the shared river basin illustrates the complexities to implement IRBM
- Water security challenges – Too much water, too little water, too dirty water

too much



too little



LEMBAGA URUS AIR SELANGOR (LUAS)



IWRM IMPLEMENTATION

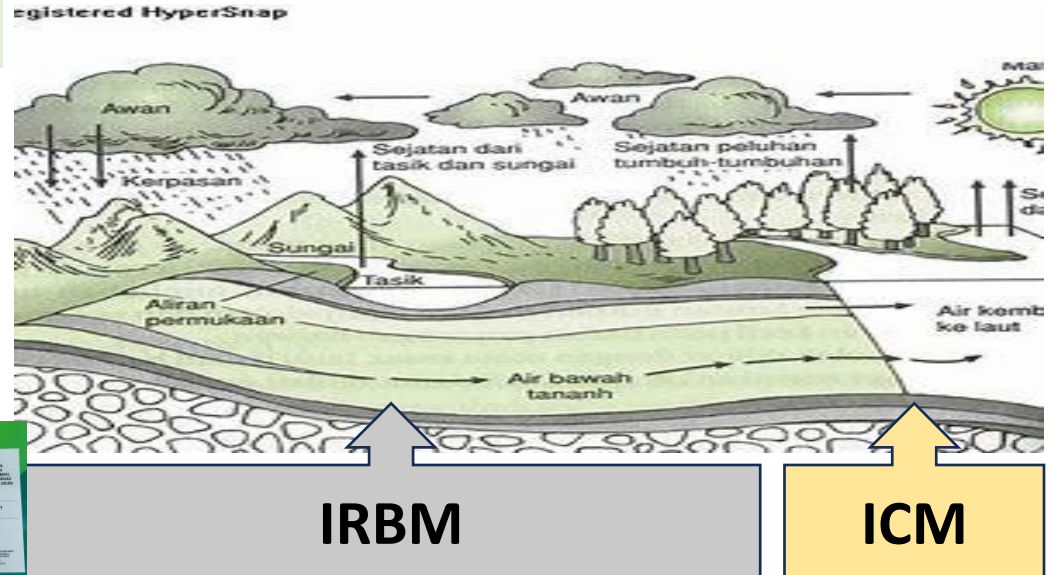
IRBM POLICY

Ensure adequate water

Ensure clean water

Enhance environmental conservation

Reduce flood risk



ICM Policy : Action Plan

1. Water Pollution
2. Habitat Destruction
3. Solid Waste
4. Health
5. Exploitation of Natural Resources
6. Erosion and Sedimentation



INTEGRATED WATER RESOURCES MANAGEMENT (IWRM) GOVERNANCE

STATE AUTHORITY

LUAS BOARD DIRECTOR
Chairman: Chief Minister of Selangor

TECHNICAL COMMITTEE
(Chairman: Selangor State Secretary)

SELANGOR RIVER CONSERVATION COMMITTEE
(Chairman: YB EXCO of Infrastructure)

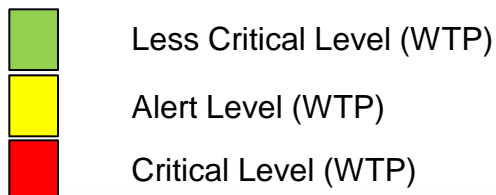
SELANGOR WATER RESOURCES POLLUTION EMERGENCY COMMITTEE
(Selangor Water Resources Pollution Action Plan Manual)
(Chairman: YB EXCO of Environment)

SELANGOR RIVER BASIN AND COASTAL MANAGEMENT COMMITTEE
(Chairman: YB EXCO of Infrastructure)

RIVER BASIN TASK FORCE (SELANGOR, LANGAT, KLANG)
(Chairman : LUAS Director)

IRBM ACTION PLAN MONITORING COMMITTEE
(Chairman : LUAS Director)

ICM MONITORING COMMITTEE
(Chairman : LUAS Director)





WATER RESOURCES MANAGEMENT STRATEGY IN SELANGOR

POLICY : ENSURE SUFFICIENT AND CLEAN WATER

STRATEGY 1 : QUANTITY AND QUALITY CONTROL

- i** Licensing and Water Abstraction Charges, s.41(2)
- ii** Written Approval of Alteration Activities, s.43(1)
- iii** Licensing of Discharge of Return Water, Waste or Pollutants (State of Selangor)/ Zero Discharge Policy , s.79(1)
- iv** Licensing of Inland Waterway Navigation, s.97(1)
- v** Licensing of Water Diversion for Electricity, s. 42(3)

SOURCE: LUAS ENACTMENT, 1999

POLICY : ENSURE SUFFICIENT AND CLEAN WATER

STRATEGY 1 : QUANTITY AND QUALITY CONTROL



NEGERI SELANGOR

Warta Kerajaan

DITERBITKAN DENGAN KUASA

GOVERNMENT OF SELANGOR GAZETTE

PUBLISHED BY AUTHORITY

Jil. 65 9hb Julai 2012 TAMBAHAN
No. 14 PERUNDA

Sel. P.U. 72.

