



PENANG IN NUMBERS

Green Data



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PENANG IN NUMBERS – GREEN DATA

Green Data is a selected compilation of environmental conscious data series of Penang state that accommodates the Sustainable Development Goals that aims to act as a data reference that assisted Penang Green Council in the formulation process of the Penang Green Agenda 2030 and also made accessible for public use. The chosen 8 SDGs would be as below:

- **Goal 2 – Zero Hunger**
- **Goal 6 – Water**
- **Goal 7 – Energy**
- **Goal 11 – Sustainable Cities**

- **Goal 12 – Responsible Consumption and Production**
- **Goal 13 – Climate Action**
- **Goal 14 – Marine**
- **Goal 15 – Biodiversity.**

These data are collected from various sources; they will be updated from time to time for the use and view of general public as well as to serve as a reference for government departments, agencies, students and stakeholders for the development of Penang. We have identified 80 data sets for Penang so far that we think is useful for Penang to be a green and liveable city. Be reminded that, we will not confine the Sustainability Indicators of Penang within this 80 data, we will discover more relevant data in future and it will be updated again. Finally, we would like to convey our gratitude to all agencies that have contributed to this Green Data.

GOAL 11 – SUSTAINABLE CITIES

Description

Population in Penang is projected to reach 1.98 million people in 2030. To accommodate the rising population on a limited land, we need to transform the way we manage our urban spaces. This means that Penangites need to have access to safe and affordable housing, better public transport system, more public spaces, and improved urban planning, to name a few.

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1 Land area distribution (km²), Penang 2010 – 2018

Type	YEARS								
	2010	2011	2012	2013	2014	2015	2016	2017	2018
Land area distribution (km ²)	1,030	1,030	1,048	1,048	1,048	1,032	1,032	1,049	1,049

I. Source : Department of Statistics Malaysia

2 Estimated population number ('000), Penang 2010 – 2019

Type	YEARS									
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total number of people ('000)	1,575.90	1,601.00	1,623.20	1,662.60	1,678.10	1,698.10	1,717.70	1,744.10	1,762.80	1,768.80

I. Source: Current Population Estimates Malaysia, 2020 - Department of Statistic Malaysia

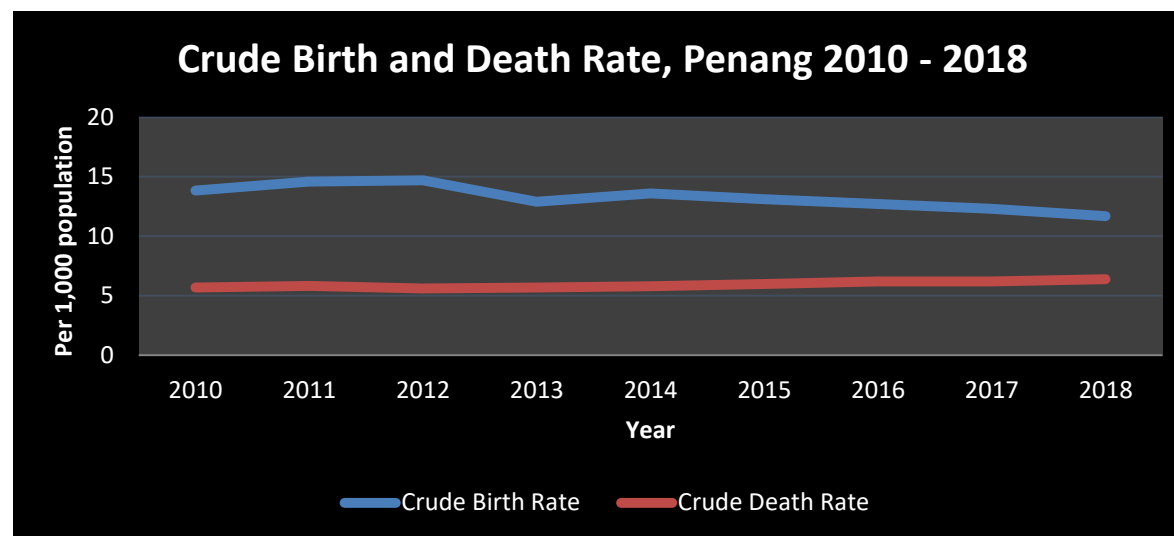
II. Slight difference might occur because of rounding off

