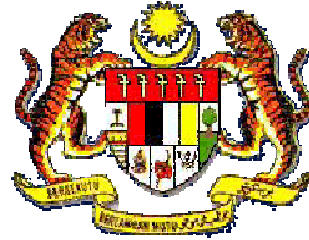


# Water Recycling of Bojongsoang WWTP

- Beneficiary: supply water for non domestic demands (agriculture , fisheries and industrial) in Bandung City and surrounding area.
- Estimated Project Cost: Rp 11,01 Billion (or equivalent with 1.23 Million US \$)
- Project Location: Bandung City and surrounding area
- Project Scope:  
Consist of 2 system options :
  1. Wetland (20 L/s) and Physical Chemistry (80 L/s), or
  2. Physical Chemistry (100 L/s)





# **OVERVIEW OF THE WATER SERVICES INDUSTRY IN MALAYSIA**

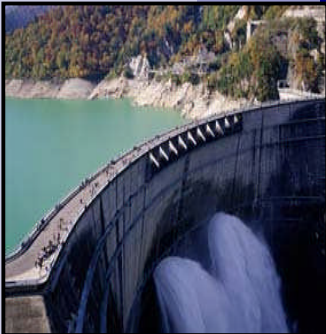
*BY*

**MDM. NOR 'AINI ABDUL WAHAB  
DEPUTY SECRETARY-GENERAL**

**(GREEN TECHNOLOGY AND WATER)**

**MINISTRY OF ENERGY, GREEN TECHNOLOGY AND WATER,  
MALAYSIA**

**14 FEBRUARY 2011**





# OUTLINE OF PRESENTATION

1

BACKGROUND

2

AREAS OF CONCERN

3

THE WAY FORWARD



# **BACKGROUND**

- **ROLE OF KETTHA FOR THE WATER SECTOR**
- **ECONOMIC TRANSFORMATION PLAN**
- **MALAYSIA DEVELOPMENT PLAN**
- **MINISTRY'S STRATEGIC PLAN 2010 – 2015  
FOR THE WATER SECTOR**





# **ROLE OF KETTHA (MINISTRY OF ENERGY, GREEN TECHNOLOGY AND WATER)**

- Formulation and implementation of national water policy.
- Planning and developing strategic directions.
- Formulating licensing and supervising policy and framework.
- Planning, evaluating and monitoring development projects.
- Create a regulatory system that is dynamic and progressive.
- Ensure a suitable environment for the development of the water service industry



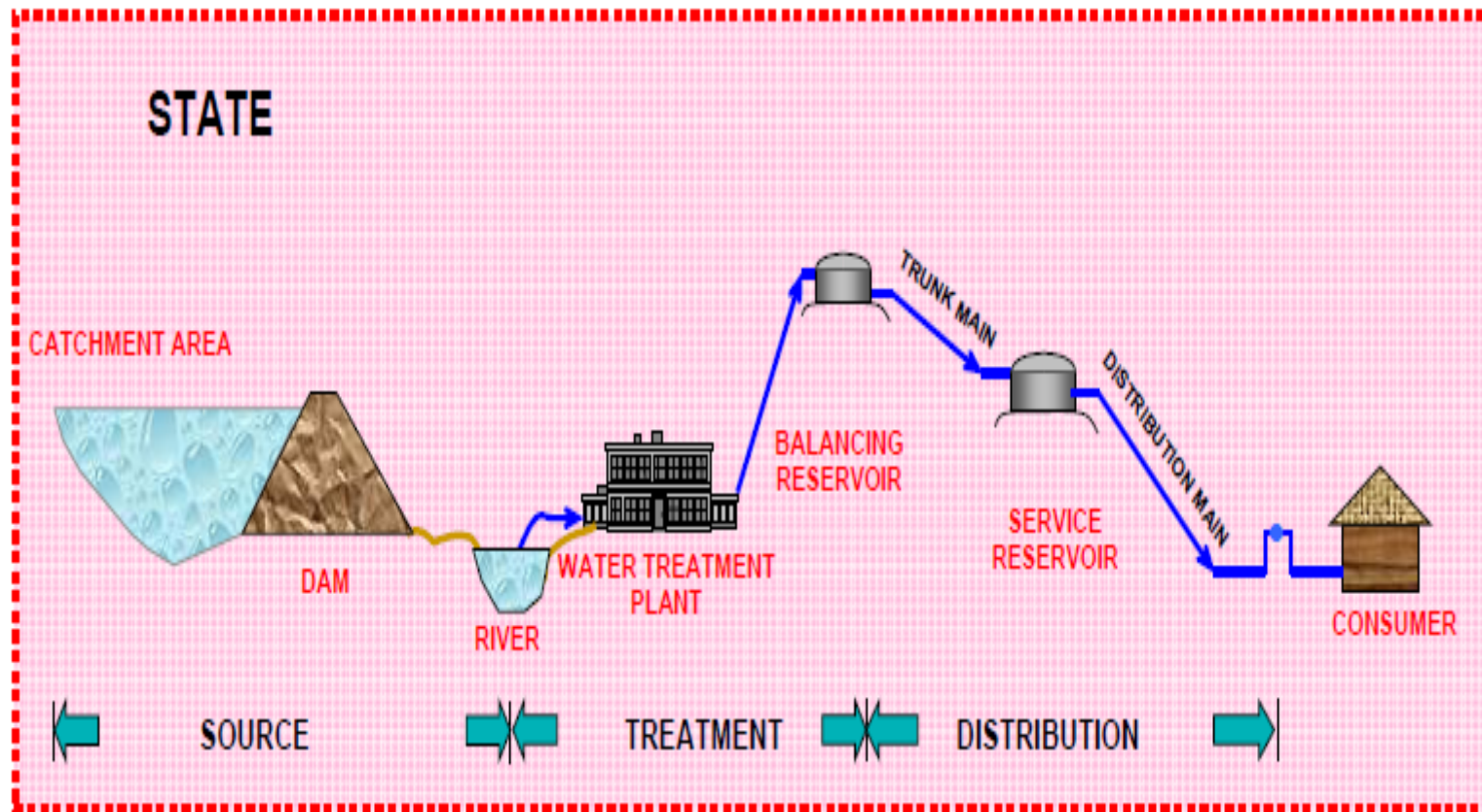
- ➡ **ECONOMIC TRANSFORMATION PROGRAMME**
- ➡ **KEY PERFORMANCE INDICATORS**
- ➡ **MALAYSIA DEVELOPMENT PLANS**
- ➡ **KETTHA'S STRATEGIC PLAN 2010-2015**



