

<b>IWRM Issue 5 – Water Pollution Management (18 indicators)</b>			
<b>Indicator Types</b>	<b>Indicators</b>	<b>2014</b>	<b>Description</b>
<b>Outcome Indicators</b>	1. Percentage of monitored water bodies' ambient water quality meeting designated uses (agriculture, water supply, fisheries, industrial, etc.)	52%	
	2. Percentage of industrial/domestic effluent discharge complying with the country's effluent discharge standard	Rubber Factory - 100%  Palm Oil Mills – 98%  Non prescribed premises – 99.7%	
<b>EE Indicators</b>	1. Any “Policy” on water pollution control	8	
	2. Any “Legislation/regulation” for water pollution control (i.e. for the management of water quality and wastewater quality)	8	
	3. Any “Financial framework and Financing plans” for water pollution control	8	
<b>IS Indicators</b>	1. Any “Agency/Department” responsible for water pollution control	8	
	2. Any “Steering committee” on river water quality and environmental issues (e.g. inter-agency committee)	8	
	3. Any “Formal institutional arrangements” among related agencies to manage water pollution	8	
	4. Any “Private/public partnership and participation” in managing water pollution	NA	
<b>MT Indicators</b>	1. Any river water quality master plan at national and local levels	NA	
	2. Any relocation plans for highly polluting industries in a river basin	NA	
	3. Any effluent discharge standards	8	

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<b>Indicator Types</b>	<b>Indicators</b>	<b>2014</b>	<b>Description</b>
	4. Any river water quality monitoring program	8	
	5. Any river water quality information system/database	8	
	6. Any program to disseminate to the public regular report on river water quality status	8	
	7. Any groundwater quality monitoring programs and systems	8	
	8. Any computer simulation models used to predict river water quality	NA	
	9. Any public awareness program on water pollution prevention	8	

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<b>Outcome Indicators</b>	1. Percentage of monitored water bodies' ambient water quality meeting designated uses (agriculture, water supply, fisheries, industrial, etc.)	52%	See Note 1
	2. Percentage of industrial/domestic effluent discharge complying with the country's effluent discharge standard	Rubber Factory - 100%	See Note 2

		Palm Oil Mills – 98%	
		Non-prescribed premises – 99.7%	

### **Outcome Indicators Notes**

1. In 2014, the quality of river water was also assessed based on a total of 6,076 samples, taken from 891 manual monitoring stations, covering 477 rivers. The stations comprised of 801 ambient and baseline stations, 55 new stations located upstream of selected water intakes, and 35 stations from the River of Life (ROL) project. Water quality was also assessed from 10 continuous water quality monitoring stations.

Out of the 473 rivers monitored, 244 (52%) were asserted to be clean, 186 (39%) were slightly polluted and another 43 (9%) were found to be polluted (Figure 3.1). The rivers monitored and its overall quality status are shown in Tables 3.1, 3.2 and 3.3.

2. In 2014, the overall compliance performance by the raw natural rubber factories that were subjected to the Environmental Quality (Prescribed Premises) (Raw Natural Rubber) Regulations, 1978 was 100%.
3. The overall compliance of the palm oil processing mills that were subjected to the Environmental Quality (Prescribed Premises) (Crude Palm Oil) Regulations, 1977 was 98%.
4. Non-prescribed premises that discharged effluents are subjected to the Environmental Quality (Industrial Effluent) Regulations, 2009. In 2014, DOE conducted 2,534 inspections on 3 categories of industrial premises and 12,327 inspections on 38 categories on other non-prescribed premises that were subjected to the Environmental Quality (Industrial Effluent) Regulations, 2009. The overall compliance achievement by the non-prescribed premises was 99.7% and the other 0.3% of the premises inspected were found not complying the effluent discharge standards (Regulation 18).

### Enabling Environment Indicators

<b>EE Indicators</b>	1. Any "Policy" on water pollution control	8	See Note 1
	2. Any "Legislation/regulation" for water pollution control (i.e. for the management of water quality and wastewater quality)	8	See Note 2
	3. Any "Financial framework and Financing plans" for water pollution control	8	See Note 3

#### Enabling Environment Indicators Notes

1. National Water Resources Policy was approved by the cabinet in 2012. The policy will serve as a comprehensive guide to aid water and water resources governance nationwide.
2. One of legislation in Malaysia that focuses on water pollution control is Environmental Quality Act, 1974 enforced by Department of Environment.
3. Financial is provided by the government for river studies.