3 Crude Birth and Death Rate, Penang 2010 – 2018

Type	YEARS								
	2010	2011	2012	2013	2014	2015	2016	2017	2018
Crude birth rate (per 1,000 population)	13.83	14.60	14.70	12.90	13.60	13.10	12.70	12.30	11.70
Crude death rate (per 1,000 population)	5.70	5.82	5.60	5.70	5.80	6.00	6.20	6.20	6.40

I. Source: Department of Statistics Malaysia

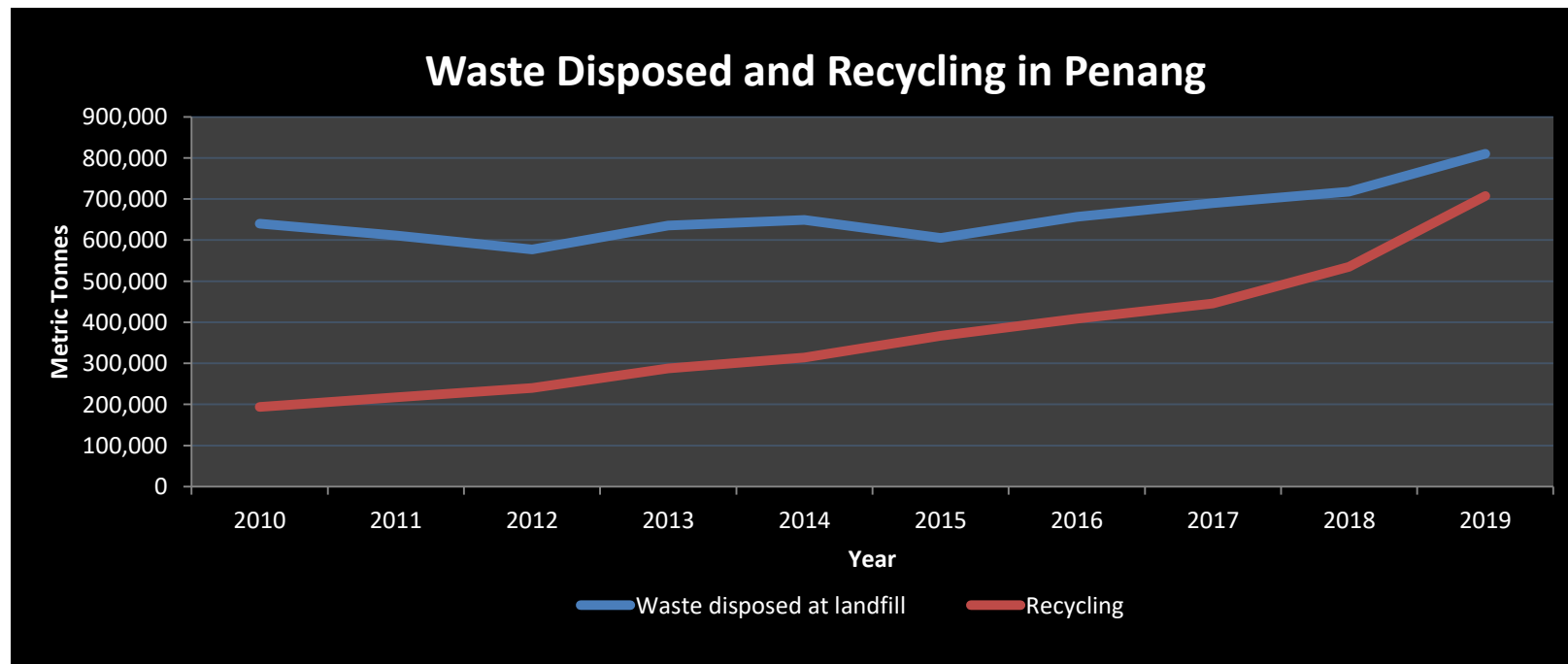
II. Slight difference might occur because of rounding off