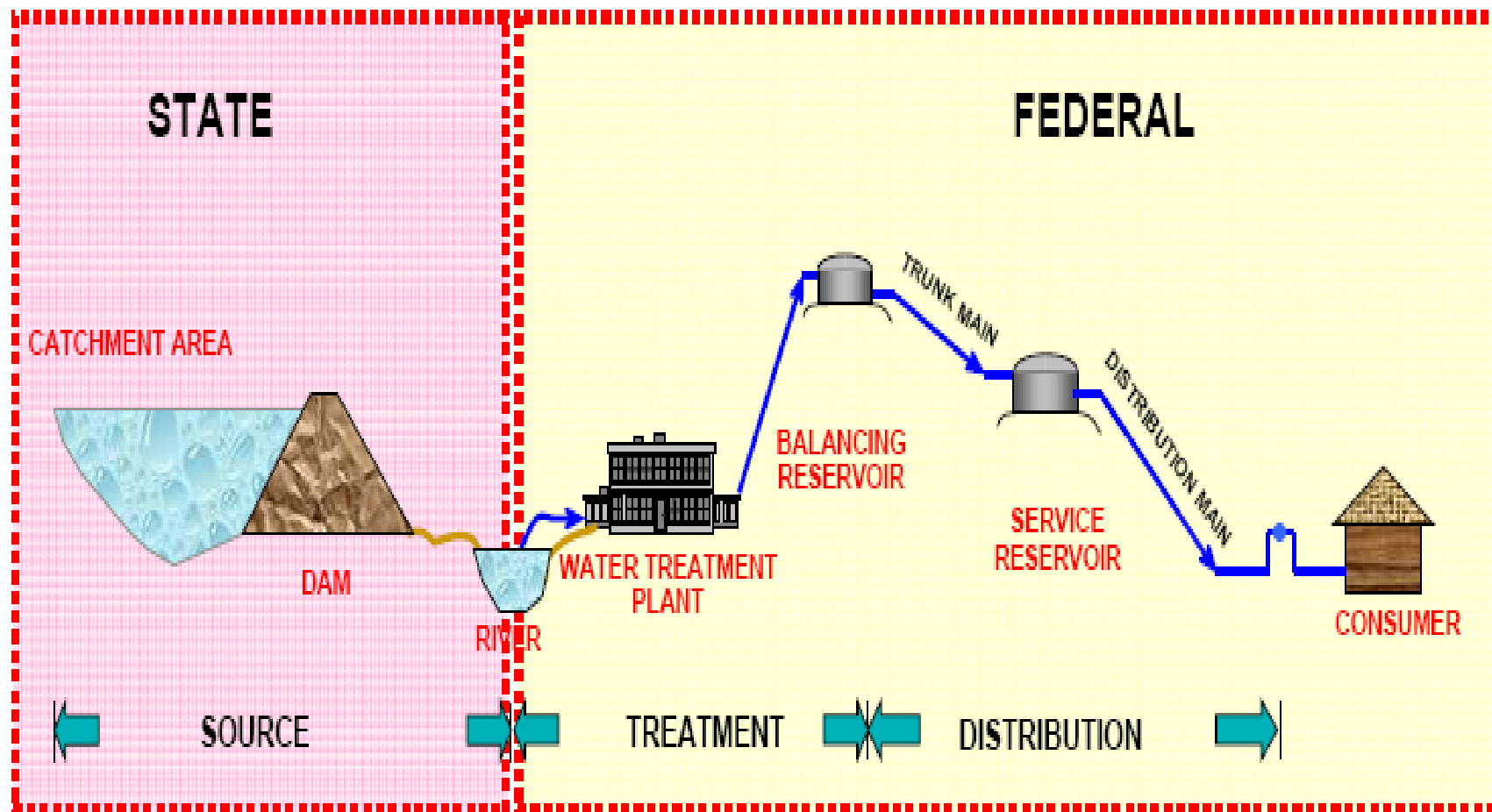
# WATER SERVICES INDUSTRY ROADMAP

<b>8<sup>th</sup> Plan Period (2001-2005) Stabilization</b>	<b>9<sup>th</sup> Plan Period (2006-2010) Consolidation</b>	<b>10<sup>th</sup> Plan Period (2011-2015) Towards Efficiency</b>
<ul style="list-style-type: none"> <li>■ Privatisation and corporatization of state water authorities</li> <li>■ Planning for restructuring of water services industry</li> <li>-amendments to Federal Constitution</li> </ul>	<ul style="list-style-type: none"> <li>■ Operationalisation of SPAN</li> <li>■ Enforcement of WSIA 2006</li> <li>■ Transfer of water related assets to PAAB at negotiated value and development of new water infrastructure</li> <li>■ Service providers become asset light and focus on efficiency and effectiveness</li> </ul>	<ul style="list-style-type: none"> <li>■ Tariff setting mechanism to allow full cost recovery to be fully phased in by 2013</li> <li>■ Integration of water supply and sewerage services</li> <li>■ Initial efforts towards introduction of integrated water and sewerage tariffs</li> </ul>

# WATER MANAGEMENT IN MALAYSIA – PRE-AMENDMENTS TO THE FEDERAL CONSTITUTION



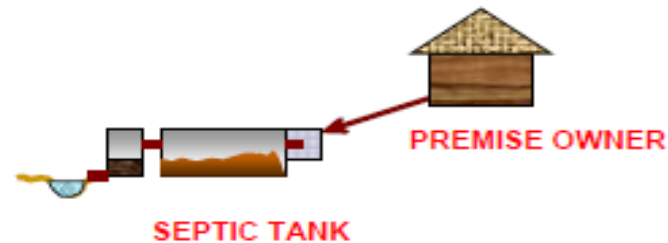
# WATER MANAGEMENT IN MALAYSIA – POST-AMENDMENTS TO THE FEDERAL CONSTITUTION



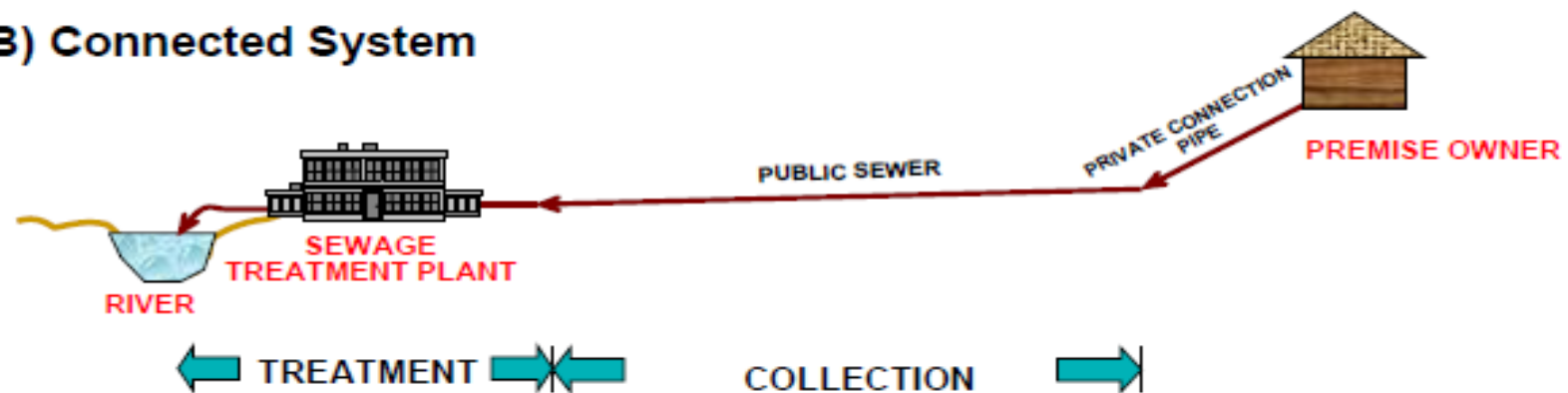


# MANAGEMENT OF SEWERAGE SERVICES IN MALAYSIA

## A) Individual Septic Tank



## B) Connected System





# PRINCIPAL ROLE OF FEDERAL AND STATE GOVERNMENTS

Body	Area of responsibility	Description
<b>Federal Government</b>	Policy matters	Development of a holistic water policy for the country by setting policy directions.
<b>State Government</b>	Water resources matters	Manage existing water basins with the view of protecting the quality of raw water and identifying new water basins when required.
<b>National Water Resources Council (NWRC)</b>	Governance matters	Ensures coordination with the various State Governments in the management of the water resources.
<b>Suruhanjaya Perkhidmatan Air Negara (SPAN)</b>	Regulatory matters	Regulate the whole water industry based on the policy directions set out by the Federal Government. Promote an efficiency driven regime



# **INTRODUCING REGULATORY REGIME**

**WATER SERVICES  
INDUSTRY ACT 2006  
(WSIA)**

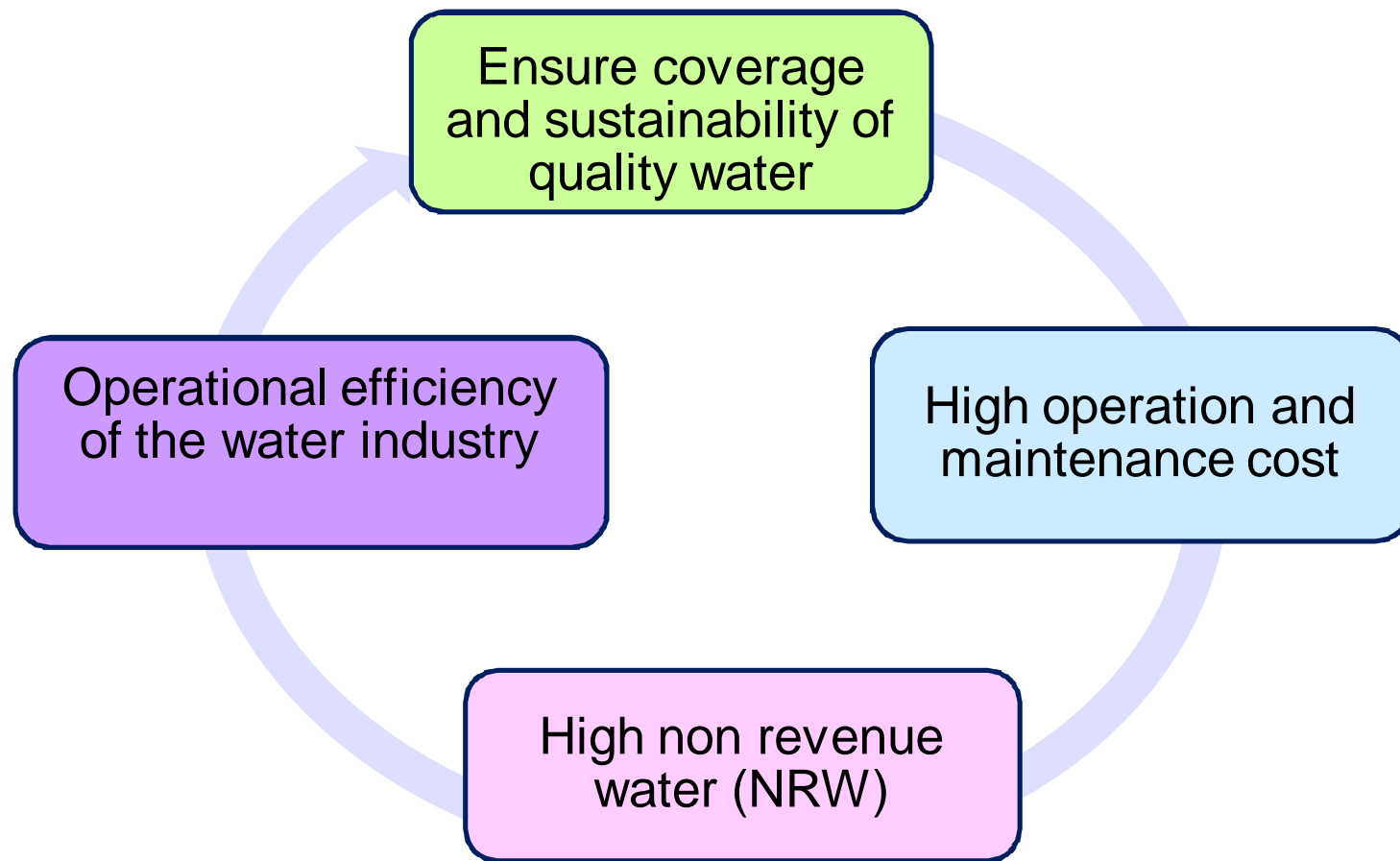
**NATIONAL WATER  
SERVICES  
COMMISSION**

