



PENANG
2030

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 12 – RESPONSIBLE CONSUMPTION AND PRODUCTION

Description:

Manufacturing industry contributes 50% towards Penang's GDP. In line with Penang's aspiration of becoming a green state, we need to change the way we produce and consume goods and services to minimize our ecological footprint. We need to efficiently manage our natural resources, waste and pollutants as well as moving towards more sustainable patterns of consumption.

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1 Gross Domestic Product, Penang 2010 – 2020

Type	YEARS										
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^e	2020 ^p
GDP (RM Million)	52,946	55,827	58,353	61,324	66,203	78,146	83,536	89,177	93,292	97,666	97,049

I. Source: 2010 - 2014 Data was obtained from Department of Statistic (at constant 2010 Prices)

II. Source: 2015 - 2020 Data was obtained from Laporan Sosioekonomi Negeri Pulau Pinang 2020 (at constant 2015 prices)

III. e : estimates

IV. p : preliminary

V. Slight difference might occur in the total due to rounding off

2 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					
	North East	South West	Northern Seberang Perai	Central Seberang Perai	Southern Seberang Perai	Total Area
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					
	North East	South West	Northern Seberang Perai	Central Seberang Perai	Southern Seberang Perai	Total Area
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

3 Gross Domestic Product By Type of Economic Activity (in 2015-constant price), Penang 2010-2019 -RM Million

Type of Economic Activity	Gross Domestic Product (RM million)									
	2010	2011	2012	2013	2014	2015	2016	2017	2018 ^e	2019 ^p
1. Agriculture	1,280	1,357	1,425	1,463	1,521	1,551	1,988	2,034	1,969	2,065
2. Mining & Quarrying	33	35	40	46	52	54	135	144	151	156
3. Manufacturing	24,299	25,221	25,617	26,669	29,197	31,181	35,411	37,424	39,458	40,531
4. Construction	1,486	1,561	1,900	1,899	2,135	2,060	2,984	2,689	2,619	2,638
5. Services	25,569	27,313	28,960	30,779	32,787	34,344	41,167	43,458	46,134	48,673
i) Utility, Transport, Storage and Communication	5,640	6,058	6,520	6,891	7,386	7,844	9,468	10,173	10,978	11,733
ii) Retail & Commercial Goods, Accommodation and Restaurant	7,783	8,186	8,533	9,106	9,905	10,533	13,061	13,907	14,979	15,941
iii) Finance & Insurance, Property and Business Services	6,262	6,640	6,962	7,161	7,392	7,555	8,121	8,399	8,732	9,200
iv) Other services	2,720	2,829	2,986	3,160	3,306	3,448	4,894	5,120	5,358	5,561
v) Government services	3,165	3,600	3,959	4,461	4,797	4,963	5,622	5,860	6,087	6,237
6. Plus : Import duties	280	340	411	477	510	646	808	1017	894	599
GDP At Purchaser's Price	52,946	55,827	58,353	61,324	66,203	69,835	82,493	86,768	91,226	94,663
Growth Rate (%)	10.4	5.4	4.5	5.1	8	5.5	5.6	5.3	5.1	6.7

Notes:

- I. e : estimates
 II. p : preliminary

- III. Slight difference might occur in the total due to rounding off
 IV. Source : Buku Data Asas Sosio Ekonomi Pulau Pinang 2018-2019

4 Crops Area (hectares), Penang

(Source: https://jpn.penang.gov.my/index.php?option=com_content&view=article&id=32&Itemid=52&lang=ms)

Crops	2010(hectares)					
	North East	South West	Northern Seberang Perai	Central Seberang Perai	Southern Seberang Perai	Total Area
Paddy	0.00	310.00	8,515.00	2592.00	1,365.00	12,782.00
Fruits	369.75	3,445.50	507.60	1,274.10	1,324.15	6,921.10
Short -Term Vegetables /Crops	53.96	72.70	179.91	120.83	49.77	477.17
Industrial Crops	244.20	2,713.08	6,784.79	5,559.57	11,131.00	26,432.64
Herbs/Spice Plants	8.10	142.71	60.00	28.35	11.80	250.96
Field Crops	1.00	39.50	50.30	80.01	66.0	236.81
Other crops	0.00	10.00	11.20	5.00	6.00	32.20
Total	677.01	6733.49	16,108.80	9,659.86	13,953.72	47,132.88

Crops	2011 (hectares)					
	North East	South West	Northern Seberang Perai	Central Seberang Perai	Southern Seberang Perai	Total Area
Paddy	0.00	310.00	8,515.00	2592.00	1,365.00	12782.00
Fruits	369.75	3,445.50	507.60	1,274.10	1,324.15	6921.1
Short -Term Vegetables /Crops	53.96	72.70	179.91	120.83	49.77	477.17
Industrial Crops	244.20	2,713.08	6,784.79	5,559.57	11,131.00	26432.64
Herbs/Spice Plants	8.10	142.71	60.00	28.35	11.80	250.96
Field Crops	1.00	39.50	50.30	80.01	66.0	236.81
Other crops	0.00	10.00	11.20	5.00	6.00	32.20
Total	677.01	6733.49	16,108.80	9,659.86	13,953.72	47132.88