4 Waste Disposed at Landfill and Recycling at Pulau Burung, Penang 2010 – 2019

Type	YEARS									
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Waste disposed at landfill (metric tonnes)(A)	639,743	611,364	576,961	635,674	648,773	605,104	656,395	690,271	718,069	810,460
Recycling (metric tonnes)(B)	193,560	216,996	239,691	287,899	314,024	367,032	408,654	445,452	534,989	707,550

- I. Source: UPSP, MBPP & MPSP
- II. Slight difference might occur because of rounding off



5 Total waste generation and recycling rate, Penang 2010-2019

Type	YEARS									
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total waste generation (metric tonnes)(C = (A+B))	833,303	828,360	816,652	923,573	962,797	972,136	1,065,049	1,135,723	1,253,058	1,518,010
Recycling rate (%) (B/C)	23	26	29	31	33	38	38	39	43	47

- I. Source: UPSP, MBPP & MPSP II. Slight difference might occur because of rounding off

6 Managed scheduled waste, Penang

Type	YEARS									
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Scheduled waste(metric tonnes)	273,370	194,279	146,637	138,690	159,662	218,000	220,559	195,358	88,884	

- I. Source: Department of Environment II. Slight difference might occur because of rounding off
 III. Since 2015, these statistics include scheduled wastes are managed under special management under Rule 7 of the Rules, the Environmental Quality (Scheduled Wastes 2005 (Special Management))

7 Incidence Rate of water, food and vector borne diseases, Penang 2010-2018

Disease		Year								
		2010	2011	2012	2013	2014	2015	2016	2017	2018
Water & Food	<i>Cholera</i>	0	0	0	0	0	0	0	0	0
	<i>Typhoid</i>	0.12	0.06	0.12	0.36	0.36	0.48	0.23	0.34	6
	Food poisoning	24.6	33.51	22.34	34.14	135.32	26.09	35.45	49.92	1,147
	Hepatitis A	0	0	0.12	0	0	0.06	0	0	1
	Dysentery	0.48	0.06	0	0.06	0.12	0.06	0	0.05	0
Vector	Dengue	111.93	96.4	49.09	64.72	190.86	350.57	156.3	153.07	343.3
	Malaria	6.77	5.37	2.3	2.4	2.24	1.02	0.18	0.52	0.39
	Typhus & Other Richettsioses	0.06	0.06	0.31	0.18	0.06	0.06	0	0	0
	Viral Encephalitis	0.55	0.06	0	0.24	0.36	0.06	0.12	0	1
	Filariasis	0.92	1.83	1.43	0.85	1.39	0.96	0.61	5	10

I. Note : Per 100,000 population rate

II. Source : Buku Data Asas Sosio Ekonomi Pulau Pinang 2019

8 Number of motor vehicle by type, Penang 2012-2018

Type of vehicle	Year						
	2012	2013	2014	2015	2016	2017	2018
Motorcycles	53,903	52,367	47,190	35,261	32,568	29,109	32,057
Cars	54,365	56,589	39,996	17,435	11,279	7,251	4,793
Buses	49	157	170	61	31	30	37
Taxi/Rental Cars	126	102	213	72	107	29	19
Hired Cars	48	66	78	58	50	61	40
Goods Vehicle	3,056	2,722	2,975	2,821	2400	2,525	3,162
Others	916	986	891	806	671	577	703
Total	112,463	112,989	91,513	56,514	47,106	39,582	40,811