ENAKMEN LEMBAGA URUS AIR SELANGOR 1999

PERATURAN-PERATURAN ABSTRAKSI SUMBER AIR
(NEGERI SELANGOR) 2012

SUSUNAN PERATURAN

SCHEDULE

Charges on the Use of Water

(1) Purpose of Use	(2) Charges (RM)
1. Abstraction of water	
(i) Commercial	0.07/cubic metres
(ii) Commercial (aquaculture)	0.05/cubic metres
(iii) Public Utility other than sea water	0.01/cubic metres
(iv) Public Utility sea water	0.01/cubic metres
(v) Paddy Plantation	free
2. Lifting of solar panel	0.06/square metres

Revocation

2. The Notification of Charges for Abstraction of Water from any Water Source as published in the *Gazette* on 30 June 2005 (Sel. G.N. No. 1366) are hereby revoked.

Bertarikh 15 Disember 2023

Dated 15 December 2023
[LUAS.100/6/4/7; PU. Sel. Mesy/0101/E]

MOHD REIZAL BIN SUMAIRI
Setiausaha
Majlis Mesyuarat Kerajaan Negeri
Selangor/
Clerk
State Executive Council
Selangor

- Section 41(2) Licensing of Water Abstraction

Section 44(1) Charges on the Use of Water

Paddy field is FREE for FOOD SECURITY IN SELANGOR



SELANGOR WATERS MANAGEMENT AUTHORITY (SWMA)

POLICY : ENSURE SUFFICIENT AND CLEAN WATER



LEMBAGA URUS AIR SELANGOR (LUAS)

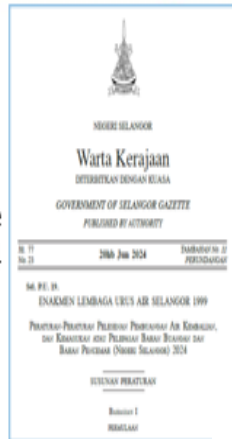
ZERO DISCHARGE POLICY IMPLEMENTATION

1

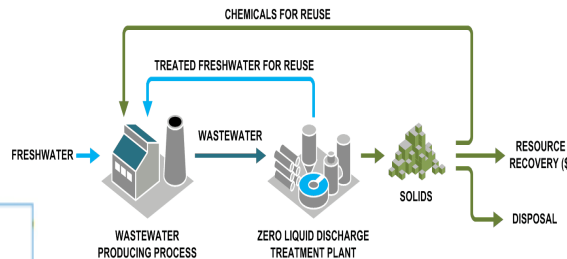
FIRST IN SELANGOR & MALAYSIA



**GAZETTEMENT
NEW REGULATION
20 June 2024**



Discharge of Return Water, and Entry or Discharge of Waste and Pollutants (State of Selangor) 2024 (Sel. P.U 19)(known as ZDP Regulation).



- Control mechanism of quantity and quality of effluent discharge.
- Based on approach **PPP (Polluters Pay Principle)**
- Promote premises to reuse and recycle their waste water.

4 STRATEGIC THEMES



STRENGTHENING THE ECONOMY



ENHANCING SOCIAL INCLUSIVITY & WELLBEING



ADVANCING SUSTAINABILITY



S.M.A.R.T & EFFECTIVE GOVERNANCE



SENARAI AKTIVITI ZERO DISCHARGE POLICY [ZDP]

Sebanyak 13 aktiviti berjadual yang merangkumi semua aktiviti di persekitaran sumber air dan lembangan sungai (dekat atau jauh dari sumber air/sungai) telah ditetapkan di dalam Peraturan-Peraturan Pelesenan Pembuangan Air Kembalikan, Dan Kemasukan Atau Pelepasan Bahan Buangan dan Bahan Pencemar (Negeri Selangor) 2024.