**PAAB – *PENGURUSAN  
ASET AIR BERHAD -  
(WATER MANAGEMENT  
AGENCY)***

**INDAH WATER  
KONSORTIUM  
BERHAD**

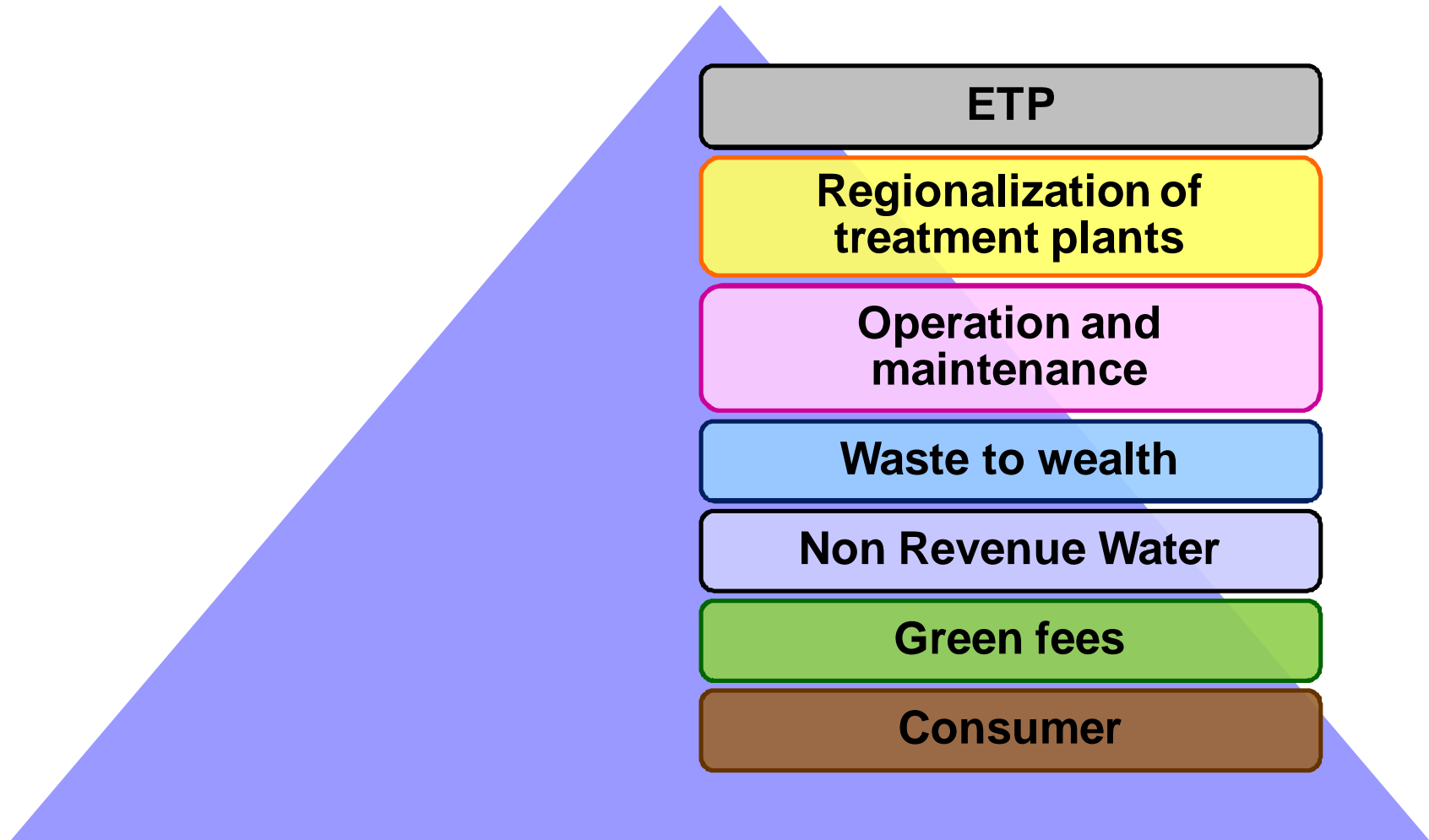


# AREAS OF CONCERN



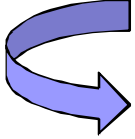


# THE WAY FORWARD







 To create a **holistic** and **viable** water services industry with the proficiency to deliver an **efficient** and **excellent** water and sewerage service



**Thank you**

# ***SEWERAGE MANAGEMENT IN MALAYSIA***



*Presentation to PPP Council for Overseas  
Water Infrastructure*



# Evolution of Sewerage Systems in Malaysia

Prior to 1950-s Technology



Pour Flush

Septic Tank

Imhoff Tank

OP/AL

Activated Sludge/  
Biological Filters

Fully  
Mechanised  
Plants

1950-s

1960-s

1970-s

1980-s

1990-s

2000

Year

Early Days in  
Malaya

Primitive / Primary Treatment

Partial / Full Secondary Treatment

Future Tertiary

Treatment

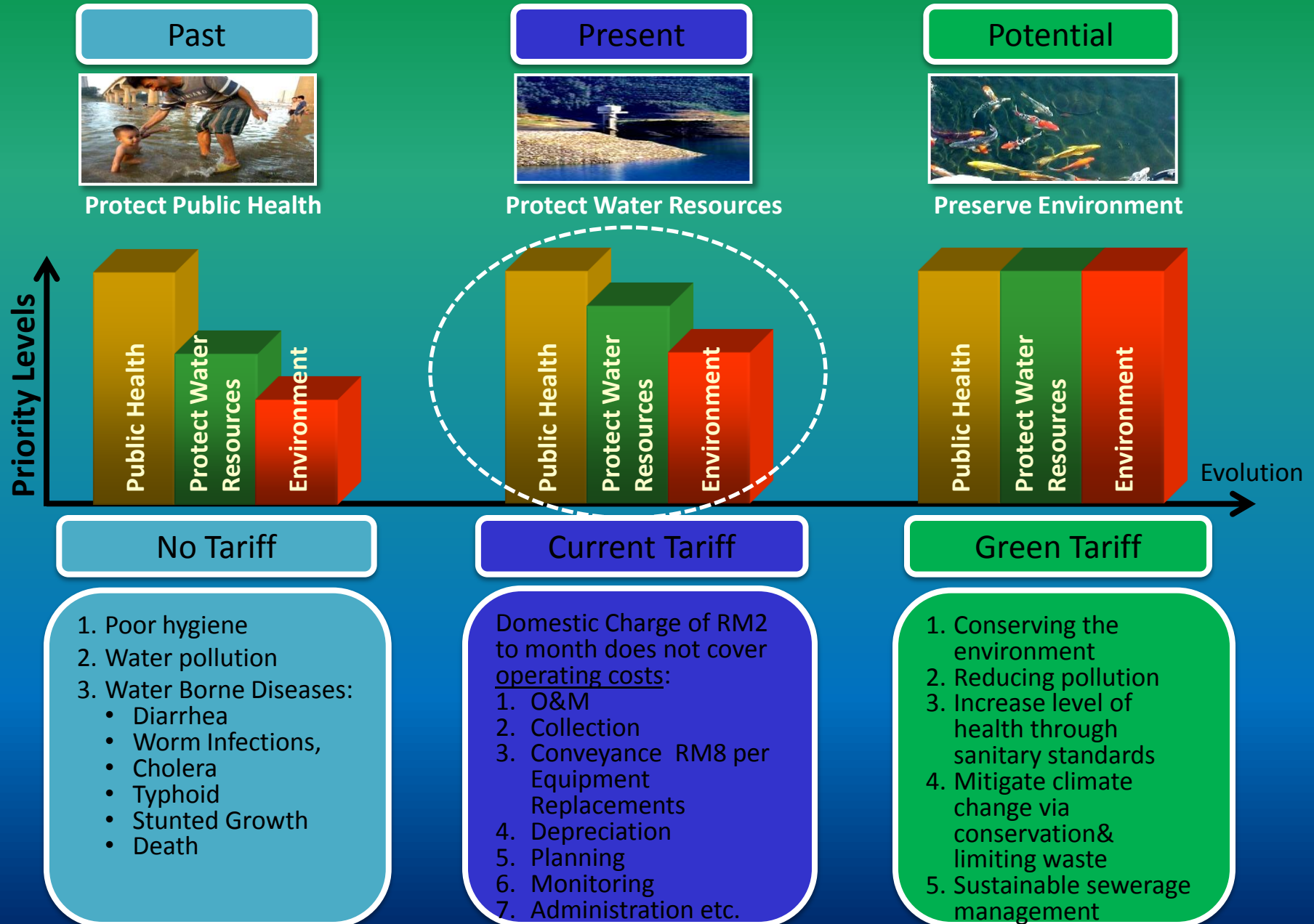
(Address Public Health)