I. Source: Jabatan Pengangkutan Jalan Malaysia

9 Number of passenger-load handled at Penang International Airport, Penang 2010-2018

Passengers	Year								
	2010	2011	2012	2013	2014	2015	2016	2017	2018
Arrivals	2,048,763	2,306,718	2,377,472	2,738,773	3,013,087	3,123,882	3,309,663	3,576,571	3,869,022
Departures	2,079,527	2,293,556	2,390,343	2,748,978	3,028,495	3,134,874	3,351,562	3,611,667	3,902,526
Total	4,128,290	4,600,274	4,767,815	5,487,751	6,041,582	6,258,756	6,661,225	7,188,238	7,771,548

I. Source: Buku Data Asas Sosi Ekonomi Pulau Pinang 2019

10 Number of Green Building Index (GBI) certified projects, Penang 2013-2021

Years	2013	2014	2015	2016	2017	2018	2019	2020	2021
Nos.registered	40	56	61	67	85	89	111	124	143
Nos.Rated	17	26	30	36	40	44	51	56	60

I. Source: Greenbuildingindex executive summary archive website

11 Total land use (ha), Penang

Land Use	2011					Total Area
	North East	South West	Northern Seberang Perai	Central Seberang Perai	Southern Seberang Perai	
Residence	5,489.59	4,639.11	9,400.70	8,853.16	6,035.61	34,418.18
Business	1,108.15	277.53	659.24	898.92	336.89	3,280.74
Industrial	173.00	1,100.92	1,077.55	3,813.11	1,006.37	7,170.96
Education	993.78	368.40	1,147.51	859.34	784.14	4,153.18
Institution/ Gov Body	619.67	1,419.42	1,882.11	1,044.27	350.43	5,315.90
Public Utilities	220.62	117.52	305.16	1,390.15	176.16	2,209.61
Transportation	2,735.77	2,158.24	4,473.69	6,126.79	3,896.14	19,390.64
Public Amenities	5,489.559	422.94	812.75	563.76	1,366.28	8,655.32
Worship Place	151.06	64.25	139.25	190.42	74.36	619.34
Crops	416.51	7,994.08	35,849.45	16,592.85	31,797.38	92,650.27
Livestock	0.39	63.24	268.21	649.37	1,048.94	2,030.15
Graveyard	672.91	167.89	60.05	316.42	135.56	1,352.83
Forest	16,345.04	20,812.51	3,249.87	11,706.49	8,548.08	60,661.98
Field	878.23	2,928.86	667.99	1,681.28	251.45	6,407.80
Sea/Lake/River	372.19	1,427.82	5,775.32	2,846.65	3,834.96	14,256.95
Mining	43.77	149.96	375.58	876.94	212.30	1,658.54
Total	35,797.36	44,150.26	66,273.33	58,841.42	59,993.98	265,056.35

I. Source : Buku Data Asas Sosio Ekonomi Pulau Pinang 2012-2013

Land Use	2013					
	North East	South West	Northern Seberang Perai	Central Seberang Perai	Southern Seberang Perai	Total Area
Residence	2,168.83	1,998.81	3,865.82	3,703.57	2,480.63	14,217.66
Business	381.06	127.07	341.78	454.51	157.16	1,461.58
Industrial	65.61	449.78	341.78	1,631.80	549.58	3,038.54
Education	401.86	189.65	495.77	355.85	319.57	1,762.70
Institution/ Gov Body	253.24	570.91	807.21	426.86	144.74	2,202.97
Public Utilities	68.22	54.03	130.72	377.54	105.43	735.94
Transportation	1,413.57	1,314.89	2,014.95	2,580.41	1,858.30	9,182.11
Public Amenities	378.59	127.42	495.40	218.44	434.88	1,654.73
Worship Place	61.75	27.95	60.20	77.60	30.95	258.45
Crops	78.27	3,348.81	14,211.30	6,635.59	12,252.41	36,526.38
Livestock	0.00	25.59	140.60	266.61	2,203.69	2,636.49
Graveyard	269.49	71.25	0.00	128.05	55.96	524.75
Forest	6,677.00	8,998.67	1,344.21	4,614.55	3,433.04	25,067.47
Field	277.48	254.34	455.08	471.29	486.78	1,944.97
River	88.29	582.01	242.73	1,388.06	1,538.17	3,839.25
Mining	16.49	60.59	152.04	413.82	85.29	728.85
Total	12,599.73	18,201.78	25,099.57	23,744.54	26,137.21	105,782.83

