

KEY ENVIRONMENTAL STATISTICS 2019



Clean Air

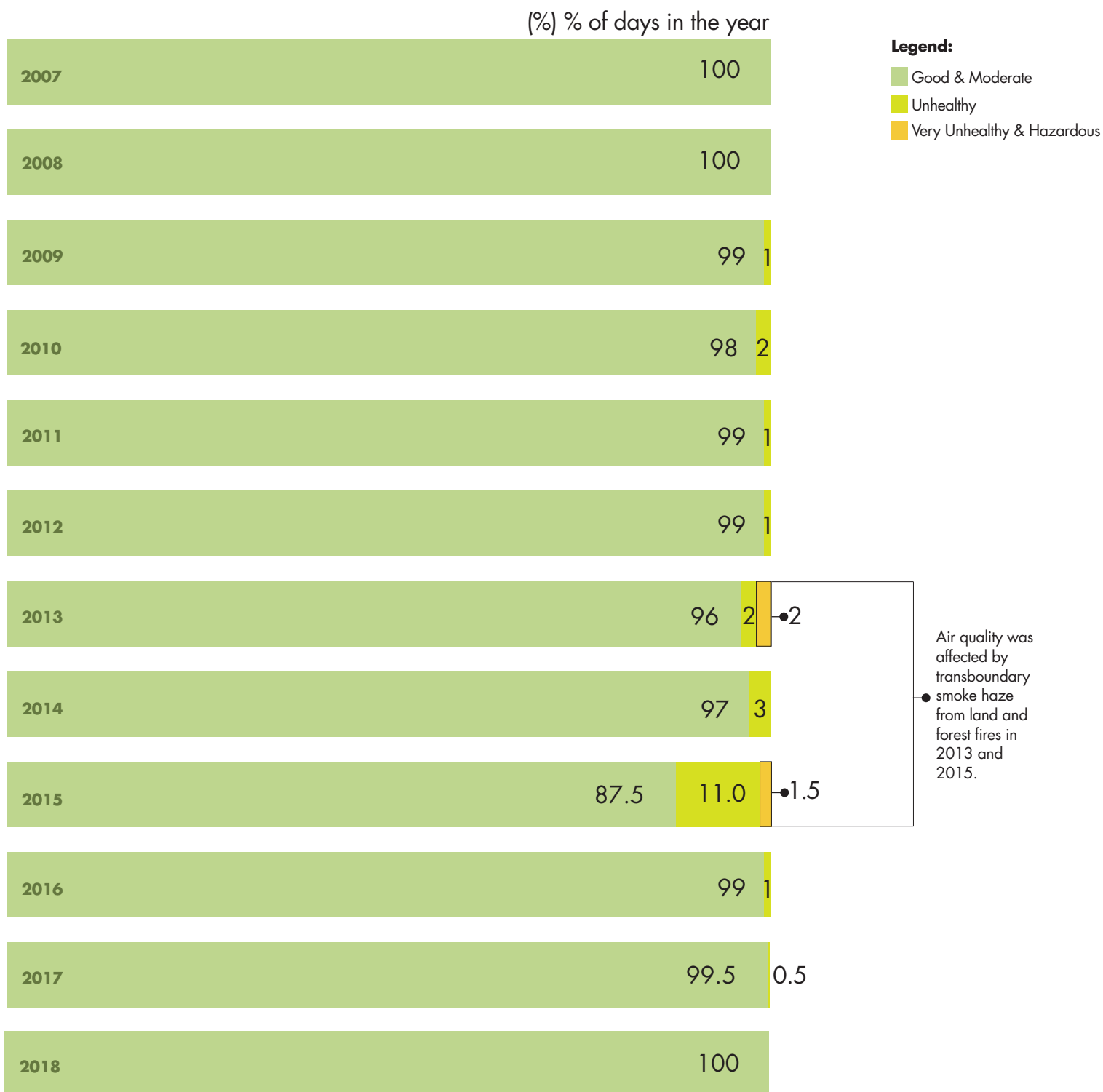
Pollutant	Averaging time	2016	2017	2018	2020 Air Quality Target for Singapore ¹
Sulphur Dioxide (SO₂) (µg/m³)	24-hour ² Annual	61 13	59 12	65 9	50 15
Nitrogen Dioxide (NO₂) (µg/m³)	1-hour ² Annual	123 26	158 25	147 26	200 40
Ozone (µg/m³)	8-hour ²	115	191	150	100
Particulate Matter (PM) 10 (µg/m³)	24-hour ³ Annual	61 26	57 25	59 29	50 20
Particulate Matter (PM) 2.5 (µg/m³)	24-hour ³ Annual	40 15	34 14	32 15	37.5 12
Carbon Monoxide (CO) (mg/m³)	1-hour ² 8-hour ²	2.7 2.2	2.3 1.7	2.5 2.0	30 10

