WATER RESOURCES MANAGEMENT IN SELANGOR – ISSUES AND STRATEGIES

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MALAYSIA WATER RESOURCES MANAGEMENT FORUM 2012, PUTRAJAYA
26 NOV 2012
OUTLINE

1. ESTABLISHMENT OF SWMA
2. SWMA’s FUNCTIONS
3. ISSUES AND STRATEGIES
4. CONCLUSION
ESTABLISHMENT OF SWMA/LUAS

➢ The inception of SWMA was the result of the directive of the Cabinet Ministers’ Meeting in July 1997 in which the Ministry of Agriculture was requested the Selangor State Government to consider a proposal to establish;

“an agency to manage the river and water resources in an integrated manner by applying the Selangor River as a pioneer project and the Thames River in the United Kingdom as the model for its implementation “.
Selangor Waters Management Authority or its acronym, SWMA/LUAS is a one-stop agency for the management of water resources, river basin, water bodies, ground water and coastal waters in the State of Selangor.

- It was established under the Selangor Waters Management Authority Enactment 1999 pursuant to the approval of the Selangor State Legislative Assembly on 9 April 1999.
19.15 Water Resources. During the Plan period, several states experienced periodic water scarcity. This was caused by extended dry spells, and was compounded by the increasing demand for water, polluted water sources and the encroachment of development into water catchments. In this regard, the Government formed a National Water Resources Council in 1998 to provide a forum for a holistic approach for the planning and management of water resources. A National Water Resources Study for Peninsular Malaysia was completed in 2000 to determine the availability of water resources and water demand up to 2050. The river-basin approach to water management in Malaysia was initiated with the establishment of Lembaga Urus Air Selangor (LUAS) in 1999. In addition, various awareness campaigns were held with the cooperation of the relevant non-governmental organizations (NGOs) to promote the wise use of water and river conservation in general, especially through the annual Cintailah Sungai Kita campaigns.

SWMA OBJECTIVES

➢ To ensure the water resources and environmental surrounding is in a manageable and sustainable condition, in order to support the socio-economic development of the progressive State.

➢ To undertake the function of planning, research, facilitator, coordinator, operation, enforcement, supervision in the development of integrated management of water resources and environment.
SWMA OBJECTIVES ...continue

➢ To provide an environment that is conducive for public and private sector participation in the development, utilization and management of water resources and environmental surroundings taking into consideration the interests of the public and the State Government.

➢ To create the public awareness and the participation of the public on the importance of water resources and in caring and enhancing the quality of water.
SWMA’s MAIN FUNCTIONS

Section 6, LUAS Enactment 1999 (17 functions):

- Coordinate multi agency relationship in the State.
- Adopt and implement policies, plans and Government projects.
- Protect the interest of the State in respect of development, management, use and conservation of water resources.
SWMA FUNCTIONS ...cont

- Regulate and control through licensing for all activities related to water resources.
- Regulate and control through monitoring and enforcement actions.
RIVER CONSERVATION

(Legal Provision)

Approval Requirement/Permission

Requirement to consult

Power to impose work order

Power to gazette for protection
Water Management

WATER RESOURCE

CATCHMENT AREA

DAM

RIVER

WATER USERS

AQUACULTURE

SEWERAGE

INDUSTRY

FARMING

USED WATER

SOURCE

CONSUMPTION

SOURCE

- LUAS
- DOE

- LUAS
- DOE
WATER SUPPLY SERVICES FRAMEWORK

SELANGOR STATE GOVERNMENT

Dept of Environment
Waters Management Authority (Luas)

Water Resources (river, lake, pond, ground water, sea etc)

1. Konsortium Abass Sdn Bhd (Semenyih Dam)
2. Splash Sdn Bhd (Sg Selangor Dam)
3. Puncak Niaga Sdn Bhd (Others)

Treatment of Raw Water

1. Konsortium Abass Sdn Bhd
2. Splash Sdn Bhd
3. Puncak Niaga Sdn Bhd

Distribution

1. Syabas Sdn Bhd

Supply to Consumer

1. Syabas Sdn Bhd

FEDERAL GOVERNMENT

National Water Services Commission (SPAN)