I. Source : Buku Data Asas Sosio Ekonomi Pulau Pinang 2014-2015

Land Use	2014					Total Area
	North East	South West	Northern Seberang Perai	Central Seberang Perai	Southern Seberang Perai	
Residence	2470.63	2,014.98	3,839.72	3,806.21	2,466.23	14,597.76
Business	379.33	126.69	324.56	477.42	159.70	1,467.69
Industrial	167.70	450.94	446.03	1,784.11	539.81	3,388.60
Education	195.55	193.68	492.62	358.62	331.92	1,572.39
Institution/ Gov Body	252.85	570.66	786.15	444.83	185.50	2,239.99
Public Utilities	68.21	54.04	125.61	328.66	108.87	685.39
Transportation	1,328.22	1,133.46	1,984.41	2,541.75	2,115.43	9,103.26
Public Amenities	377.80	127.70	343.08	214.58	390.68	1,453.84
Worship Place	53.97	26.72	53.76	69.76	33.87	238.07
Crops	78.27	3,347.32	14,062.98	6,591.14	11,705.37	35,785.07
Livestock	-	38.11	108.45	263.53	662.84	1,072.93
Graveyard	206.87	72.39	32.23	136.84	54.86	503.20
Forest	6,804.58	8,974.81	1,266.12	4,788.50	3,353.62	25,187.62
Field	204.60	248.37	541.00	437.52	753.03	2,184.51
Sea/Lake/River	83.02	588.50	2,350.62	1,229.64	1,507.77	5,759.55
Mining	16.49	52.20	152.05	381.83	112.58	715.15
Total	12,688.09	18,020.55	26,909.37	23,854.94	24,482.07	105,955.02

Land Use	2015					Total Area
	North East	South West	Northern Seberang Perai	Central Seberang Perai	Southern Seberang Perai	
Residence	2171.92	2,032.98	3,766.52	3,664.34	2,426.31	14,062.07
Business	382.66	127.6051	320.1791	476.0208	158.2217	1,464.68
Industrial	68.80	455.7523	440.015	1,792.87	540.4827	3,297.92
Education	413.41	193.8758	437.2567	355.0359	331.9194	1,731.50
Institution/ Gov Body	259.95	554.6162	787.439	443.2002	185.3441	2,230.55
Public Utilities	68.27	53.8218	131.0356	327.7412	110.8606	691.73
Transportation	1408.28	1,121.85	1,951.33	2,520.43	2,106.39	9,108.29
Public Amenities	376.31	115.6655	307.1471	196.0824	398.1422	1,393.35
Worship Place	61.83	27.6995	59.1268	66.3381	35.2732	250.27
Crops	77.64	3,234.73	13,917.88	6,180.78	11,574.58	34,985.61
Livestock	0.00	207.045	102.7865	276.9888	761.4754	1,348.30
Graveyard	210.50	71.2554	31.1873	130.1575	54.8601	497.96
Forest	6868.86	8,962.47	2,622.72	5,525.52	3799.6763	27,779.24
Field	194.91	249.2705	304.6258	578.3487	900.9629	2,228.12
Sea/Lake/River	86.69	478.3602	1,683.65	1,046.36	1,318.97	4,614.02
Mining	43.17	52.1953	107.3965	374.0282	112.5848	689.37
Total	12,693.19	17,939.19	26,970.29	23,954.25	24,816.04	106,372.97