¹ Singapore's 2020 air quality targets are benchmarked against the World Health Organisation's (WHO) Interim Targets and Air Quality Guidelines. For SO₂ and PM_{2.5}, Sustainable Singapore Blueprint 2020 annual targets are 15µg/m³ and 12µg/m³ respectively.

² Maximum 24-hour, 8-hour or 1-hour

³ 99th percentile

Air Quality in terms of PSI



Note: PSI includes Sulphur Dioxide (SO₂), Particulate Matter (PM₁₀), Particulate Matter (PM_{2.5}), Nitrogen Dioxide (NO₂), Carbon Monoxide (CO) and Ozone (O₃). Figures are rounded to the nearest 0.5.

Solid Waste Management

(Mil tonnes/yr)	2016	2017	2018
Total waste generated¹	7.81	7.70	7.70
▼			
Total waste recycled²	4.77	4.72	4.63
%	61	61	60
Total waste incinerated³	2.83	2.75	2.84
%	36	36	37
Total waste landfilled⁴	0.22	0.22	0.23
%	3	3	3

Total non-domestic waste disposed of³ (Mil tonnes/yr)	1.39	1.37	1.50
Total non-domestic waste disposed of (Tonnes a day/GDP [\$billion])	9.8	9.2	9.7
Non-domestic recycling rate² (%)	76	76	74

Total energy produced from incineration (MWh)	1,200,456	1,215,906	1,162,408
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Total domestic waste disposed of³ (Mil tonnes/yr)	1.66	1.61	1.56
Total domestic waste disposed of per capita (Kg a Day/person)	0.83	0.81	0.79
Domestic recycling rate² (%)	21	21	22

Lifespan of landfill⁵

36 years

¹ Total waste generated = Total waste recycled + Total waste incinerated + Total waste landfilled

² Sustainable Singapore Blueprint target for 2030 is 70% for overall recycling rate, 30% for domestic recycling rate and 81% for non-domestic recycling rate.

³ Figures exclude metals recovered from Incineration Bottom Ash.

⁴ Total waste landfilled includes non-incinerable waste such as construction and demolition waste, used slag and treated sludge etc. and excludes incineration ash generated from waste disposed through incineration.

⁵ Measured from the start of the lifespan of Semakau landfill, i.e. 1999.

Solid Waste Management

Waste Stream	Amount of Waste Generated (Mil tonnes/yr)	Amount of Waste Recycled (Mil tonnes/yr)	Recycling Rate (%)
Construction Debris	1.62	1.62	99
Used Slag	0.18	0.18	99
Ferrous Metal	1.27	1.26	99
Scrap Tyres	0.03	0.03	90
Non-ferrous Metal	0.17	0.17	99
Wood/Timber	0.32	0.19	59
Horticultural Waste	0.52	0.37	71
Paper/Cardboard	1.05	0.59	56
Glass	0.06	0.01	19
Food	0.76	0.13	17
Ash and Sludge	0.24	0.02	10
Textile/Leather	0.22	0.01	6
Plastics	0.95	0.04	4
Others (e.g. stones, ceramics, silt)	0.29	0.01	4
Total	7.70	4.63	60

The figures may not add up to the total due to rounding off.

Wood and horticultural waste recycled include 0.35 million tonnes used as fuel in biomass power plants.

Environmental Health

Vector Control

No. of local dengue (DF¹ and DHF²) cases
per 100,000 population

2016

229.9

2017

45.1

2018

54.4

1 Dengue Fever (DF) is caused by infection with a dengue virus [Source: Ministry of Health].

2 Dengue Haemorrhagic Fever (DHF) is a severe form of dengue fever that could result in death [Source: Ministry of Health].

Food Safety and Supply Resilience

The new Singapore Food Agency (SFA) formed on 1 April 2019 consolidates food-related functions that were previously carried out by Agri-Food and Veterinary Authority of Singapore (AVA), the National Environment Agency (NEA), and the Health Sciences Authority (HSA). SFA will report statistics for food safety and supply resilience from 2019 onwards.