**GAZETTEMENT
Charges of Return Water Discharge
8 August 2024**



LEADING THE STRENGTHENING THE ECONOMY THRUST

SKIM JAMINAN AIR MENTAH

- 
1. Rawatan Awal Di Kolam-Kolam Rawatan Air
 - Pendekatan biologi dengan peletakan nanoteknologi (aquritin) sebagai rawatan semulajadi
- 
2. Pemantauan Dan Pengawasan
 - Pemantauan 24 jam oleh Skwad PANTAS
 - Dron berteknologi tinggi untuk menganalisis air, mengawasi kawasan, mengumpul bukti dakwaan mahkamah
 - Menempatkan sistem amaran awal pencemaran menggunakan teknologi Total Organic Carbon (TOC) Analyser
- 
3. Pembinaan Infrastruktur Pengepaman Terus Dari Kolam Takungan Sungai Selangor (Rujung 2022)
 - Menjamin bekalan air walaupun berlakunya pencemaran (kecuali kemarau panjang dan pencemaran lebih 5 hari)
- 
4. Penguatkuasaan Enakmen Lembaga Urus Air Selangor (LUAS) (Pindaan) 2020
 - Denda minimum RM200,000 dan maksimum RM1 juta
 - Penjara mandatori
 - Kuasa menyita tanpa waran
 - Tuntutan ganti rugi
 - Canjangan pemberi maklumat

SKEAL
SKUAD ELIT AIR LUAS

DITUBUHKAN
01
DISEMBER 2020

41
SKUAD

ANTAS DITUBUHKAN ?

- Memperkasa Ops Sumber Air Negeri Selangor.
- Meningkatkan keberkesanan tindakan pencegahan pencemaran.

OBJEKTIF UTAMA PENUBUHAN SKUAD PANTAS

- Melaksanakan pemantauan 24 jam di kawasan-kawasan sensitif sumber air.
- Memastikan kelangsungan sumber air Negeri Selangor sentiasa terjamin dan terpelihara.
- Meminimumkan risiko henti tugas loji rawatan air (LRA).

PENDEKATAN OPERASI SKUAD PANTAS

- Pemantauan Statik & Berkala bagi memastikan status kualiti air dan meningkatkan tahap kualiti sumber air.

ADUAN ☎ 019-2647904 ✉ aduan@luas.gov.my

Lembaga Urus Air Selangor | @lembagaurusairselangor | @luas_selangor

❖ **SKUAD ELIT AIR LUAS/LUAS WATER ELITE SQUAD** : Established on 1 Dec 2020 (Selangor Water Assurance Scheme, SJAM)

❖ **Objective** : To monitor the critical river basin (24 hours) and prevent any river pollution to avoid water treatment plant shutdown.

❖ **Monitoring method**: Static and River Patrol through sampling and drone monitoring.

❖ **Reference**: Selangor Water Resources Pollution Action Plan Manual.

LEMBAGA URUS AIR SELANGOR

(LUAS)