(Address River Pollution)

(Address Environment)

The sewerage technology in Malaysia has improved significantly within a span of over 5 decades

# Progressive Development of Malaysia's Sewerage Services

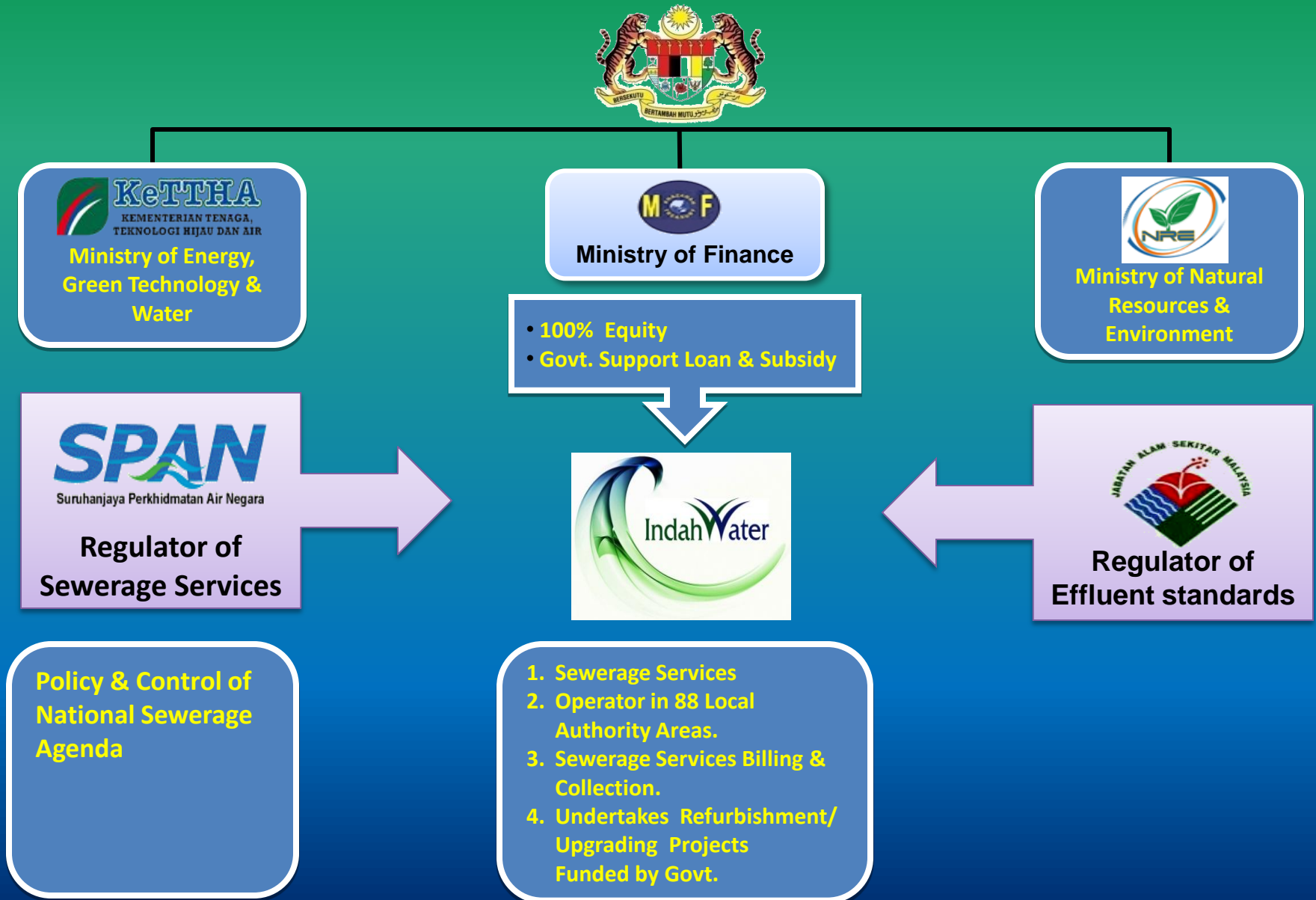




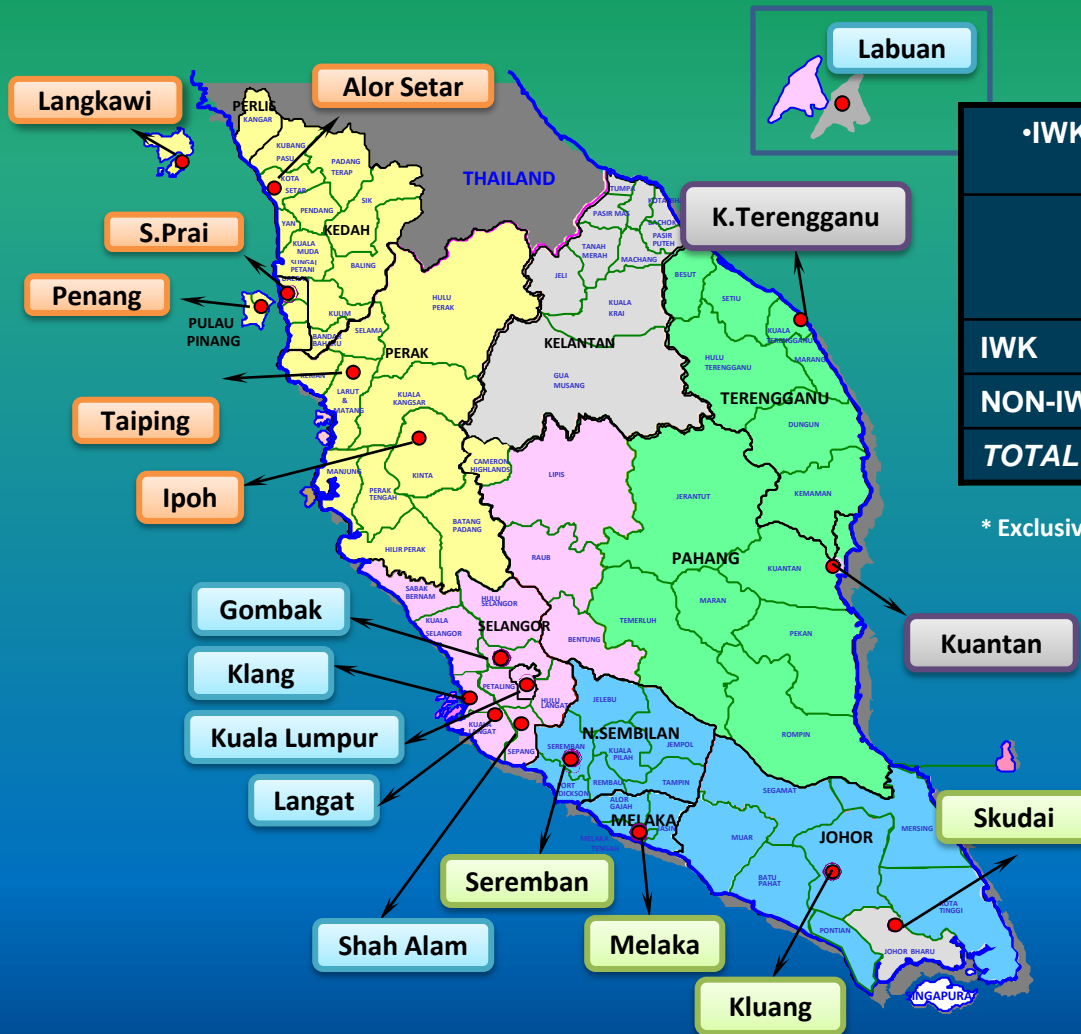
# Sewerage Management in Malaysia

Before Merdeka	Mostly Managed by Local Sanitary Board
After Merdeka	Urban by Municipals & Rural by Ministry of Health
June-93	Sewerage Act 1993 (Act 518) was passed by Parliament
December-93	Dept. of Sewerage Services was formed as regulator for sewerage services under the SSA.
Before 1994	Sewerage Services were managed by 144 Individual Local Authorities
April-94	Indah Water took over sewerage management in most states in Peninsular Malaysia
June-00	Govt. Under Minister of Finance Incorporated took over IWK
June-06	Water Services Industry Act 2006 & SPAN approved by Parliament
January-08	Establishment of National Water Services Commission (SPAN) & enforcement of Water Services Industry Act 2006
Currently	Indah water provides sewerage services in 88 out of the 144 Local Authorities in Malaysia ( <i>however not on holistic manner</i> ). Rest of the areas is still managed on Ad-Hoc basic

