



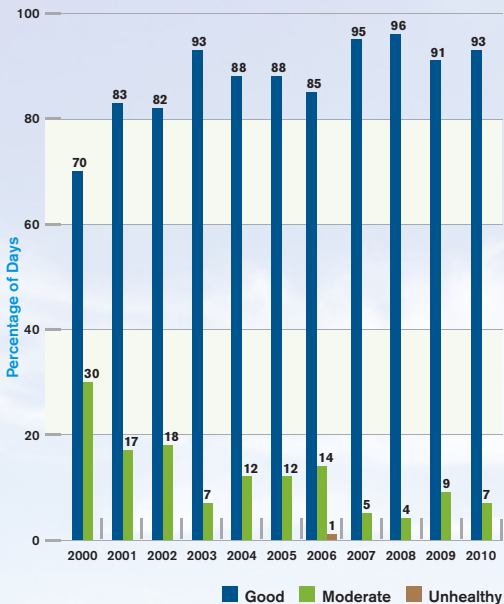
Ministry of the Environment
and Water Resources

KEY ENVIRONMENTAL STATISTICS 2011

CLEAN AIR

POLLUTANT	AVERAGING TIME	UNIT	2008	2009	2010
Sulphur Dioxide (SO ₂)	24-hour	µg/m ³	76	83	94
	Annual	µg/m ³	11	9	11
Nitrogen Dioxide (NO ₂)	Annual	µg/m ³	22	22	23
Carbon Monoxide (CO)	1-hour	mg/m ³	2.3	2.4	2.7
	8-hour	mg/m ³	1.5	1.7	2.2
Ozone	8-hour	µg/m ³	103	100	129
Particulate Matter PM10	24-hour	µg/m ³	57	77	127
Particulate Matter PM2.5	24-hour	µg/m ³	30	39	40
	Annual	µg/m ³	16	19	17
Lead	Quarterly Average	µg/m ³	0.02	0.01	0.01

Air Quality in terms of PSI



Air quality was affected by transboundary smoke haze in 2006.

SOLID WASTE MANAGEMENT

SOLID WASTE MANAGEMENT	UNIT	2008	2009	2010
% of population with access to waste collection services	%	100	100	100
Total waste generated ¹	mil tons/yr	5.97	6.11	6.52
Total waste recycled	mil tons/yr (%)	3.34 (56%)	3.49 (57%)	3.76 (58%)
Total waste incinerated	mil tons/yr (%)	2.45 (41%)	2.48 (41%)	2.59 (40%)
Total waste landfilled ²	mil tons/yr (%)	0.18 (3%)	0.15 (2%)	0.17 (2%)
Total domestic waste disposed	mil tons/yr	1.48	1.52	1.60
Total domestic waste disposed per capita	kg/day/ person	0.84	0.84	0.86
Total non-domestic waste disposed	mil tons/yr	1.14	1.11	1.16
Total energy produced from incineration	MWh	1,048,072	1,064,956	1,173,298
Lifespan of landfill ³	years	35-40	35-45	35-45

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

² Total waste landfilled includes non-incinerable waste such as construction and demolition waste, used slag and treated sludge and excludes incineration ash generated from waste disposed through incineration.

³ Measured from the start of the lifespan of Semakau landfill, i.e 1999.

WASTE STREAM	AMT OF WASTE GENERATED (mil tons/yr)	AMT OF WASTE RECYCLED (mil tons/yr)	RECYCLING RATE (%)
Used Slag	0.38	0.38	99
Construction Debris	0.92	0.91	99
Ferrous Metals	1.19	1.13	94
Scrap Tyres	0.02	0.02	83
Non-ferrous Metals	0.09	0.07	85
Wood/Timber	0.27	0.19	70
Paper/ Cardboard	1.38	0.74	53
Horticultural Waste	0.25	0.10	40
Glass	0.08	0.02	24
Food	0.64	0.10	16
Textile/Leather	0.12	0.01	12
Plastics	0.74	0.08	11
Others (e.g. e-waste, ceramics, silt, etc)	0.31	0.004	1
Sludge	0.11	0.00	0
Total	6.52	3.76	58

ENVIRONMENTAL HEALTH

VECTOR CONTROL	2008	2009	2010
No. of local dengue (DF and DHF) cases per 100,000 population	137.0	83.9	98.1
CLEANLINESS AND FOOD HYGIENE	2008	2009	2010
No. of food outlet-related food poisoning outbreaks per 1,000 food outlets	3.5	5.4	6.5
No. of licensed food outlets	31,033	32,597	33,318
Grading issued to Food Shops ^{1,3}			
- Grade A (% of total)	3,843 (50%)	5,183 (52%)	6,465 (58%)
- Grade B (% of total)	3,391 (44%)	4,395 (44%)	4,153 (37%)
- Grade C (% of total)	465 (6%)	442 (4%)	471 (4%)
- Grade D (% of total)	11 (0.14%)	1 (0.01%)	0 (0%)
Grading issued to Food Stalls ^{2,3}			
- Grade A (% of total)	4,356 (24%)	5,455 (25%)	5,833 (25%)
- Grade B (% of total)	9,977 (56%)	13,948 (63%)	15,081 (66%)
- Grade C (% of total)	3,438 (19%)	2,734 (12%)	2,062 (9%)
- Grade D (% of total)	9 (0.05%)	4 (0.02%)	0 (0%)

¹ Food shops include food courts, restaurants etc.