POLICY : ENSURE SUFFICIENT AND CLEAN WATER

RIVER BASIN MONITORING AND SURVEILLANCE 24 HOURS

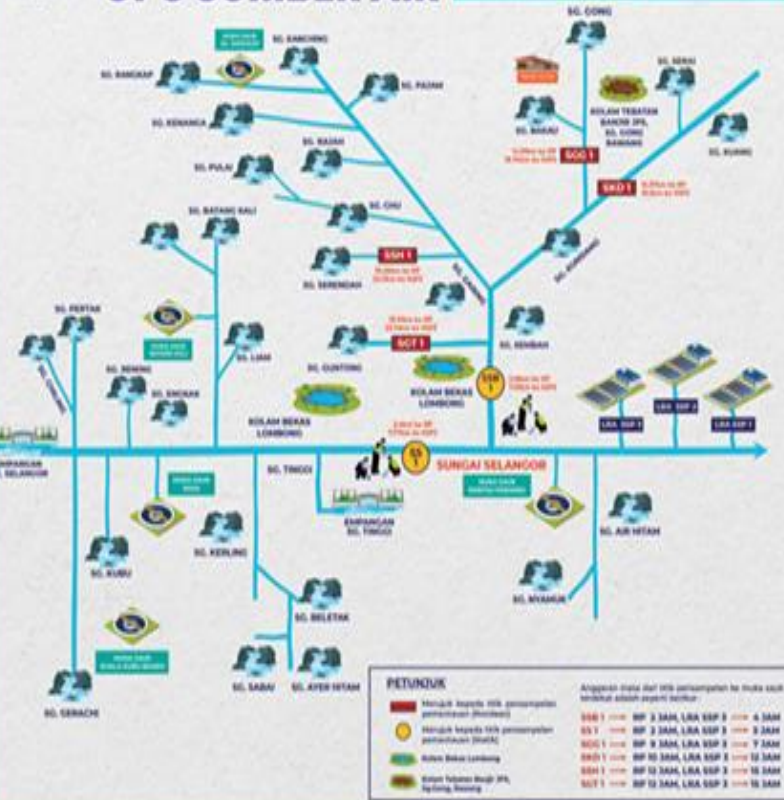


LEMBAGA URUS AIR SELANGOR



RAJAH SKEMATIK PEMANTAUAN DAN TITIK PENSAMPELAN BAGI OPS SUMBER AIR

LOKASI : SUNGAI SELANGOR

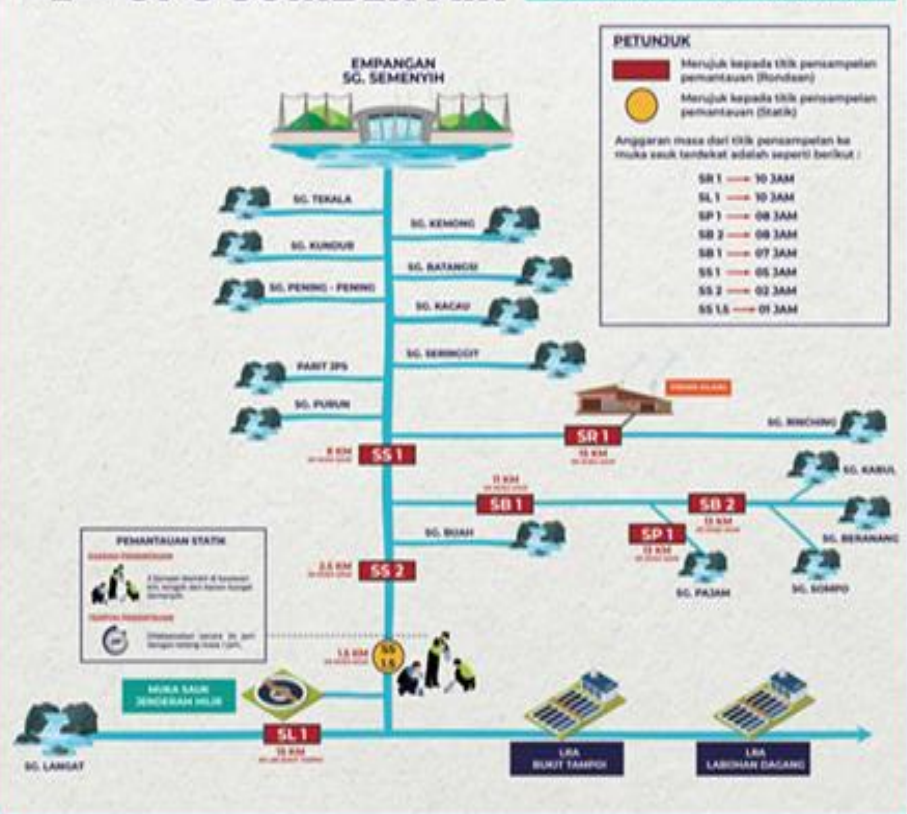


LEMBAGA URUS AIR SELANGOR



RAJAH SKEMATIK PEMANTAUAN DAN TITIK PENSAMPELAN BAGI OPS SUMBER AIR

LOKASI : SUNGAI SEMENYIH & SUNGAI LANGAT



EMERGENCY WATER POLLUTION INCIDENTS

BULETIN 13

UTAMA TERKINI NASIONAL MAHKAMAH PO

TUMPUAN: k" – PM | JPJ minta bantuan polis kesan O

Tindakan pantas LUAS selamatkan pencemaran loji yang lebih serius

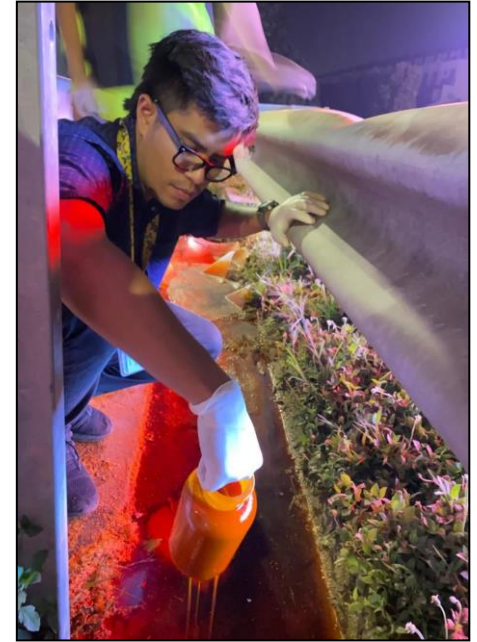
02 Jul 2023, 2:08pm



Pakar Kualiti Air dan Permodelan Kualiti Air, Dr Zaki Zainudin

Oleh Aslina Abu Bakar

KAJANG: Tindakan pantas Lembaga Urus Air Selangor (LUAS) berjaya menyelamatkan pencemaran lebih serius berlaku di beberapa loji rawatan air berdekatan hilir Sungai Langat susulan 10 buah kilang di Pusat Perindustrian

