Chapter 1: Reflections on Singapore’s Environmental Journey


3. Statutory Boards are organizations that have been given autonomy to perform an operational function. They report to one specific Ministry and specialize in carrying out the plans and policies of the Ministries. In law, a Statutory Board is an autonomous government agency established by an Act of Parliament that specifies the purpose, rights, and powers of the body. Its overall activities are overseen by a Cabinet Minister. In addition, it has its own Chairman and Board of Directors.


7. In petrochemical plants, flare systems are installed to provide a safe means of disposal for the gas streams from its facilities by burning them under controlled conditions such that adjacent personnel and equipment as well as the environment are not exposed to hazards.

8. These are water catchments that are not within the Protected Catchment Areas. Apart from MacRitchie, Upper and Lower Peirce, and Upper
Seletar, the rest are unprotected catchments. In the book, however, we have made a further distinction between unprotected catchments in general, and urban catchments, the latter referring to schemes such as Bedok and Marina Reservoirs.

9. This refers to the total land area that can be developed within water catchments.

10. Land was re-zoned to land use of higher value so as to encourage the redevelopment of sites.

11. 3P refers to Public Sector, Private Sector, and People Sector.

Chapter 2: Achieving Clean Air Quality

1. Anti-Pollution Unit Annual Reports (1970–72, 1974, 1975), Prime Minister’s Office.

2. These pollutants were: ammonia and its compound, benzene, dioxins and furans, ethylene oxide, formaldehyde, styrene monomer, sulphur dioxide (non-combustion sources), and vinyl chloride monomer.


4. These facilities are subject to monthly checks on fuel usage and fuel quality to ensure that the cap is complied with.

5. The daily mean for SO$_2$ exceeded the WHO guideline of 20µg/m$^3$ for 251 days in 2007.


9. More information on the efforts to address the challenge of transboundary haze can be found in Linking with Global Community, Chapter 11.

10. Tuan Haji Ya’acob bin Mohamed, Minister of State, Prime Minister’s Office. Parliament No. 2. Session No. 2. Volume No. 31. Sitting No. 8. Sitting Date: 2 December 1971.
Chapter 3: Cleaning the Land and Rivers

1. This introductory section draws heavily from Singapore Success Story: Towards a Clean and Healthy Environment (Singapore: Ministry of Environment, 1973).
2. This subsection draws heavily from Singapore: My Clean and Green Home (Singapore: Ministry of Environment, 1997).
3. This subsection draws heavily from Singapore Success Story.
5. A term which describes any litter thrown from a high-rise flat that may pose a danger to lives.
6. This subsection draws heavily from Singapore Success Story.
15. Hon, Tidal Fortunes, p. 42.
16. Ibid., p. 43.
18. COBSEA Workshop on Cleaning up of Urban Rivers.
19. Hon, Tidal Fortunes, p. 73.
22. Ibid., p. 91, and COBSEA Workshop on Cleaning up of Urban Rivers.
23. Hon, Tidal Fortunes, p. 82, and COBSEA Workshop on Cleaning up of Urban Rivers.
25. Naidu Ratnala Thulaja, “Clean Rivers Education Programme and

27. *Recipients*

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
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<tbody>
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<td>Lee Ek Tieng</td>
<td>Permanent Secretary, Ministry of the Environment (ENV)</td>
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<tr>
<td>Tan Gee Paw</td>
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<td>George Yeo</td>
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<tr>
<td>Chen Hung</td>
<td>Former Director of Environmental Engineering Division, ENV</td>
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30. Information from NParks.
33. Ibid.
34. Besides the risk of death, dengue causes ill health and serious adverse social and economic losses. The disease is often times a prominent news. The currently available tools in prevention and control of dengue even though not perfect have known to be effective for more than two decades. Dengue control efforts work if it becomes everyone’s concern.
Several countries have succeeded in controlling the growing menace of emergence of dengue. Examples are Singapore and Cuba. However, the present dengue control programmes in some countries are inadequately resourced. WHO South East Asian Regional Office, Press Release, 14 February 2007.

Chapter 4: Integrated Solid Waste Management

1. Hazardous waste comprises all toxic chemicals, radioactive materials, biological, and infectious waste.

2. The Joint Coordinating Committee on Epidemic Diseases (JCCED) has been in existence for some time and meets regularly to review diseases with epidemic potential in Singapore. The JCCED is now chaired by the Director of Medical Services, MOH, and comprises representatives from major public health institutes, such as NEA, SAF (Medical Corps), and AVA.

Chapter 5: Ensuring Water Sustainability: The Supply Side


Chapter 6: Ensuring Water Sustainability: Water Demand Management

1. Under this agreement, which will run until 2015, WHO will work with Singapore to strengthen and disseminate knowledge to
developing member states on the procedures for the safe use of wastewater in direct and indirect drinking uses; intra-urban water catchment management; the desalination and advanced chemical treatment of waste/seawater as a source of drinking water; and the ability of a country’s drinking water infrastructure to withstand disruptions and restrictions in its water supply.

Chapter 7: Managing Used Water


4. A floor trap is an opening on the floor of the bathroom or kitchen to drain off floor washings to the sanitary pipe. Below the opening is a U-shaped bend that retains some water at its bottom. This retained water acts as an airtight seal (hence the name water seal) to prevent entry of foul air from the sanitary system.


Chapter 8: From Flood Prevention and Flood Management to ABC Waters

2. Under the Water Pollution Control and Drainage Act (predecessor to the Sewerage and Drainage Act), the Drainage Department was empowered to construct or require others to construct drainage systems.

3. This excludes the cost of drainage works undertaken by other public and private agencies.

4. NParks.


6. The Building and Construction Authority’s Green Mark Award is a green building rating system to evaluate a building for its environmental impact and performance. It is endorsed and supported by the National Environment Agency. It provides a comprehensive framework for assessing building performance and environmental friendliness. Buildings are awarded the BCA Green Mark based on five key criteria: Energy Efficiency, Water Efficiency, Site/Project Development & Management (Building Management & Operation for existing buildings), Good Indoor Environmental Quality & Environmental Protection, and Innovation.

Chapter 10: Working with People and the Community

1. Peter Teo, “‘Clean and Green — that’s the way we like it’: A critical study of Singapore’s environmental campaigns”, Working Papers Series, Working Paper No. 121, Centre for Language in Social Life, Department of Linguistics and Modern English Language, Lancaster University.

2. This was before the Internet age, so there was none of the convenience of e-consultations.

3. Information from NParks.

Chapter 11: Linking with the Global Community

1. As of 11 March 2008, the Ministry of Construction has been restructured to form the Ministry of Housing and Urban-Rural Construction (MHURC).

Chapter 12: A Sustainable Singapore, A Sustainable World

4. At present, seawater desalination using reverse osmosis membranes requires 3.5 kWh/m³.
5. This is based on a study conducted by the Centre for Remote Imaging, Sensing and Processing (CRISP), National University of Singapore [Source: NParks].