² Food stalls include those in government hawker centres and private eating establishments.

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

WATER RESOURCE MANAGEMENT

"WATER FOR ALL"					
WATER RESOURCE MANAGEMENT		UNIT	2008	2009	2010
Access	Improved drinking water sources ¹	% access	100	100	100
	Improved sanitation ²	% access	100	100	100
System Efficiency	Test meeting WHO drinking water quality guidelines	%	100	100	100
	Unaccounted for water	%	4.4	4.6	5.2
	No. of leaks per 100 km of potable water pipelines	-	7.1	7.1	5.9
	No. of sewerage disruptions Per 1,000 km of sewers	-	19	17	15
	Flood Prone Areas ³	Hectares	79	67	56
Supply	No. of reservoirs in Singapore	-	15	15	17
	Sales of potable water in Singapore				
	- Domestic	Mil m ³	271.4	277.8	281.0
	- Non-domestic	Mil m ³	191.2	190.1	195.1
	Sales of NEWater	Mil m ³	66.0	72.0	96.4
	Sales of Industrial Water	Mil m ³	23.7	21.9	24.5
	Volume of used water treated	Mil m ³	516.0	515.5	542.1

¹ Includes piped water into premises, public tap/standpipe, borehole/tube well, protected dug well etc.

² Includes flush/pour flush toilets or latrines connected to a sewer, septic tank etc.

³ Based on data over a financial year (period from 1st Apr of the year to 31st Mar of the following year).

“CONSERVE, VALUE, ENJOY”

WATER DEMAND AND MANAGEMENT	UNIT	2008	2009	2010
Domestic water consumption per capita	Litres/day	156	155	154
PUBLIC OUTREACH	UNIT	2008	2009	2010
No. of Lifestyle Events Held at Reservoirs and Waterways (Cumulative)	No.	95	139	288
No. of ABC Waters Projects Completed (Cumulative)	No.	2	3	15

CLIMATE CHANGE AND ENERGY EFFICIENCY

CLIMATE CHANGE / ENERGY STATISTICS	UNIT	2008	2009	2010
CO ₂ emissions from combustion of fossil fuels ¹	kt	38,524	40,283	NA ²
Energy consumption per dollar GDP (% improvement from 2005 levels)	%	15.1	10.0	NA ²
Carbon intensity of electricity generation ³	kgCO ₂ / kWh	0.5016	0.4761	NA ²
Household electricity use per capita	MWh	1.27	1.33	1.32
Green Vehicles				
- Natural Gas Vehicles	No.	3,443	4,578	5,366
- Hybrid Vehicles	No.	1,999	2,641	3,335
- Electric Vehicles	No.	1	5	10

¹ The figures do not include non-CO₂ greenhouse gases and CO₂ emissions from other sources such as waste incineration. The predominant greenhouse gas in Singapore is CO₂ that arises from the combustion of fossil fuels. Bunker fuels are excluded in accordance with United Nations Framework Convention on Climate Change (UNFCCC) reporting guidelines.

² Data for 2010 will be available in the latter half of 2011.

³ Computed by Energy Market Authority. About 80% of electricity is generated by natural gas using efficient combined cycle technology.

REGIONAL AND INTERNATIONAL COLLABORATION

MULTILATERAL ENVIRONMENTAL AGREEMENTS THAT SINGAPORE HAS RATIFIED / ACCEDED TO	DATE OF RATIFICATION / ACCESSION
Comprehensive Safeguards Agreement with a Small Quantities Protocol	18 Oct 77
Vienna Convention for the Protection of the Ozone Layer	5 Jan 89
Montreal Protocol on Substances that Deplete the Ozone Layer	5 Jan 89
1990 London Amendment to Montreal Protocol	2 Mar 93
United Nations Framework Convention on Climate Change	29 May 97
Convention on Early Notification of a Nuclear Accident	15 Jan 98
Convention on Assistance in the Case of Nuclear Accident or Radiological Emergency	15 Jan 98
Convention on Nuclear Safety	15 Mar 98
1997 Montreal Amendment to Montreal Protocol	22 Sep 00
1992 Copenhagen Amendment to Montreal Protocol	22 Sep 00
ASEAN Agreement on Transboundary Haze Pollution	13 Jan 03
Stockholm Convention on Persistent Organic Pollutants	24 May 05
Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade	24 May 05
Kyoto Protocol of the United Nations Framework Convention on Climate Change	12 Apr 06
1999 Beijing Amendment to the Montreal Protocol on Substances That Deplete the Ozone Layer	10 Jan 07
Additional Protocol for the Application of Safeguards	31 Mar 08
Modified Small Quantities Protocol for the Application of Safeguards	31 Mar 08

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