# Governance Structure for Sewerage Services



# Areas of IWK Coverage and Resources



**•IWK TOTAL OPERATIONAL AREA AND POPULATION SERVED (As at December 2010)**

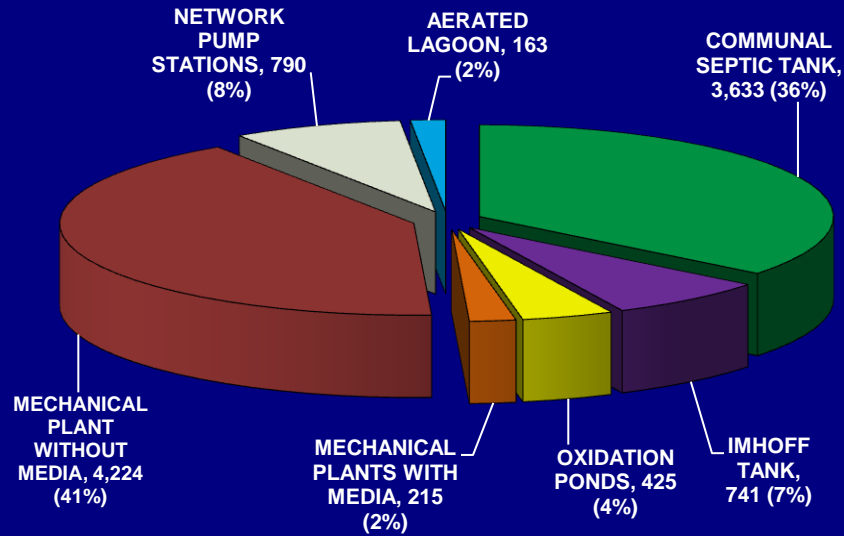
	AREA (Sq. Km)	%	POPULATION EQUIVALENT (PE)	%
IWK	68,505.88	51.8	19,134,331	71.7
NON-IWK	63,769.54	48.2	7,361,729	28.3
<b>TOTAL</b>	<b>132,275.42</b>	<b>100.0</b>	<b>26,695,297</b>	<b>100.0</b>

\* Exclusive of 2.96 million population utilising primitive (pour flush) systems

1. No. of Unit Office: 18
2. No. of Reporting Center: 48
3. No. of Laboratory facility: 3
4. No. of Certification Office: 11
5. No. of Regional Planning Office: 4
6. No. of Staff: 2,733
7. No. of Vehicle owned: 559
8. No of Local Authorities Served: 88

# IWK's Assets and Population Equivalent Served

## Types of Treatment Plants

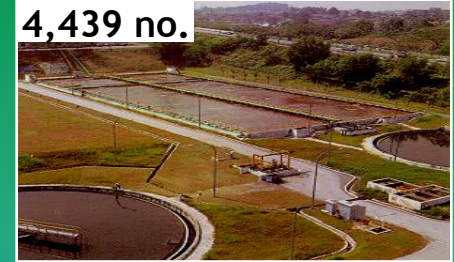


4,374 no.



Communal Septic Tanks & Imhoff Tanks

4,439 no.



Mechanical plants

425 no.



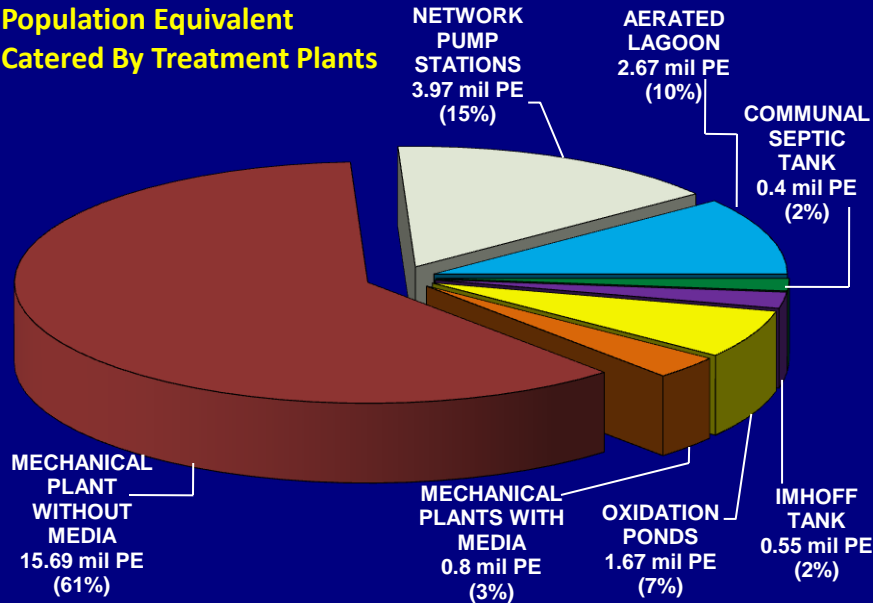
Oxidation Pond

163 no.



Aerated Lagoon

## Population Equivalent Catered By Treatment Plants



790 no.



Pump Stations

14,739 km



Pipe Network

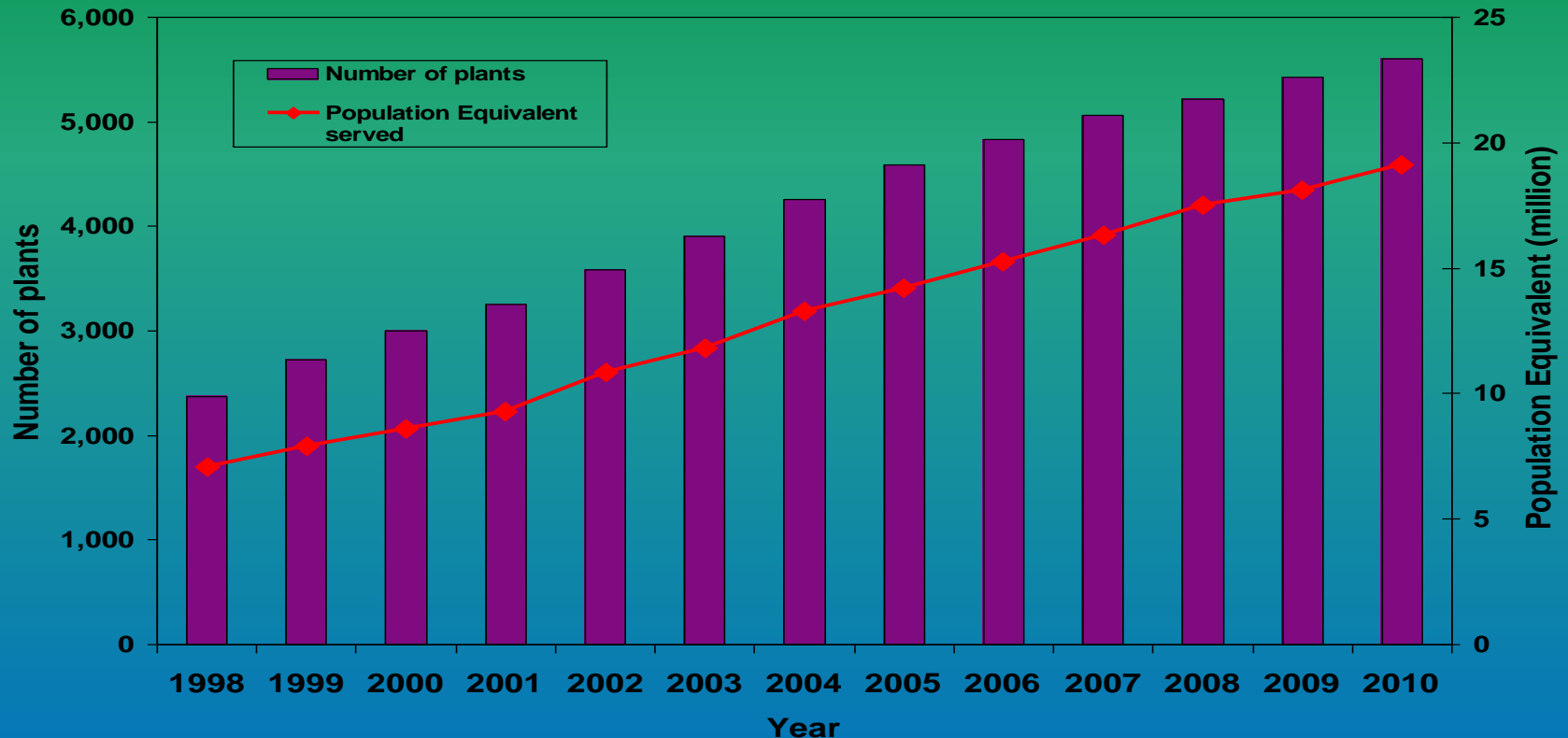
**Total Connected Population Equivalent Served by IWK is 18.7 million (excluding CSTs & NPSs).**