I. Source : Buku Data Asas Sosio Ekonomi Pulau Pinang 2016-2017

Land Use	2016					
	North East	South West	Northern Seberang Perai	Central Seberang Perai	Southern Seberang Perai	Total Area
State Water Monitoring Body	107.7494	304.5876	1924.0155	1357.5863	1709.1768	5403.1156
Forest	6559.2977	7531.7093	454.4794	1581.3757	1589.2688	17716.1309
Industrial	80.0135	527.4458	624.9223	2078.5823	748.7108	4059.6747
Infrastructure and Utilities	80.3787	50.5356	192.6716	354.7162	224.2487	902.5508
Institutions and Community Facilities	978.1595	563.6652	1666.8705	896.2249	604.9969	4709.9170
Housing	2285.0635	2071.1052	4452.8857	4109.8887	2412.0130	15330.9561
Commercial	440.6599	152.7260	539.2785	586.7316	196.8436	1916.2396
Beach	22.3843	4.9199	0.0000	0.0000	0.0000	27.3042
Mixed Development	5.2950	6.0684	0.0000	0.1494	0.0000	11.5128
Transportation	1224.0156	1160.6522	1801.2386	2420.3198	1661.1922	8267.4184
Agriculture	9.1842	4077.3749	13724.3909	6506.2968	12682.6011	36999.8479
Empty Land	324.1510	1134.2774	1518.9206	3687.5494	2369.5755	9034.4739
Field & Recreation	354.4731	227.2019	392.3458	248.5817	390.3371	1612.9396
Total	12470.8254	17812.2694	27292.0194	23828.0028	24588.9645	105992.0815