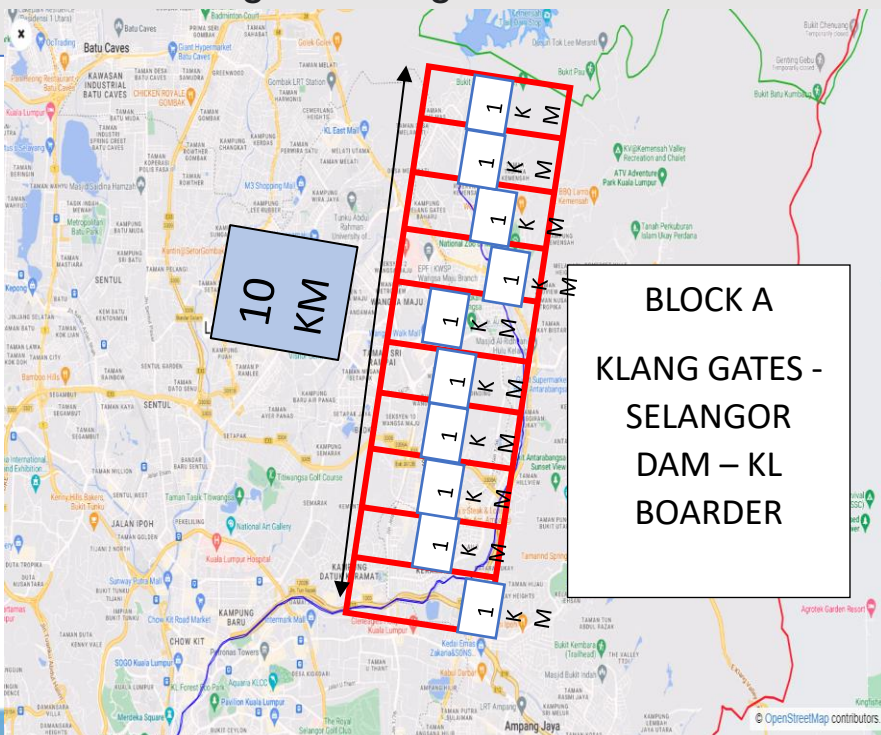


Oil spill due to an accident at Km 36.8 Arah Utara
(Persimpangan Nilai Utara Bandar Serenia) pada 28 Julai 2022



RIVER MONITORING PROGRAM (RMP) & INVENTORY MAPPING

- Integrated monitoring and land use mapping inventory along 50m river reserves (drone monitoring)
 - Sg. Rinching, Sg. Beranang, Sg. Klang, Sg. Damansara & Sg. Sembah (2018)
 - Sg. Langat, Sg. Selangor, Sg. Buloh (2020)
- Mapping potential sources of pollution in river basins and outfall/tributaries for water quality monitoring and integrated enforcement with stakeholders.



LEMBAGA URUS AIR SELANGOR (LUAS)

POLICY : ENSURE SUFFICIENT AND CLEAN WATER



STRATEGY 3 : SELANGOR SMART WATER MANAGEMENT

IWRIMS
INTEGRATED WATER RESOURCES INFORMATION MANAGEMENT SYSTEM

UTAMA MENGANAI KAMI PENDAFTARAN

Pilihan Peta: Esri Topo Map

TARIKH/MASA	STESEN	PARAS AIR (m MSL)	TAKUNGAN		HUJAN (mm) **
			Mm ³	%	
NEW 22-09-2024 08:00 AM	BATU	101.16	28.70	89.78	1.00
NEW 22-09-2024 07:31 AM	KLANG GATES	93.77	22.08	87.15	0.00
NEW 22-09-2024 07:06 AM	KOLAM TAKUNGAN SG. LABU (ORS)	44.80	9.22	99.24	0.00
NEW 22-09-2024 07:00 AM	LANGAT	220.90	33.98	99.66	0.00
NEW 22-09-2024 07:00 AM	SEMENYIH	110.42	57.00	96.51	0.00
NEW 22-09-2024 07:00 AM	SG SELANGOR	217.70	213.28	92.73	0.00
NEW 22-09-2024 08:00 AM	SG TINGGI	58.06	103.94	90.78	0.00
NEW 22-09-2024 07:00 AM	TASIK SUBANG	37.96	3.92	93.25	0.00

** Merujuk kepada data pada hari sebelumnya

LiSS LEMBAGA URUS AIR SELANGOR | Home | Man | About | Contact |

Sungai Selangor Dams

Historical Values

- Dam**: Displays the historical data for dam. Displays the historical values of water intake.
- Water Intake**: Displays the historical data for water level. These data are from iPS.
- Barrage**: Displays the historical data for barrage.
- Rainfall Readings**: Displays the historical data for the rainfall. These data are from iPS.
- CIPAS**: Displays the historical data for the alternative ponds pumping into the Sungai Selangor River.