Individual Septic Tanks

**Approx. 1.2 mil Individual Septic Tanks and Population Equivalent Served by IWK is 6.1 mil.**

# Sewage Treatment Plants Growth



- Lack of investment in building large/regional STPs by the Government has resulted in the proliferations of small plants in new developments by developers.
- On the average about 300 STPs are built by developers & handed over to IWK to operate and maintain each year. **(83% of which are STPs less than 5,000 PE)**

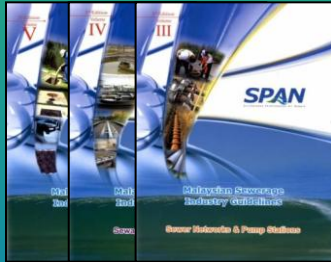


# Improvements In Sewerage Services Since Federalisation (1994)



## Operation & Maintenance (O&M) Improvements

- O&M expertise for varied sewerage systems
- Efficient desludging services and septage management
- Effluent Compliances that contributes to improved water quality.



## Sustainable Sewerage Planning & Development for Infrastructure Improvements

- Develop Guidelines and Standards
- Nationwide Catchments Strategy
- Integrated Financing strategy for Sewerage development



## Customer Service & Awareness Program for Sustainable Services

- Efficiently address operational complaints
- Improved Level of Service for customers
- Comprehensive Billing & Collection systems
- Communications and public outreach and education

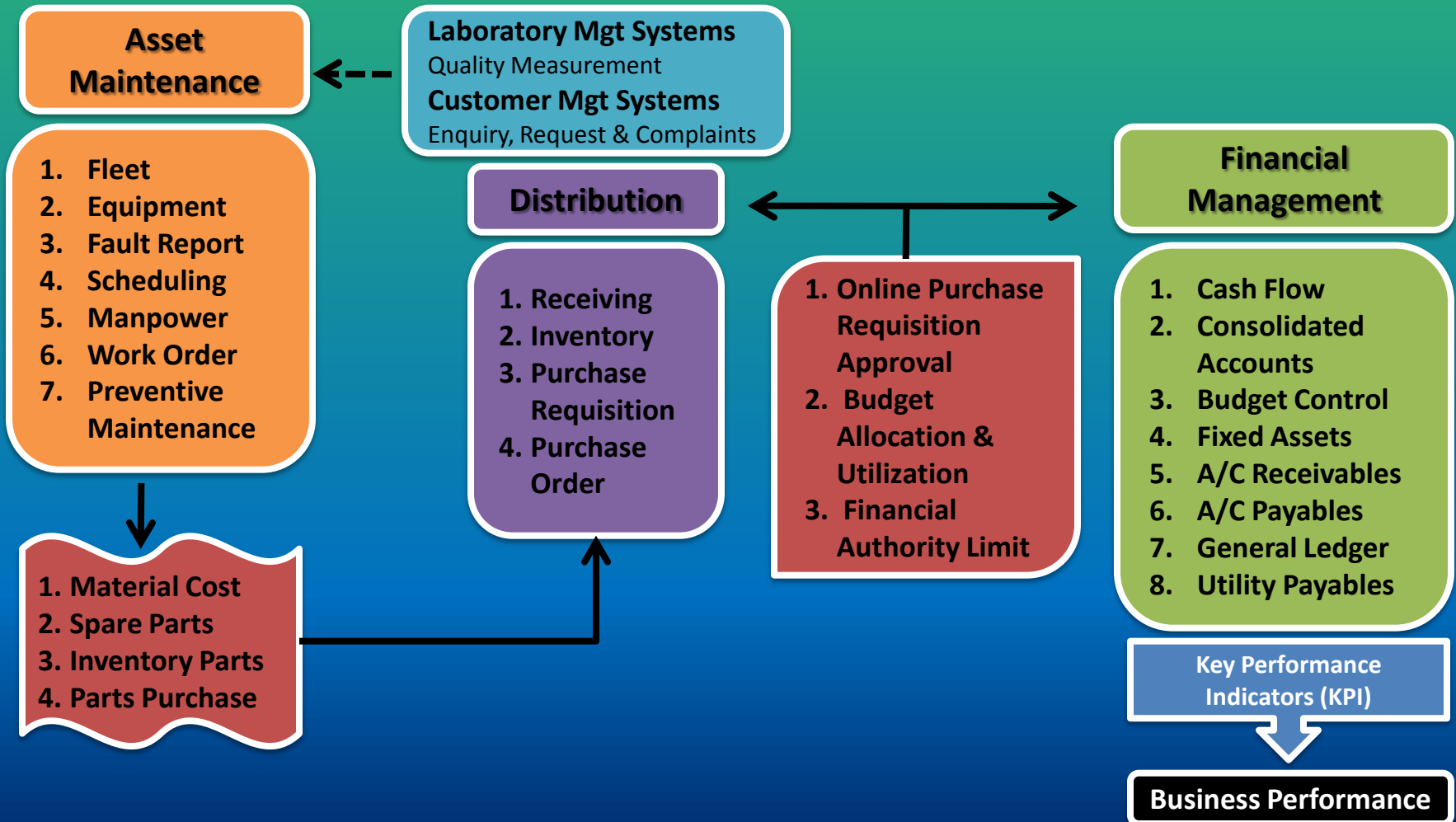


## Creating Value For The Sewerage Industry

- R&D for operational improvements & sustainable services
- Training & Accreditation services to develop skilled and knowledgeable workforce

# Total Asset Management System

An integrated Financial, Asset, Laboratory, Customer Operations Enquiry & Desludging Management Systems to provide operational efficiency



# Capacity Building Initiative at International Level



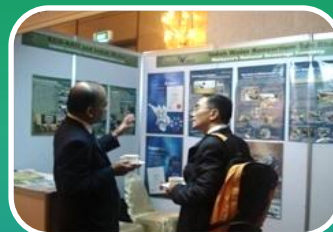
Capacity Building for Urban  
Environmental Company URENCO  
Halong City, Vietnam



REGIONAL WATER AND SANITATION  
WORKSHOP AND TRAINING -  
Developing Comprehensive Septage  
Management Programs in Asia



Twinning partnership with Perusahaan  
Daerah Air Minuman (PDAM) Tirtanadi,  
Medan, Indonesia



Waterlinks Forum at Bangkok



Study visit by NGO bodies from various  
city of Philippines  
Date Visit: 14 December 2006



Technical visit from Vietnam Coastal  
City Environmental Sanitation Project  
Date Visit: 5 - 7 October 2009



15<sup>th</sup> African Water Association  
Congress at Kampala  
Date: 15 - 18 March 2010



Study Visit from TAIZ Water &  
Sanitation Local Corporation, Yemen  
Date Visit: 22-26 January 2007



Study visit from Oman Wastewater  
Services Company  
Date Visit: 10-12 September 2007



Technical Study Visit by Iranian  
Delegates  
Date Visit: 13 November 2009



Technical visit by Philippine Department  
of Environment and Natural Resources  
Southern Mindanao on 20<sup>th</sup> - 21<sup>st</sup> July  
2010



