

## ASEAN IWRM PERFORMANCE REPORTS & MONITORING INDICATORS

### Singapore 2013 Report (Water Pollution Management)

#### Outcome Indicators

| IWRM Issue 5 – Water Pollution Management (18 indicators) |   |          |   |
|---|---|----------|---|
| Indicator Types   | Indicators  | Progress | Description   |
| <b>Outcome Indicators</b>                                 | 1. Percentage of monitored water bodies' ambient water quality meeting designated uses (agriculture, water supply, fisheries, industrial, etc.) | 100%     | <u>Recreational water quality</u><br>100% of the six recreational beaches monitored by NEA were graded "Very Good" or "Good" and assessed to be suitable for primary contact recreational activities. |
|   | 2. Percentage of industrial/domestic effluent discharge complying with the country's effluent discharge standard                                | 97%      | Nil   |

#### Enabling Environment Indicators

|                      |   |     |  |
|----------------------|---|-----|--|
| <b>EE Indicators</b> | 1. Any "Policy" on water pollution control  | Yes | To protect stormwater quality, there are separate systems for the collection of stormwater and used water. Heavy industries which pose a greater risk of pollution are sited outside of water catchment areas. |
|                      | 2. Any "Legislation/regulation" for water pollution control (i.e. for the management of water quality and wastewater quality) | Yes | The provision, operation and maintenance of sewerage system are governed by the Sewerage &   |

**Source:** ASEAN Working Group for Water Resources Management (AWGWRM) – July 2015  
[weblink - [aseaniwrm.water.gov.my](http://aseaniwrm.water.gov.my)]

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|  |  |    |  |
|--|--|----|--|
|  |  |    | Drainage Act. The discharge of wastewater into open drains is regulated by the Environmental Protection and Management Act |
|  | 3. Any “Financial framework and Financing plans” for water pollution control | NA | Singapore’s waterways are urbanized channels designed to convey stormwater which are dry most of the time                  |

### **Institutional Set-up Indicators**

|                      |   |     |   |
|----------------------|---|-----|---|
| <b>IS Indicators</b> | 1. Any “Agency/Department” responsible for water pollution control  | Yes | The sewerage system is managed by PUB. The discharge of wastewater into open drains is regulated by NEA   |
|                      | 2. Any “Steering committee” on river water quality and environmental issues (e.g. inter-agency committee) | Yes | PUB and NEA have an inter agency task forces for Marina, Jurong lake and Punggol-Serangoon reservoir catchment. PUB also has an interagency team with other governmental agencies for farm areas. |
|                      | 3. Any “Formal institutional arrangements” among related agencies to manage water pollution               | Yes | Through its Central Building Plan Unit, NEA ensures that environmental factors are  |

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|  |   |     |  |
|--|---|-----|--|
|  |   |     | incorporated unto land use planning, development and building control of new developments  |
|  | 4. Any “Private/public partnership and participation” in managing water pollution | Yes | PUB’s Our Waters programme aims to nurture a sense of ownership in people and encourage them to be guardians of our water by adopting waterways or reservoir parks, sponsoring water programmes and community events or providing reservoirs to assist schools or other interest groups to start water projects. PUB also works with the NGO Waterways Watch Society. PUB’s ABC Waters programme also aims to improve the quality of water through various programmes such as ABC Waters Learning trails, ABC waters design guidelines and certification, ABC Waters Professional Programme. |

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### Management Tools Indicators

|                      |  |     |   |
|----------------------|--|-----|---|
| <b>MT Indicators</b> | 1. Any river water quality master plan at national and local levels      | NA  | Singapore waterways are urbanized channels designed to convey stormwater which are dry most of the time. Our water quality focus is not on river water; rather it is on reservoir water for suitability for treatment to drinking water quality & water-based recreational activities |
|                      | 2. Any relocation plans for highly polluting industries in a river basin | Yes | Pollutive industries are gradually sited out of water catchments  |
|                      | 3. Any effluent discharge standards                                      | Yes | The standards can found on this website.<br><a href="http://www.nea.gov.sg/anti-pollution-radiation-protection/water-pollution-control/allowable-limits">http://www.nea.gov.sg/anti-pollution-radiation-protection/water-pollution-control/allowable-limits</a>                       |
|                      | 4. Any river water quality monitoring program                            | Yes | PUB's water quality monitoring programme involves regularly monitoring the reservoirs & waterways. Water samples are collected and analysed   |
|                      | 5. Any river water quality information system/database                   | Yes | PUB's water quality monitoring programme involves regularly monitoring the reservoirs & waterways. Water samples are collected and  |

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|  |  |                                       |  |
|--|--|---------------------------------------|--|
|  |  |                                       | analysed and stored in a Laboratory Information Management System & Water Quality Data Management System.  |
|  | 6. Any program to disseminate to the public regular report on river water quality status | NA                                    | PUB's monitoring of reservoir water quality is for water treatment purpose. Drinking water quality report is available at <a href="http://www.pub.gov.sg/general/watersupply/Pages/DrinkingWQReport.aspx">http://www.pub.gov.sg/general/watersupply/Pages/DrinkingWQReport.aspx</a> .For recreational activities, they will be temporarily discontinued until water quality improves |
|  | 7. Any groundwater quality monitoring programs and systems                               | NA                                    | Groundwater is not monitored as it is not a source of water supply at this stage   |
|  | 8. Any computer simulation models used to predict river water quality                    | Yes                                   | Coupled 1D-3D hydrodynamic model using SOBEK and Delft-3D, PCSWMM & ELCOM-CAEDYM   |
|  | 9. Any public awareness program on water pollution prevention                            | Pls see item 4 under "IS indicators". | The public is also educated through regular inspections via interagency taskforces visits to more pollutive sub-catchments.  |