- Online water monitoring with the application of **Internet of Things (IoT) in SMART Selangor Water Managements via IWRIMS**
- **LiSS** : Water balance with modelling analysis for the purpose of forecasting prediction of dam water release for 120 hours ahead
- **MOU Smart and strategic partnership** : LUAS with DID, DOE, Met Malaysia, Air Selangor, LLSB and MYSA in data sharing and system development with satellite imagery for river basin monitoring.

KEMENTERIAN SAINS, TEKNOLOGI DAN INOVASI
AGENSI ANGKASA MALAYSIA

LEMBAGA URUS AIR SELANGOR (LUAS)

Selangor Earth Surface Activity Monitoring System (SESAMS)

STRATEGY 4: STRENGTHENING LEGISLATION

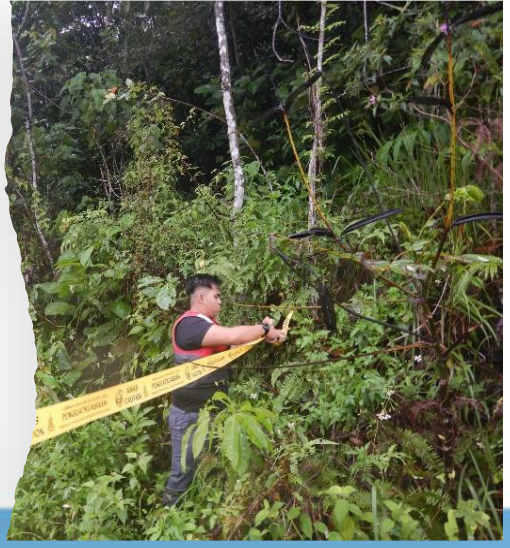
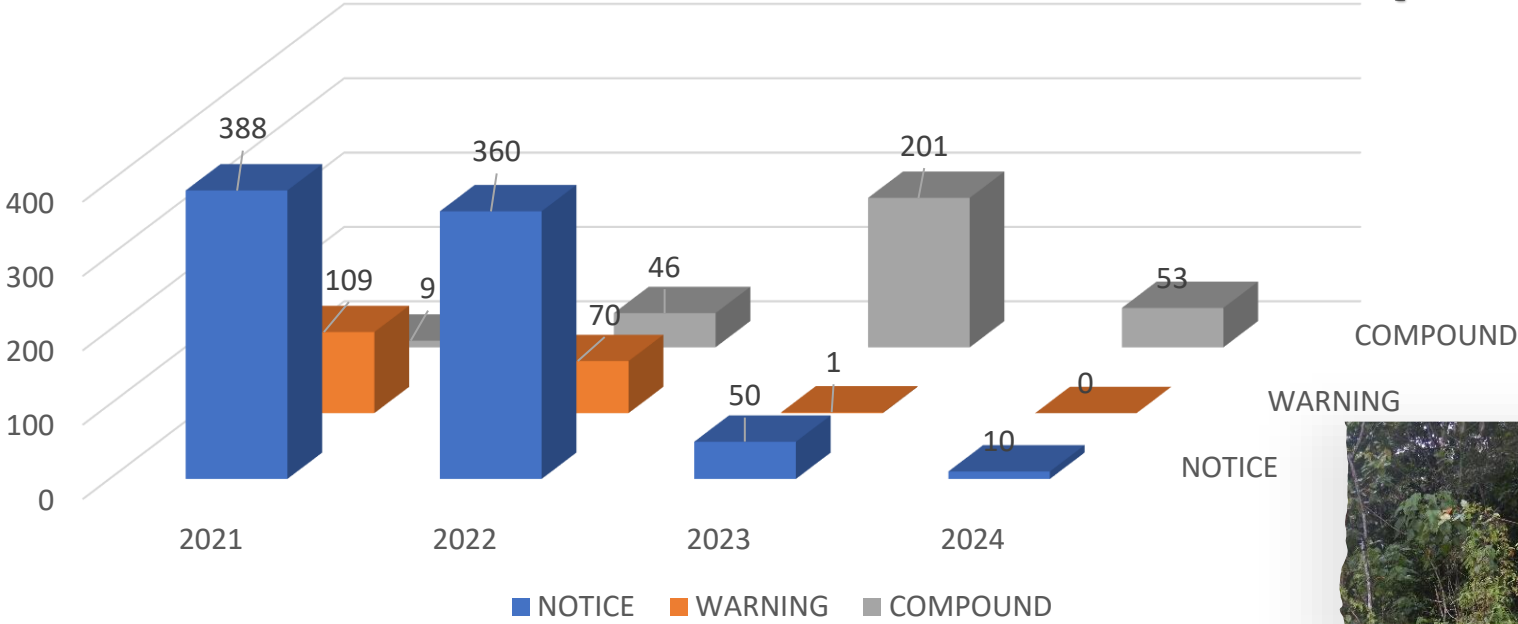
LEGISLATION : LUAS ENACTMENT 1999