### Institutional Set-up Indicators

<b>IS Indicators</b>	1. Any "Agency/Department" responsible for water pollution control	8	See Note 1
	2. Any "Steering committee" on river water quality and environmental issues (e.g. inter-agency committee)	8	See Note 2
	3. Any "Formal institutional arrangements" among related agencies to manage water pollution	8	See Note 3
	4. Any "Private/public partnership and participation" in managing water pollution	NA	

### **Institutional Setup Indicators Notes**

1. Department of Environment is one of the agencies involved in water pollution control. There also other agencies involved such as Ministry of Health, Department of Irrigation and Drainage (DID), National Water Services Commission (SPAN), and Mineral and Geoscience Department, and local council. DOE task to enforce point source that subjected to EQA 1974 such as industries.
2. National Water Resources Council (NWRC) was set up in 1998 to pursue a more effective water management, including the implementation of inter-state water transfers. To ensure sustainable water resources and efficient water supply services, the Federal Government is moving towards greater involvement in the management of water resources and water supply services, and the implementation of integrated water resources management. Various ministries are involved.
3. There are various of institutional involved in managing water pollution such as NWRC, various ministries such as Ministry of Natural Resources and Environment, Ministry of Energy, Green Technology and Water, Ministry of Housing, Urban Wellbeing and Local Government, Ministry of Agriculture. There are also federal agencies such as Department of Environment that control pollution from point sources subjected to EQA 1974, National Water Services Commission that focus on sewerage and water services, Department of Mineral and Geoscience focus on mining and quarrying, and National Solid Waste Management and Public Cleansing Department focus in landfill upgrading and safe closure, and local authorities.

## Management Tools Indicators

<b>MT Indicators</b>	1. Any river water quality master plan at national and local levels	NA	See Note 1
	2. Any relocation plans for highly polluting industries in a river basin	No (1)	See Note 2
	3. Any effluent discharge standards	8	See Note 3
	4. Any river water quality monitoring program	8	See Note 4
	5. Any river water quality information system/database	8	See Note 5
	6. Any program to disseminate to the public regular report on river water quality status	8	See Note 6
	7. Any groundwater quality monitoring programs and systems	8	See Note 7
	8. Any computer simulation models used to predict river water quality	7	See Note 8
	9. Any public awareness program on water pollution prevention	8	See Note 9

### **Management Tools Indicators Notes**

1. No specific master plan been developed for river water quality.
2. Relocation for highly polluting industries is under state jurisdiction.
3. Under Environmental Quality Act 1974 there are several regulations related to effluent standard such as below;
  - i. Environmental Quality (Industrial Effluent) Regulation 2009;
  - ii. Environmental Quality (Sewage) Regulation 2009;
  - iii. Environmental Quality (Control of Pollution from Solid Waste Transfer Station and Landfill) Regulation 2009;
  - iv. Environmental Quality (Prescribed Premises)(Crude Palm Oil) Regulations 1977; and
  - v. Environmental Quality (Prescribed Premises)(Raw Natural Rubber) Regulations 1978

4. The Department of Environment (DOE) has implemented the National River Water Monitoring Program since 1978 to determine the river water quality status and detect changes from time to time. Water Quality Index (WQI) was used to indicate river water quality status. The WQI were formulated based upon the concentration of six principal parameters listed below;
  - i. Biochemical Oxygen Demand (BOD)
  - ii. Chemical Oxygen Demand (COD)
  - iii. Ammonical Nitrogen (NH<sub>3</sub> N)
  - iv. pH
  - v. Dissolved Oxygen (DO)
  - vi. Suspended Solids (SS)

Continuous rivers water quality monitoring was also made on-line through 10 continuous monitoring stations (CWQM). These stations are selectively and strategically located. The measured parameters from these automatic stations are limited to pH, Dissolved Oxygen, Temperature, Turbidity and Ammonium.

5. All water quality data is stored in a server under DOE administration. The data is stored and utilized using an electronic system known as "*Sistem Elektronik Kawalan Alam Sekitar*" (E-KAS).
6. The water quality report is published to the public on yearly basis.
7. Ground water quality monitoring was established in 1997 for Peninsular Malaysia and extended to cover Sabah and Sarawak in 2003. In-situ measurements were taken to determine the temperature, pH, conductivity, turbidity, salinity and dissolved oxygen. Laboratory analysis were carried out to determine the total volatile organic compounds (VOCs), hydrocarbons, pesticides, heavy metals, anions, total coliform, phenolic compounds, radioactivity, total hardness and total dissolved solids.

In 2014, 356 water samples were taken from these monitoring wells and the results were then compared with the National Guidelines for Raw Drinking Water Quality established by the Ministry of Health (Revised December 2000) to determine the status of its quality.

8. The computer simulation to predict the water quality is still under development. DOE has implement one project using this simulation on Sungai Jinjang, Selangor to predict the point source effluent contribution to the degradation of the river water quality. The project from Sg. Jinjang shows no significant impact to the river water quality. However, a comprehensive study on pollution load factors has to be carry out. The management has agreed to implement this under the platform of Total Maximum Daily Load (TMDL) in 11 Malaysia Development Plan, RMK 11.



- Promotion of environmental education and awareness through implementation of seminars, workshops, competencies program, promotion of Green Industry, Rakan Alam Sekitar and 3Ps program. The '*Rakan Alam Sekitar*' (RAS) program was launched on the 4th of June 2009, and until December 2014, a total of 203,164 members have been registered. The numbers of members registered increased to 239,774 members till December 2015. This program intends to increase environmental awareness and to also mobilize community members in a "hands-on" environment, as well as to act as the 'eyes' and 'ears' of government agencies that are responsible for combating environmental pollution.



**Environmental Run – World Environment Day 2014**



**RAS Carnival Community Program 2014**