Food Supply Resilience

No. of the 5 key food items (fish, eggs, chicken, pork and leafy vegetables) that has less than 50% of supply from a single country

2016

3

2017

3

2018

3

(Achieved for key food items: pork, chicken and fish)

AVA-licensed farms & food establishments

Cases of foodborne illnesses per 100,000 population that are firmly established to result from contaminated imported food or foodborne hazards introduced at an AVA-licensed food establishment or farm

2016

0.16

2017

2.0

2018

0.57

No. of AVA-licensed farms (land-based food and non-food farms, and fish culture farms)

387

385

392

No. of AVA-licensed food establishments

1,664

1,738

1,801

NEA-licensed food establishments

No. of food outlet-related food poisoning outbreaks per 1,000 NEA-licensed food establishments

2.0

5.0

5.3

No. of NEA-licensed food establishments

37,246

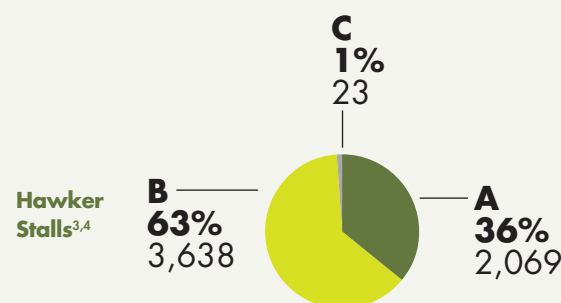
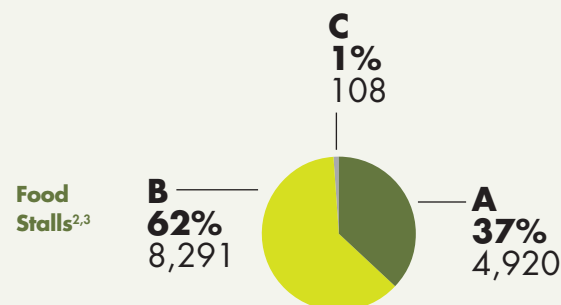
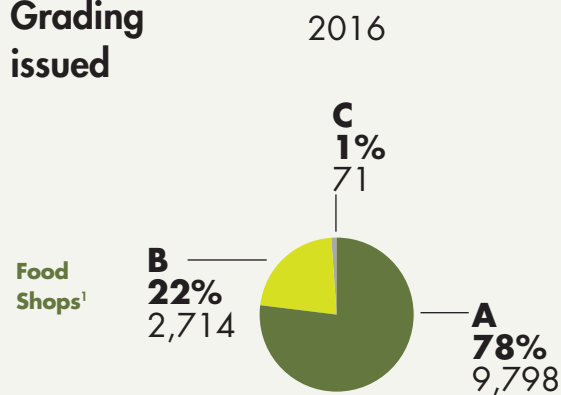
38,336

39,355

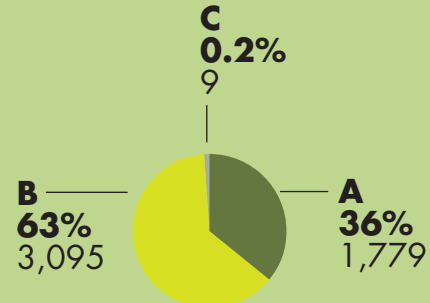
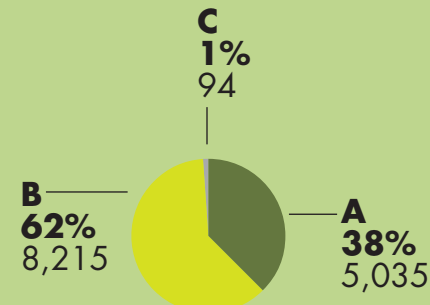
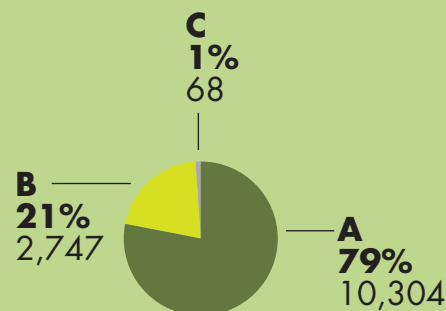
Food Safety and Supply Resilience