I. Source : Buku Data Asas Sosio Ekonomi Pulau Pinang 2017-2018

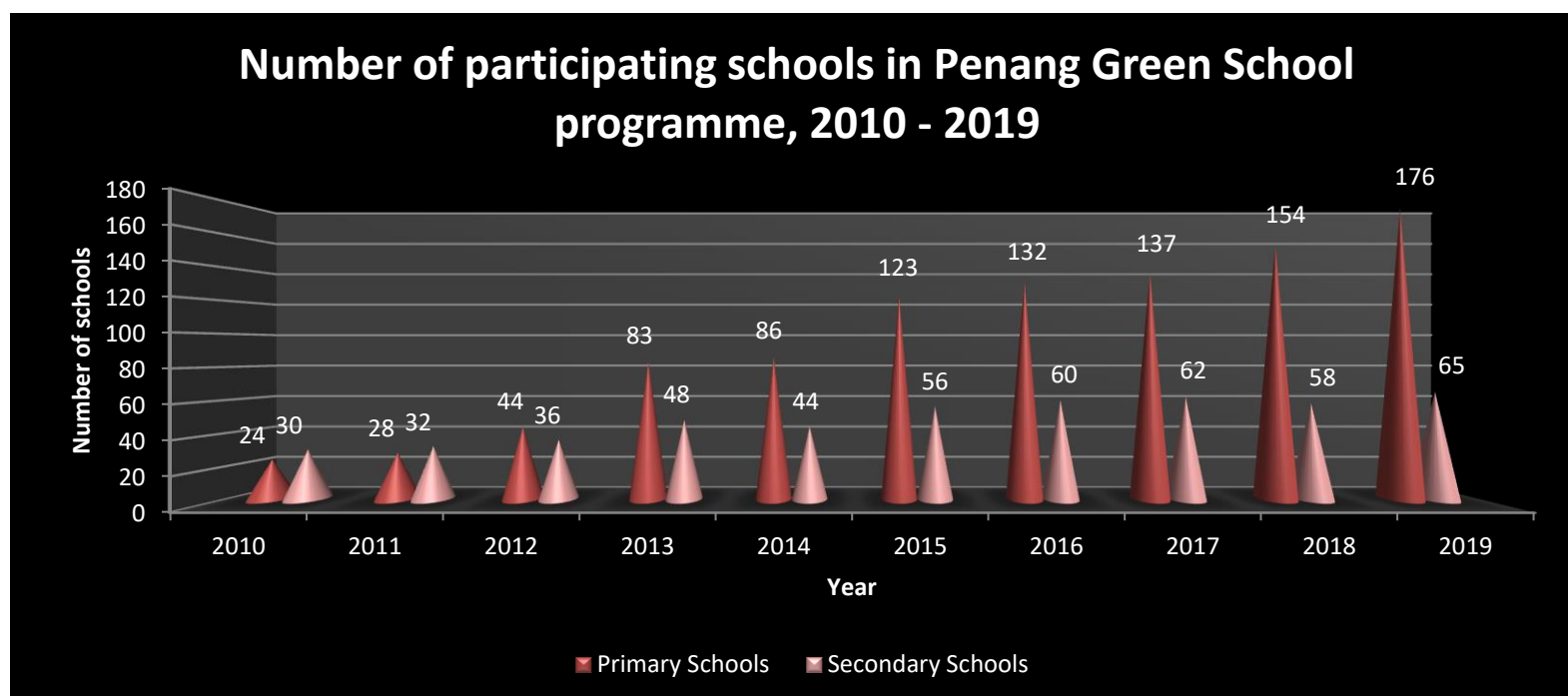
Land Use	2019					Total Area
	North East	South West	Northern Seberang Perai	Central Seberang Perai	Southern Seberang Perai	
State Water Monitoring Body	97.9207	377.9238	1886.0173	1345.5439	885.4459	4592.8516
Forest	6355.4832	7598.5614	689.3580	1499.3472	2175.1948	18317.9446
Industrial	73.0962	517.5195	613.6766	2198.3745	1526.9185	4929.5853
Infrastructure and Utilities	116.8739	64.9179	149.8494	230.7225	220.7021	783.0658
Institutions and Community Facilities	963.2131	560.9257	1206.4290	822.6417	621.1401	4174.3496
Housing	2265.1476	1900.7479	4461.8958	4098.9212	2831.7902	15558.5027
Commercial	467.8612	141.0475	447.7289	655.6697	306.0990	2018.4063
Beach	27.5507	4.9199	0.0000	0.0000	0.0000	32.4706
Mixed Development	17.1754	21.5319	4.9813	0.0858	408.7281	452.5025
Transportation	1096.3449	1190.0700	1865.6627	2507.4654	2049.7716	8709.3146
Agriculture	127.0431	4200.4043	14267.0688	6717.4715	11451.0609	36763.0486
Empty Land	735.8725	1211.4418	1405.2219	3477.7969	1774.8751	8605.2082
Field & Recreation	418.3036	216.3540	469.7051	331.1897	385.3793	1820.9317
Total	12761.8861	18006.3656	27467.5948	23885.2300	24637.1056	106758.1821

I. Source : Buku Data Asas Sosio Ekonomi Pulau Pinang 2018-2019

12 Number of participating schools in Penang Green School Programme, 2010 – 2019

Years		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Number of schools	Primary	24	28	44	83	86	123	132	137	154	176
	Secondary	30	32	36	48	44	56	60	62	58	65