- ❖ LUAS Enactment (Amendment) 2020 approved to ensure its relevant with current situation and enhancement on punishment & penalties,(s79) as “**DETERRENT FACTOR**”
 - ❖ s.79 - adding a new element which is smell or taste as an indicator of changes to water sources;
 - ❖ allocating the minimum amount of fines RM 200,000 and a maximum fine of RM 1 million;
 - ❖ requires a prison sentence not exceeding three (3) years;
- ❖ Strengthening compliance to orders under S.121(1) & S.122(1): cleaning & rehabilitation.



STRATEGY 5 : INTEGRATED ENFORCEMENT

NOTICE & COMPOUNDS 2021-2024 (AUGUST)



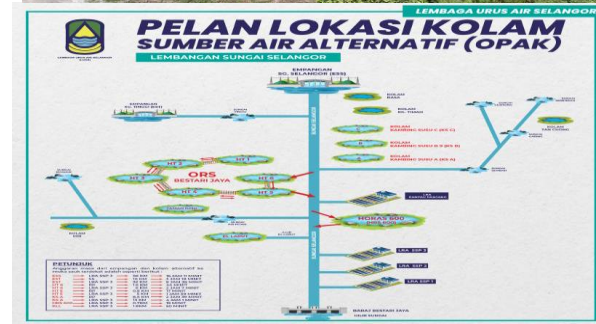
STRATEGY 6 : ALTERNATIVE WATER RESOURCES FOR WATER SECURITY

1. SJAM (RAW WATER ASSURANCE SCHEME)

- ❑ Development of infrastructure for the purpose of water supply with diversion in Selangor River.
- ❑ Alternative water use from pond in Sungai Selangor and Sungai Semenyih
- ❑ The average supply capacity period is 5 days in the event of any pollution occurred.



2. SORSS (SELANGOR OF RIVERS STORAGE SCHEME)

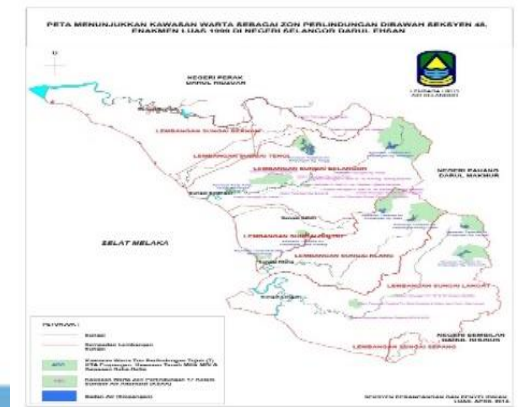


- Includes 100 ponds as reservoir/dual function pond.
- Able to increase the capacity of raw water resources in Selangor

3. HORAS 3000



- ❖ Bestari Jaya alternative pond
- ❖ Area : 4,451.3 ha
- ❖ Capacity : 3,000 MCM
- ❖ Gazetted as a protection zone under section 48, LUAS Enactment 1999.

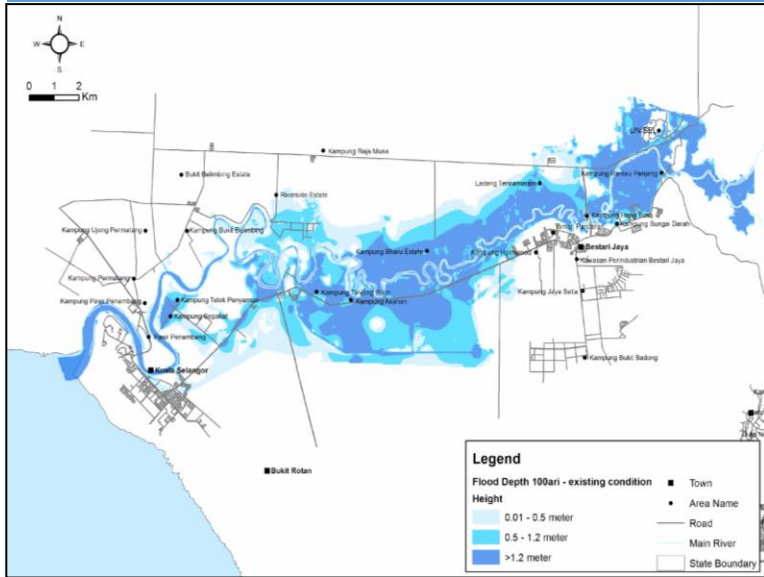


LEMBAGA URUS AIR SELANGOR (LUAS)