*Ministry of Health sets the standards for water quality at every stage*
RIVER BASINS AND DAMS IN SELANGOR

SG BERNAM

SG TENGI

SG SELANGOR

SG BULOH

SG KLANG

SG LANGAT

SG SEPANG

LEMBANGAN SG SELANGOR

LEMBANGAN SG KLANG

LEMBANGAN SG LANGAT

Empangan Sg Selangor
Empangan Batu
Empangan Klang Gates
Empangan Sg Tinggi
Empangan Sg Langat
Empangan Semenyih
Empangan Tasik Subang
ISSUES

1. Water Resources Management (quantity and quality)

2. Sectorial Approach In Water Resources Management

3. Water Demand Management

4. Lack of Monitoring and Enforcement
## Available Rainfall in Malaysia (mm)

<table>
<thead>
<tr>
<th>State</th>
<th>State Area (sq km)</th>
<th>Rainfall</th>
<th>Actual Evaporation</th>
<th>Groundwater Recharge</th>
<th>Surface Runoff</th>
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</thead>
<tbody>
<tr>
<td>Perlis</td>
<td>821</td>
<td>1,880</td>
<td>1,290</td>
<td>120</td>
<td>470</td>
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<tr>
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<td>2,310</td>
<td>1,430</td>
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<td>1,430</td>
<td>120</td>
<td>800</td>
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<td><strong>192</strong></td>
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### Total Consumptive Water Demand Against Total Water Availability for All Sectors

<table>
<thead>
<tr>
<th>State</th>
<th>Land Area Sq km</th>
<th>Total Consumptive Water Demand (mm)</th>
<th>Effective Rain (mm)</th>
<th>Excess/Deficit (mm)-Unregulated Flows</th>
<th>2010</th>
<th>2020</th>
<th>2030</th>
<th>2040</th>
<th>2050</th>
<th>2010</th>
<th>2020</th>
<th>2030</th>
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<tr>
<td>Sarawak</td>
<td>124,450</td>
<td>8.4 17.3 17.0 17.5 18.0</td>
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<td>258 251 251 250 250</td>
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</tbody>
</table>

**Effective rain in Selangor, 14% from 760 mm.**

**50% surface runoff utilisation**
TREN KUALITI AIR IKA (WQI) LEMBANGAN SUNGAI DI NEGERI SELANGOR SEHINGGA OGOS 2012

<table>
<thead>
<tr>
<th>Tahun</th>
<th>Langat</th>
<th>Selangor</th>
<th>Klang</th>
<th>Bersih (81-100)</th>
<th>Sederhana Tercemar (60-80)</th>
<th>Tercemar (0-59)</th>
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<tbody>
<tr>
<td>2002</td>
<td>63</td>
<td>84</td>
<td>55</td>
<td>100</td>
<td>80</td>
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<td>84</td>
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<td>2004</td>
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<td>85</td>
<td>55</td>
<td>100</td>
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<td>2008</td>
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<td>84</td>
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<td>100</td>
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<td>2009</td>
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<td>80</td>
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<td>72</td>
<td>100</td>
<td>80</td>
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</tbody>
</table>

SUMBER : DOE
Source of Pollutions

- Domestic Wastewater ie. public sewage treatment plant, individual septic tank and direct discharge
- Industrial Wastewater
- Wet Markets
- Other urban wastewater ie. restaurant & food stalls etc
- Animal husbandry
- Freshwater Aquaculture
- Solid waste
- Soil Erosion
- Sand mining
WATER RESOURCES STRATEGIES IN SELANGOR