Diagnostic visit to Jemshedpur Utilities  
& Services Company Limited, India on  
7<sup>th</sup> - 10<sup>th</sup> December 2010



Workshop for Philippine Multiple-  
Recipient Water Operator  
Partnership on 9<sup>th</sup> - 11<sup>th</sup>  
November 2010



Twinning Partnership with Maynilad  
Water Services, Philippines on January-  
August 2010



Twinning Partnership with Hai Phong  
Drainage and Sewerage Company  
(SADCO), Vietnam on Mac 2010-Sept  
2010



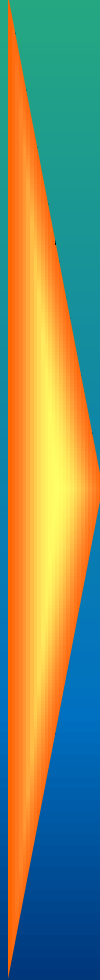
# Total Priority CAPEX Required FY 2011 to 2013

No	Project Category
<b>Capex 1</b>	<b>Refurbishment / Upgrading / Rationalisation</b>
Capex 1a	Refurbishment / Upgrading / Rationalisation to meet Cat 2 and Cat 3 Standards
Capex 1b	Brickwall Fencing to ensure safety and security
Capex 1c	Rationalise priority plants identified within the JBIC catchment to increase operational efficiencies
<b>Capex 2</b>	<b>Rehabilitation of Critical Sewer Network</b>
Capex 2a	Rehabilitation of Critical Sewer Network / Force Main to solve operational issues
Capex 2b	Sewer Profiling and Mapping to develop asset management plan
<b>Capex 3</b>	<b>Sludge Projects to meet current capacity/demand for sludge management*</b>
<b>Capex 4</b>	<b>Pond Desludging to ensure compliance to Cat 2 requirements</b>

# Phase 1 – Priority Needs Capital Expenditure Plan

## Focus on Operational Enhancements and Compliance to Standards

- ✓ Refurbishment and upgrading of plants to meet new Category 1 standards;
- ✓ Sludge treatment facilities;
- ✓ Sewer rehabilitation program;
- ✓ Regionalisation and rationalisation in priority areas;

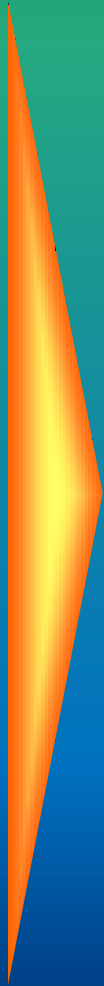


Item	Description
Refurbishment and upgrading of STPs to Cat 1 Stds.	4,600 STPs
Sewer rehabilitation	1,300 km
Sludge treatment facilities	30 Nos
Regional sewerage facilities	26 Nos

# Long Term Needs Capital Expenditure Plan

## Meets all objectives for the Sewerage Industry

- ✓ Refurbishment and upgrading of plants to meet new Category 1 standards;
- ✓ Rationalisation and regionalisation of plants;
- ✓ Sewer rehabilitation program and connection of premises to network;
- ✓ Develop new plants and sludge treatment facilities and land acquisition;
- ✓ Convert pour flush to ISTs
- ✓ Increase sullage connection to sewer network



Item	Description
Infrastructure upgrading and rationalisation	7,141 STPs
Sewer rehabilitation	1,319 km
Sludge treatment facilities	63 Nos
Regional sewerage facilities	178 Nos
Backlog connection (incl. sewer reticulation)	552,244 properties
Conversion of pour flush to ISTs	836,470 properties
Sullage Connection	244,034 properties

# Sewerage CAPEX Fundings Sources

Current major CAPEX Fundings:

- Malaysia Plan
- Funds via Government-to-Government arrangement

## Potential Sources of Financial for CAPEX

- \* Malaysia Plan
- \* Government Grant
- \* Bond
- \* Sabah Credit Corporation
- \* Public Private Partnership / Private Finance Initiative





# Moving Forward



## NEW ENACTMENTS

Water Services Industry Act 2006(WSIA Act 655) and National Water Services Commission Act (SPAN Act 654) recently gazetted for enforcement

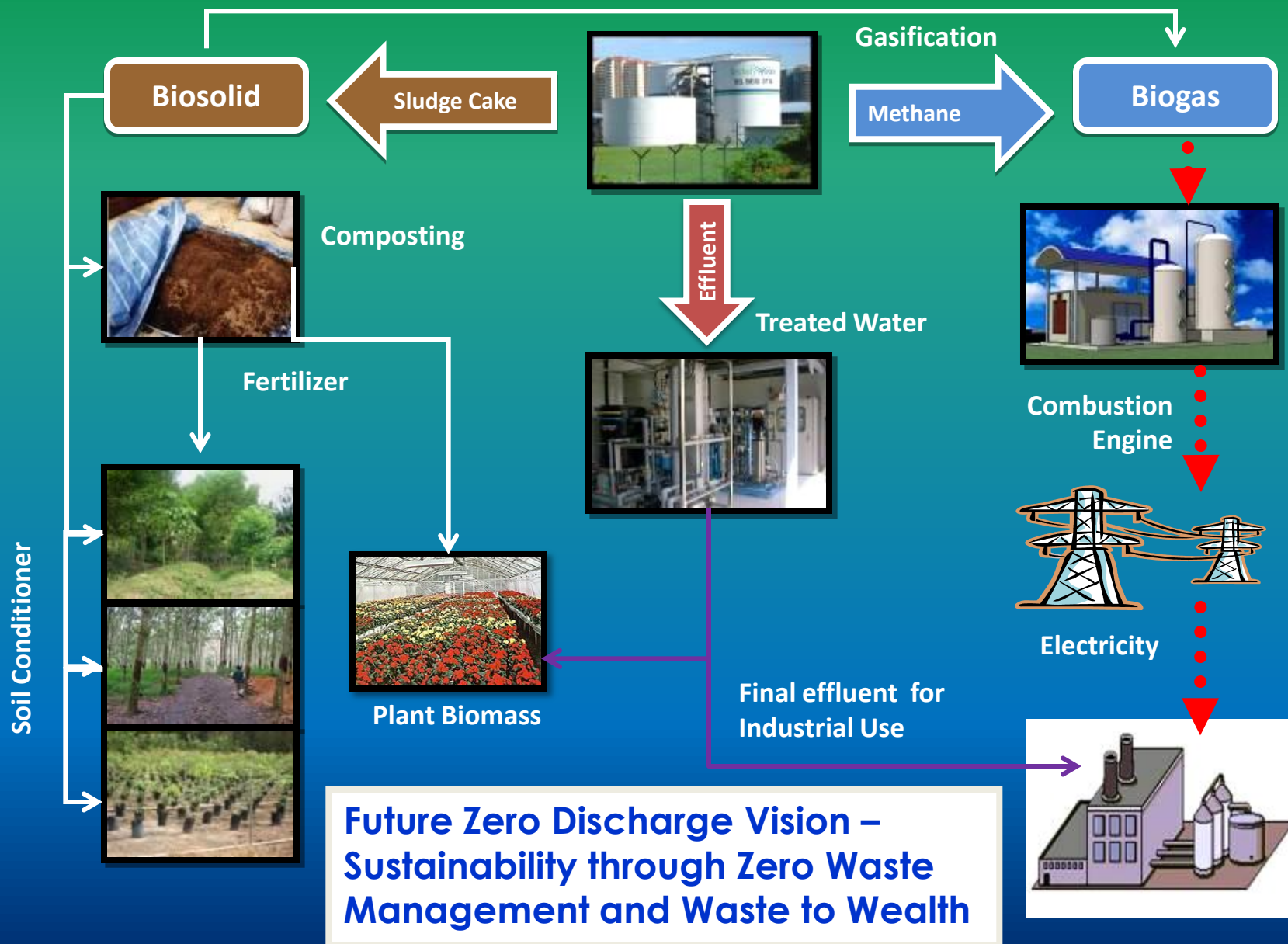
### SPAN

New integrated regulator for water and wastewater services (“SPAN”) was officially announced in February 07

### WSIA

- WSIA offers resolution to critical issues for the sewerage industry such as billings & collection, refusal for individual septic tank desludging service and maintenance of private sewage treatment plants.

# Green Technology For Sewerage Sector



# Research & Development For Green Technology

To ensure a sustainable future, R&D initiatives will need to look beyond:



# Strategizing R&D Initiatives

## Improve Network & Alliances:

Policy to promote partnerships & knowledge sharing.

Guidelines & Code of Practice with Model collaborative contracts.

Establish routes & forms for dissemination.