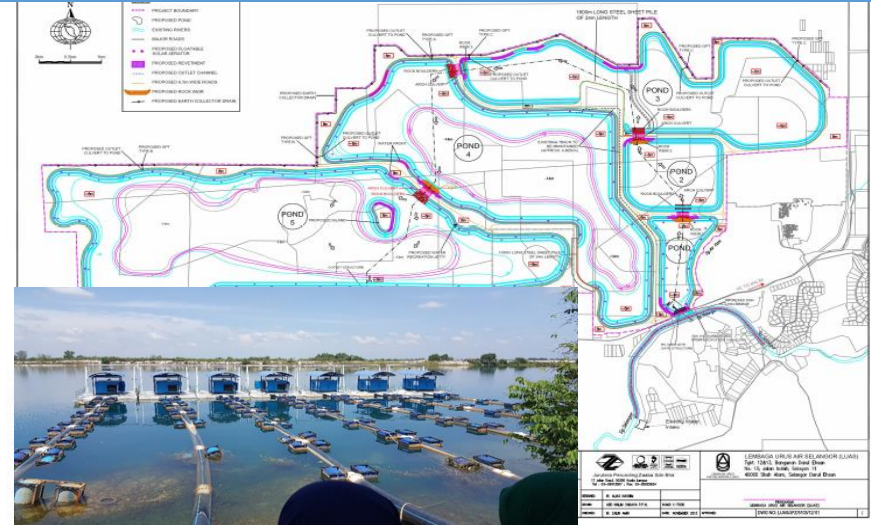
POLICY : REDUCE FLOOD RISK



STRATEGY 7 : DUAL FUNCTION MECHANISM IN WATER RESOURCES MANAGEMENT

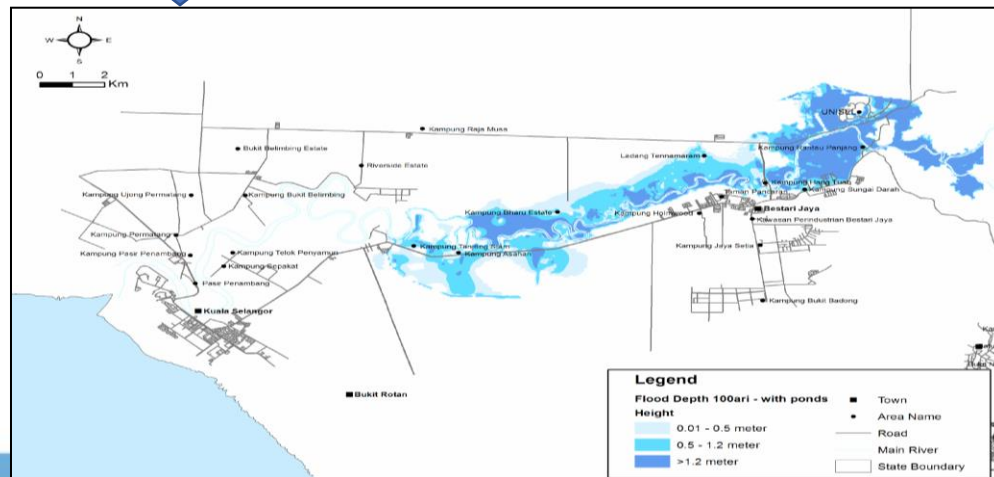


Flood Risk Map : Selangor River



Propose Off River Storage in Bestari Jaya (HORAS 3000)

- Water storage capacity : 3000 MLD(future project)
- Dual function application for water supply and flood mitigation



Flood Risk Map after the construction of pond

STRATEGY 8 : Empowering Communities in Conservation of Water Resources and Its Environment



Friends of River(FoR) @Selangor Initiatives

Local Community Cooperation

Community Empowerment

Integration of Community Needs Towards River Environment With River Conservation



WAY FORWARD

1

- **Holistic River Basin Management For Water Quantity and Quality Assurance**

2

- **Strengthening Legislation and Enforcement**

3

- **Active Stakeholders Involvement in Integrated Water Resources Management (IWRM)**



**THANK YOU
“WATER FOR ALL”**



haslina@luas.gov.my