1. Water Resources Management in Selangor
2. Implementation Of IRBM and ICM Plan
3. River Management Policy
4. Alternative Water Resources Management
5. SWMA’s Gazettement
6. Strengthen Monitoring and Enforcement Mechanism
IWRM builds on river basin management - from a water quantity and water quality perspective.
1. WATER RESOURCES MANAGEMENT IN SELANGOR

a. Charge and Licensing of Water Abstraction, s.41(2)

b. Written Approval of Alteration Activities, s.43(1)

c. Licensing of Pollutant Discharges, s.79(1)

d. Licensing of Navigation, s.97(1)

e. Licensing of Water Diversion For Electric Generation, s. 42(3)

f. Licensing of water recreation activities, s. 98(1) – Study Stage
a. Licensing of Water Abstraction

- Charging and licensing of ground water and surface water abstraction was started on 1 July 2005 for water supply and commercial users.
- Parallel to Section 41(2), SWMA Enactment 1999.
- The latest charges rate are RM 0.01/m³ for public utilities and RM 0.05/m³ for commercial users.
- Water Resources Abstraction (State of Selangor) Regulation 2012 to control water abstraction and to avoid any land settlement, saline intrusion and also other impact to the environment.
VOLUME OF WATER ABSTRACTION

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<tr>
<th>Year</th>
<th>No. Premises</th>
<th>No. License</th>
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<td>2011</td>
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<td>251</td>
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<tr>
<td>Sept 2012</td>
<td>159</td>
<td>259</td>
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</table>
b. Written Approval of Alteration Activities

- Activities relating to water resources such as construction of jetty, bridge and other structures at/on/in river is based on Section 43(1), SWMA Enactment 1999.

- To protect and conserve the quantity and quality of water resources and to avoid any obstruction in the river.
WRITTEN APPROVAL FOR ALTERATION ACTIVITIES ($43 & $70)

Bridge

Sand Mining

River Diversion
## LKC JETTY

<table>
<thead>
<tr>
<th>Operator</th>
<th>Tonnage /month</th>
<th>Charge /year</th>
</tr>
</thead>
<tbody>
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<td>Lion Waterway</td>
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<td>RM 1,200 (review)</td>
</tr>
<tr>
<td>LKC</td>
<td>18,000</td>
<td>RM 54,000</td>
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</table>

**LION WATERWAYS JETTY**

**Kaedah Air Selangor (Fee Lesen), 1989**
c. Licensing of Emission or Pollutant Discharge

- Regulation which is parallel to Section 79(1), SWMA Enactment 1999 is being enforced on 20 April 2012.

- To control the effluent quality that discharged to the water resources.
METHODS OF IMPLEMENTATION, s.79(1)

- Identify final discharge point.
- License fee RM 650.00

- Analysis Report every 3 months

- Analysis by Accredited Laboratory

- Discharge with the permissible limit
Scheduled Activities s.79(1)

- Freshwater Aquaculture
- Shrimp Aquaculture
- Earthwork/Development
- Pets
- Animal Husbandry Except Pigs
- Quarry/Mining
- Pigs
d. Licensing for River Navigation

- Enforced on 20 April 2012
- To control navigation activities in the river.
e. Licensing of water diversion for electric generation

- Charge rate is RM 50,000.00/MW generated and being enforced on 11 Nov 2010.
- Subject to Section 42(3), SWMA Enactment 1999.
- To control water diversion and maintain the ecological environment.

Sungai Kerling Minihydro (SREP, 2MW)
2. IMPLEMENTATION OF IRBM AND ICM PLAN

POLICY 1 : ENSURE SUFFICIENT WATER

POLICY 2 : ENSURE CLEAN WATER

POLICY 3 : PROTECT AGAINST FLOOD

POLICY 4 : CONSERVE THE FIREFLIES

Status :
- Review the IRBM Sg. Selangor Plan (2007-2012)
- 1 IRBMP – 1 RB
• It describe the current status, trends and effort made to improve the state of the river.
PORT KLANG ICM – PELABUHAN KLANG
(KLANG & KUALA LANGAT COASTAL AREA)

- POLICY 1 – WATER RESOURCES POLLUTION
- POLICY 2 – HABITAT EXTINCTION
- POLICY 3 – SOLID WASTE
- POLICY 4 – HEALTH
- POLICY 5 – MARINE AND NATURAL RESOURCES EXPLOITATION
- POLICY 6 – EROSION AND SEDIMENTATION