NEA-licensed food establishments

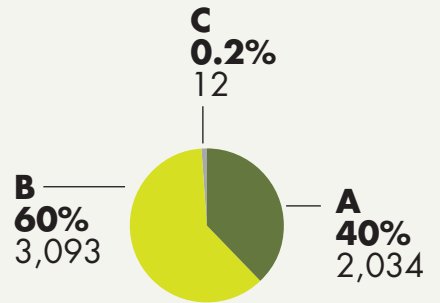
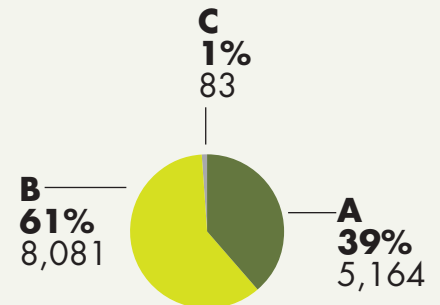
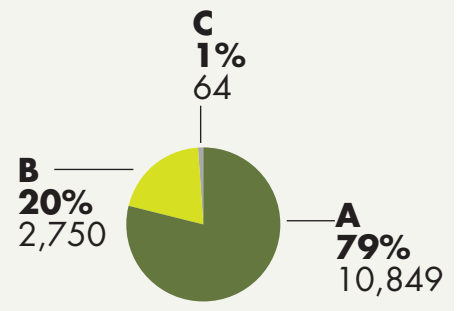
Grading issued



2017



2018



NOTE: No Grade D issued for 2016 - 2018

1 Food shops refer to establishments which are licensed to retail food (e.g. food court).

2 Food stalls refer to smaller compartmentalised units which are housed within a food shop.

3 The percentages for the figures may not add up to 100 percent due to rounding off.

4 Hawker stalls refer to smaller compartmentalised units which are housed within hawker centres owned by MEVR and the Housing and Development Board.

Water Resource Management

(2016-2018)

Access to Improved Drinking Water Sources¹

Access to Improved Sanitation²

Tests meeting WHO drinking water quality guidelines

100%

No. of
reservoirs in
Singapore

17



System Efficiency	2016	2017	2018
Unaccounted for water (%)	5.0	5.1	5.6
No. of leaks per 100km of potable water pipelines	4.6	6.0	4.6
No. of disruptions per month per 1,000 km of sewers	10.5	10.2	10.3
Flood-prone areas (Hectares)	30.5	29.6	29.0

Supply (Mil m ³)	2016	2017	2018
Sale of potable water in Singapore			
– Domestic	301.4	294.8	294.2
– Non-domestic	215.6	204.5	201.3
Sale of NEWater	126.9	140.2	140.5
Sale of Industrial Water	21.0	19.9	20.6
Volume of used water treated	594.6	595.4	585.8

¹ As defined by the World Health Organisation (WHO), i.e. water sources that, by nature of construction or through active intervention, are protected from outside contamination. These include piped water into premises, protected dug well, etc.

² As defined by WHO, i.e. sanitation facilities that hygienically separate human excreta from human contact. These include flush/pour flush toilets or latrines connected to a sewer, septic tank, etc.

Water Resource Management

	2016	2017	2018
Water Demand and Management			
Household water consumption per capita ³ (Litres/day)	148	143	141
Public Outreach			
No. of lifestyle events held at reservoirs and waterways	419	426	366
No. of ABC Waters projects completed by PUB (cumulative) ⁴	36	36	41

³ A new target of 130 L/day by 2030 was set in 2018.

⁴ Figures include projects carried out by public agencies and exclude test-bedding projects.

Climate Change and Energy Efficiency

Climate Change/Energy	2015	2016	2017
Total greenhouse gas emissions^{1,2,3} (KtCO₂e)	51,896	51,519	52,505
Energy consumption per dollar GDP^{2,3} (% improvement from 2005 levels)	26.1	28.5	30.1
Grid emissions factor^{2,3,4} (kgCO₂/kWh)	0.4224	0.4237	0.4192
Domestic electricity use per capita⁵ (MWh)	1.30	1.35	1.30

1 Estimated using Intergovernmental Panel on Climate Change (IPCC) Guidelines for National Greenhouse Gas Inventories. International Bunker fuels are excluded in accordance with United Nations Framework Convention on Climate Change (UNFCCC) reporting guidelines.

2 Figures may be periodically updated as more accurate data becomes available.

3 Data for 2018 will be available in 2020.

4 Computed by Energy Market Authority.

5 Data for 2018 will be available in 2019.

Regional and International Collaboration

Environmental agreements that Singapore has ratified/acceded to



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