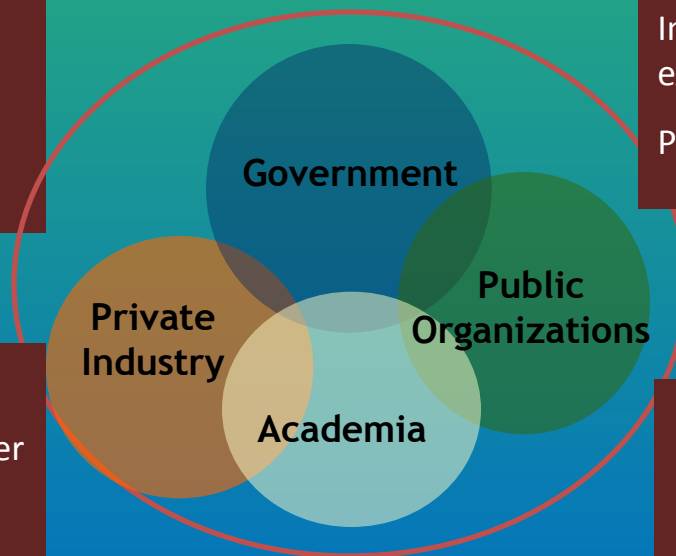
## Optimize Resources:

Dedicated funds for the wastewater sector's priority areas.

Government subsidies for Pilot Projects in reuse.

Industry to provide test beds

Institutions to provide quality laboratory and analytical facilities.



## Promote Niche Expertise:

Academia to lead in Fundamental and Nationwide research.

Industry to actively promote applied, experimental and innovative activities.

Public sector inputs on socio-economics.

## Research Commission:

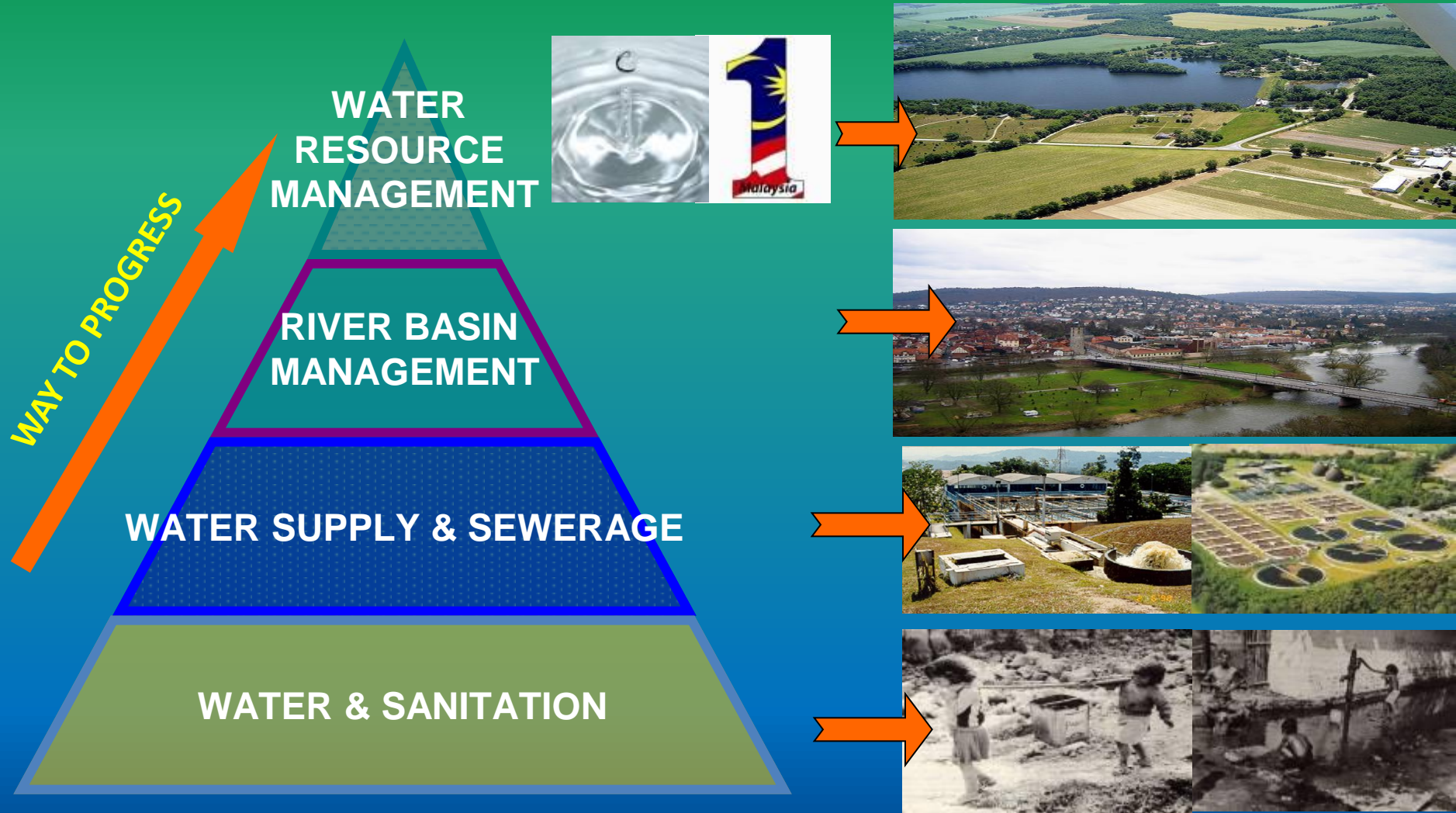
Prioritize R&D areas for the sector.

Manage dedicated funds, review proposals and award.

Manage dissemination routes and function as database depository.

Reward system for generation of IPs and Product commercialization.

# Moving Towards 1 Water for 1 Malaysia



# THANK YOU

For further enquiries kindly contact:

**DATUK IR ABDUL KADIR MOHD DIN**

Chief Executive Officer

Indah Water Konsortium Sdn Bhd

Email: [akadirmd@iwk.com.my](mailto:akadirmd@iwk.com.my)

[www.iwk.com.my](http://www.iwk.com.my)



A Presentation for the  
PPP Council for Overseas Water Infrastructure

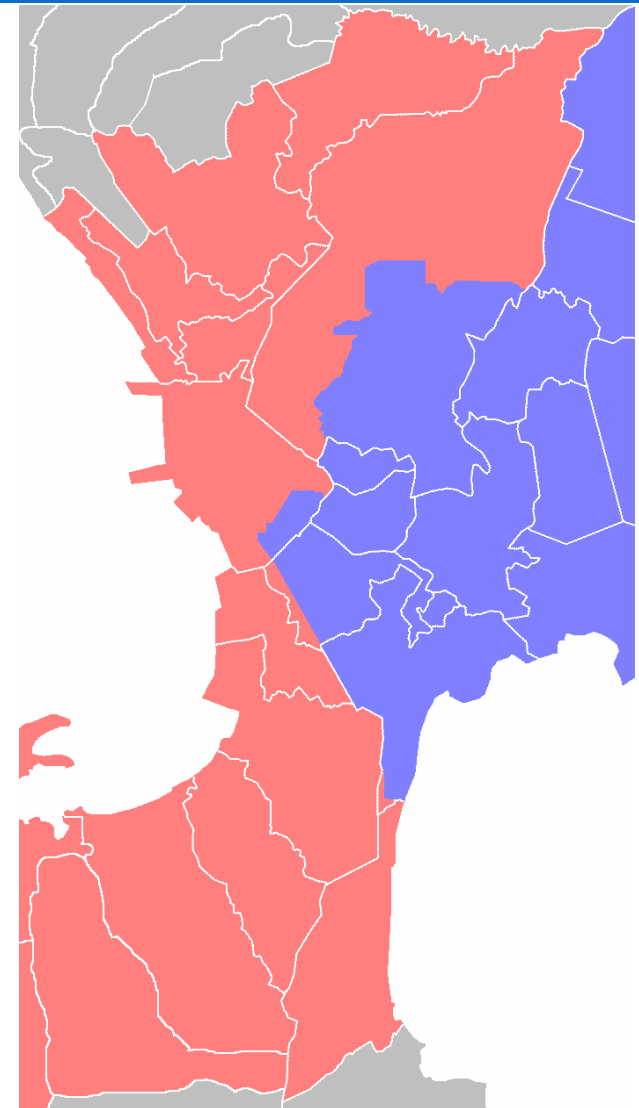
by Ramon Alikpala, Chairman  
Metropolitan Waterworks and Sewerage System (MWSS)

# **DEVELOPING NEW WATER SOURCES FOR METRO MANILA**



# The Metropolitan Waterworks and Sewerage System (MWSS)

- The largest water privatization project in the world
- Services water supply and sewerage requirements of approximately 15 million people



# MWSS Priorities for Next 6 Years



1. Development of New Water Sources
2. Development of Replacement Source for Irrigation