I. Note : Industrial Crops includes rubber, palm, coconut, cocoa

Crops	2016 (hectares)					
	North East	South West	Northern Seberang Perai	Central Seberang Perai	Southern Seberang Perai	Total Area
Paddy	0.00	310.00	8,515.00	2592.00	1,365.00	12782.00
Fruits	217.95	1,826.69	140.20	663.95	811.31	3660.1
Vegetables	67.00	63.50	362.15	183.42	175.15	851.22
Industrial Crops	0.00	23.83	51.00	25.57	186.08	286.48
Herbs/Spice Plants	0.00	74.11	21.80	36.63	21.45	153.99
Field Crops	1.00	13.50	36.90	70.07	91.12	212.59
Total	285.95	2,311.63	9,127.05	3,571.64	2,650.11	17946.38

i. Note : Industrial Crops includes coconut, kopi, Nipah, Pinang, Roselle, Rumbia/Sagu, Teh, Cendawan

Crops	2017 (hectares)					
	North East	South West	Northern Seberang Perai	Central Seberang Perai	Southern Seberang Perai	Total Area
Paddy	0.00	310.00	8,515.00	2592.00	1,365.00	12782.00
Fruits	217.95	1,826.69	140.20	663.95	811.31	3660.1
Vegetables	67.00	64.00	362.15	186.59	175.35	855.09
Industrial Crops	0.00	23.83	51.00	25.57	186.08	286.48
Herbs/Spice Plants	0.00	74.11	21.80	36.63	21.45	153.99
Field Crops	1.00	13.50	36.90	70.07	91.12	212.59
Total	285.95	2,312.13	9,127.05	3,574.81	2,650.31	17950.25

I. Note : Industrial Crops includes coconut, Kopi, Nipah, Pinang, Roselle, Rumbia/Sagu, Teh, Cendawan

Crops	2018 (hectares)					
	North East	South West	Northern Seberang Perai	Central Seberang Perai	Southern Seberang Perai	Total Area
Paddy	0.00	310.00	8,515.00	2592.00	1,365.00	12782.00
Fruits	217.95	1,826.69	140.20	663.95	811.31	3660.1
Vegetables	67.00	63.50	362.15	183.42	175.15	851.22
Industrial Crops	0.00	23.83	51.00	25.57	186.08	286.48
Herbs/Spice Plants	0.00	74.11	21.80	36.63	21.45	153.99
Field Crops	1.00	13.50	36.90	70.07	91.12	212.59
Total	285.95	2,311.63	9,127.05	3,571.64	2,650.11	17946.38

I. Note : Industrial Crops includes coconut, Kopi,Nipah,Pinang, Roselle,Rumbia/Sagu,Teh,Cendawan

5 Agriculture Production ('000 metric tonnes), Penang 2010 – 2017

Type	YEARS							
	2010	2011	2012	2013	2014	2015	2016	2017
Paddy	145.58	144.62	142.76	144.44	148.17	149.8	148.29	146.66
Fruits	77.35	80.51	92.59	67.95	85.86	91.02	98.57	87.83
Rubber	NA	NA	NA	NA	NA	NA	NA	NA
Oil palm	NA	NA	NA	NA	NA	NA	NA	NA
Vegetables	28.93	31.55	33.84	50.72	42.42	43.91	44	44.01
Others	4.77	5.01	5.9	5.3	5.58	2.94	6.48	4.43
TOTAL	256.63	261.69	275.09	268.41	282.03	287.67	297.34	282.93

- I. Notes : Slight differences may occur due to round off
- II. Source : Buku Data Asas Sosio-Ekonomi Negeri Pulau Pinang 2013 - 2018
- III. NA – not available

6 Projection of Agricultural Production ('000 Metric Tonnes), Penang 2010 – 2020

CROPS	Year										
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Paddy	165.00	171.50	179.07	186.50	194.00	209.10	221.60	234.00	241.40	246.30	252.40
Fruits	26.50	29.90	33.30	36.60	39.80	43.10	46.40	49.70	52.90	56.20	59.50
Rubber	8.30	8.30	8.30	8.50	8.50	8.70	8.70	8.70	8.80	8.80	8.90
Oil Palm	398.60	80.00	80.00	90.00	90.00	100.00	100.00	90.00	110.00	110.00	120.00
Coconut	16.20	16.60	17.10	17.90	18.60	19.70	20.30	21.10	22.20	22.60	23.00
Vegetables	33.20	34.68	35.10	35.90	37.60	38.70	39.10	39.50	40.10	40.80	41.40
TOTAL	647.80	340.98	352.87	375.40	388.50	419.30	436.10	443.00	475.40	484.70	505.20

- I. Notes : Slight differences may occur due to round off
- II. Source : Jabatan Pertanian Negeri, Pulau Pinang / Department of Agriculture, Penang

7 Power Demand, Supply and Excess rate, Penang 2010 – 2019

Type	YEARS									
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Maximum electricity demand (MW)	1,283	1,230	1,280	1,360	1,508	1,524	1,622	1,594	1,615	1,724
Supplied Electricity Capacity (MW)	3,213	3,213	3,303	3,334	3,456	3,456	3,456	4,680	4,710	4,239
Excess Electricity Capacity (%)	60.1	61.7	61.2	59.2	56.4	55.9	53.1	65.9	65.7	59.3

- I. Source : Penang Institute - Quarterly Penang Statistics Q4 2019
- II. Note : Excluding demand of 132kV customers supplied via direct 132kV connection

8 Water Consumption & Production Rate (cubic meters, '000 cu.m), Penang 2010 – 2019

Type	YEARS									
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Consumption	285,584	283,159	290,625	295,108	296,898	296,662	302,627	301,617	306,574	307,532
Production	349,324	347,123	352,762	360,709	363,198	370,286	385,641	386,052	391,652	398,976

- I. Source : Penang Institute - Quarterly Penang Statistics Q2 2020
- II. Notes : Slight differences may occur due to round off