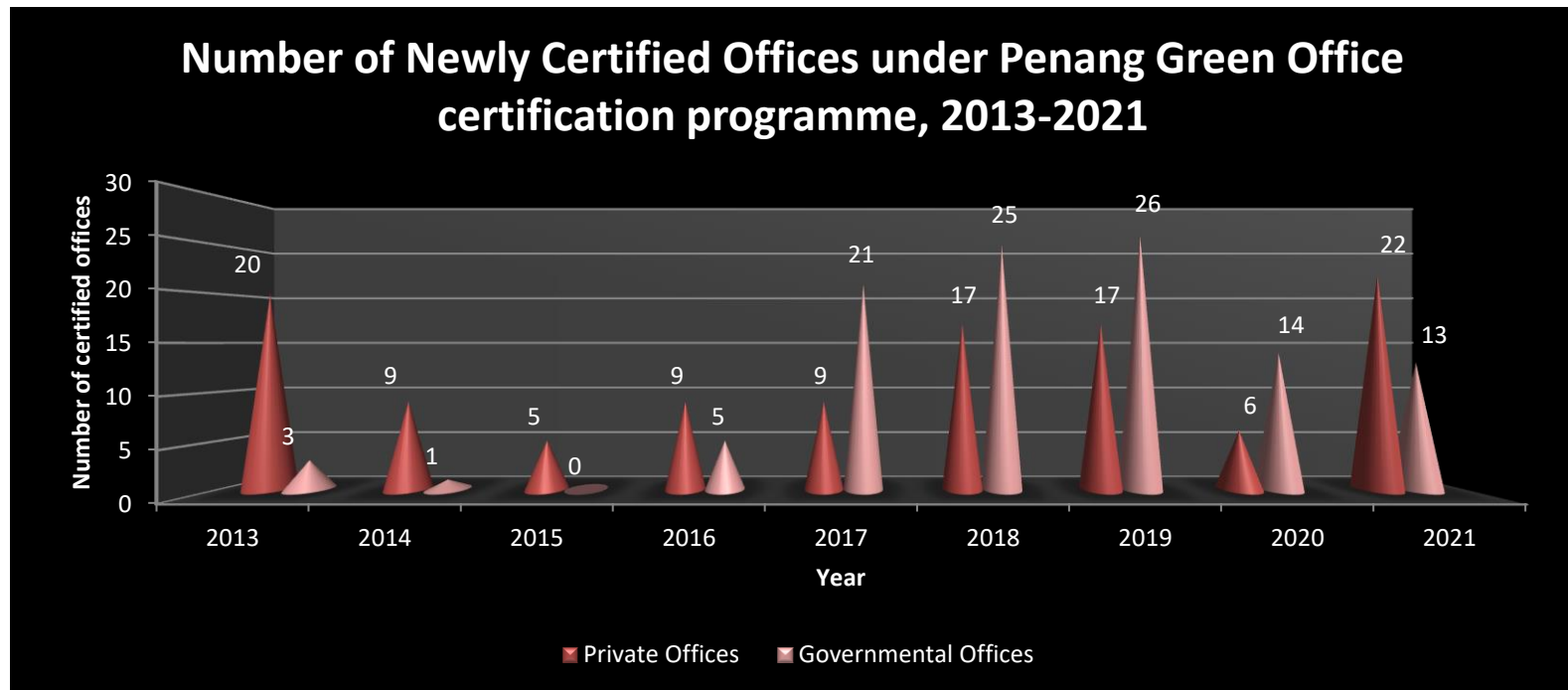
I. Source: Penang Green Council II. Note: PGS programme was postponed in year 2020 - 2021 due to pandemic situation.



13 Number of Newly Certified Offices under Penang Green Office certification programme, 2013-2021

Years		2013	2014	2015	2016	2017	2018	2019	2020	2021
Number of offices certified	Private	20	9	5	9	9	17	17	6	22
	Government	3	1	0	5	21	25	26	14	13

I. Source : Penang Green Council



14 Average Daily Traffic (ADT), Penang 2010-2020

Station	KM	Location	Year										
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
PR 116	16.9	Butterworth – Taiping	56,349	60,230	56,932	64,993	48,588	65,716	59,320	52,095	52,205	51,562	43,931
PR 201	11.1	Georgetown – Teluk Bahang (Jln Keliling Pulau)	27,334	26,085	28,442	27,106	28,419	24,774	23,255	22,006	22,365	29,350	24,991
PR 203	57.2	Georgetown – Bayan Lepas – Gelugor (Jln Keliling Pulau)	50,776	50,950	59,900	62,207	63,049	62,464	56,678	61,819	64,144	56,917	49,901

I. Source: Transport Statistics Malaysia report 2020

15 Total Death Caused By Road Accidents, Penang 2010-2021

State	Year											
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Penang	370	392	400	381	378	360	411	401	390	392	287	189

I. Source: Ministry of Traffic