Status: Kuala Selangor and Sabak Bernam completed. Sepang District in 2013.
THE MECHANISM OF POLLUTION MONITORING PROGRAM IN LUAS

IDENTIFY THE POLLUTION SOURCES/COMPLAINT

SITE VISIT

RIVER POLLUTION CONTROL TASK FORCE MEETING

INTEGRATED ACTION BY ALL RELEVANT AGENCIES

State Government Meeting Council (MMKN)

State Economic Action Council (MTES)

PREPARING THE PROGRESS REPORT / MTES PAPER / BOARD PAPER

SELANGOR RIVER BASIN MANAGEMENT COMMITTEE MEETING
DAM MONITORING AND CONTROL

Empangan Sg. Selangor

Empangan Sg. Tinggi
Water Level @ Sg. Selangor Dam

TWL : 220m

Data : 19 Nov 2012

Para Empangan (m)
WATER RELEASE FROM SG. SELANGOR AND SG. TINGGI DAM COMPARE TO RESIDUAL FLOW AT BARRRAGE BESTARI JAYA

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**Question:** How we utilize this amount of water?
3. RIVER MANAGEMENT POLICY

- To ensure and conserve the natural physical of the river to maintain the geomorphology.
- To conserve the river in term of ecology and environment for aquatic life.
- To conserve and adopt the aesthetic value of the river in any project development by maintaining the existing of natural river.
- To ensure the sufficient water quantity and clean water quality of the river for water supply.
- To implement the Best Management Practices (BMPs) in any project development to sustain the natural river such as MSMA.

Note: Related to s43(1), SWMA Enactment for ‘alteration activities’.
4. ALTERNATIVE WATER RESOURCES MANAGEMENT

- Alternative Water Resources Task Force to monitor and identify the new potential water resources to be developed for water supply.

- Development of water resources project on application of storage pond as off-river storage and implementation of rainwater harvesting.

- Gazettement of 17 ponds including ex-mining pond as zone of protection (s.48) for alternative water resources.
5. SWMA’s GAZETEMENT

- Zone Of Protection (Declared Area and Restriction) Notification, No. 2 2010 – (7 dam water catchment)
- Zone Of Protection (Declared Area and Restriction) Notification, 2009 – (Fireflies, Mukim Pasangan).
- Zone Of Protection (Declared Area and Restriction) Notification 2010 (environmental sensitive area, Mukim Kapar)
- Port Klang Strategy Implementation Plan
ZONE OF PROTECTION (DECLARED AREA AND RESTRICTION) PLAN

2 JULAI 2009 (POLICY 4 IRBM Sungai Selangor: Conservation of Fireflies)

PETUNJUK:

- Zon Perlindungan
- Lot Tanah

PW1539
6. STRENGTHEN MONITORING & ENFORCEMENT MECHANISM

Pig farming

Before enforcement

After enforcement

12/06/07

21/09/07
Illegal Water Abstraction

Illegal Alteration Activities
Leachate from dumping site.

Illegal Sand Mining

Integrated enforcement among technical agencies
NOTICES OF ENFORCEMENT

Source: Enforcement Unit
CONCLUSION

- Supported and coordinated through:
  - Organisational setup
  - Legal aspect and provision
  - Political commitment
  - Technical competence
ROLE FOR WATER RESOURCES CONSERVATION

GOVERNMENT

PUBLIC

NGO

PRIVATE SECTOR
IWRM OBJECTIVE: RESTORATION & TRANSFORMATION

DEGRADED ENVIRONMENT OF WATER RESOURCES, RIVER BASINS

CONTROLLED PLANNING & DEVELOPMENT ACTIVITIES THROUGH BEST ENVIRONMENTAL MGMT. PRACTICES FOR SUSTAINABLE DEVELOPMENT & MGMT OF WATER RESOURCES & RIVER BASINS (IRBM)
Integrated approach, the way forward........