

# COUNTRY EXPOSURE MODEL

Review main statistic of a exposure model and create summaries for a given Country.

/home/risk/venvs/py38w/lib/python3.8/site-packages/geopandas/\_compat.py:111: UserWarning: The Shapely GEOS version (3.9.1-CAPI-1.14.2) is incompatible with the GEOS version PyGEOS was compiled with (3.10.1-CAPI-1.16.0). Conversions between both will be slow.  
warnings.warn(

```
# Parameters
country = "Malaysia"
```

Exposure files:  
Exposure\_Com\_Malaysia.csv  
Exposure\_Ind\_Malaysia.csv  
Exposure\_Res\_Malaysia.csv

## Sanity checks and formats

## Exposure at National level

### Summary by occupancy type

	OCCUPANTS	BUILDINGS	COST_USD	BUILDINGS_%	COST_USD_%
OCCUPANCY					
Res	27.5M	5,971.7K	\$545.7B	90.72%	84.99%
Ind	0.0M	90.7K	\$27.1B	1.38%	4.22%
Com	0.0M	519.9K	\$69.3B	7.90%	10.79%

### Other metrics to consider

	AREA_SQM	COST_BUILDING_USD	AVG_BUILDING_AREA_SQM	AVG_COST_PER_AREA_USD
OCCUPANCY				
Total	855.8M	\$468.7B	130	\$750
Res	757.3M	\$413.9B	127	\$721
Ind	31.1M	\$12.9B	343	\$871
Com	67.4M	\$41.9B	130	\$1,028

## Exposure summary at Admin level 1

	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
NAME_1						
Selangor	\$159,339.9M	1,202.6K	5,345.5K	24.82%	18.27%	19.45%
Kuala Lumpur	\$80,131.8M	241.1K	1,588.8K	12.48%	3.66%	5.78%
Johor	\$72,734.0M	877.3K	3,230.4K	11.33%	13.33%	11.75%
Pulau Pinang	\$51,916.4M	340.4K	1,526.3K	8.09%	5.17%	5.55%
Perak	\$47,939.6M	681.2K	2,299.6K	7.47%	10.35%	8.37%
Sarawak	\$39,481.3M	581.1K	2,399.8K	6.15%	8.83%	8.73%
Sabah	\$38,325.4M	536.4K	3,117.4K	5.97%	8.15%	11.34%
Kedah	\$35,396.0M	532.7K	1,899.8K	5.51%	8.09%	6.91%
Pahang	\$26,225.6M	355.9K	1,440.7K	4.08%	5.41%	5.24%
Negeri Sembilan	\$24,787.7M	302.9K	986.2K	3.86%	4.60%	3.59%
Kelantan	\$20,223.4M	358.6K	1,470.7K	3.15%	5.45%	5.35%
Melaka	\$19,684.0M	230.6K	790.1K	3.07%	3.50%	2.87%
Terengganu	\$16,561.7M	249.3K	1,011.4K	2.58%	3.79%	3.68%
Perlis	\$4,240.6M	63.8K	225.6K	0.66%	0.97%	0.82%
Putrajaya	\$3,313.3M	10.8K	68.4K	0.52%	0.16%	0.25%
Labuan	\$1,768.1M	17.7K	83.9K	0.28%	0.27%	0.31%

## Exposure by simplified taxonomy

Adding `MACRO\_TAX0` column

	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
MACRO_TAXO						
RC	\$476.6B	2,691.4K	13,569.7K	74.23%	40.89%	49.37%
MUR	\$78.0B	1,947.2K	6,591.9K	12.15%	29.58%	23.98%
W	\$37.0B	881.1K	3,447.3K	5.76%	13.39%	12.54%
MIX	\$31.9B	711.5K	2,592.5K	4.97%	10.81%	9.43%
OT	\$10.2B	329.7K	1,283.1K	1.59%	5.01%	4.67%
S	\$8.4B	21.3K	0.0K	1.30%	0.32%	0.00%

## Exposure by taxonomy

Showing only taxonomies that represent 90% of the total `COST\_USD`

		COST_USD	BUILDINGS	COST_USD_%	BUILDINGS_%
MACRO_TAXO	TAXONOMY				
RC	CR/LFINF+DUL/H:2/RES	\$106,315.6M	1,073,895	18.45%	18.10%
	CR/LFINF+DUL/H:5/RES	\$95,626.6M	38,637	16.60%	0.65%
	CR/LFINF+DUL/H:4/RES	\$75,205.2M	47,478	13.05%	0.80%
	CR/LFINF+DUL/H:1/RES	\$70,976.0M	1,075,394	12.32%	18.13%
MUR	MUR/LWAL+DNO/H:2/RES	\$39,819.4M	859,593	6.91%	14.49%
RC	CR/LFINF+DUL/H:3/RES2	\$34,768.2M	175,597	6.03%	2.96%
MUR	MUR/LWAL+DNO/H:1/RES	\$27,254.1M	882,514	4.73%	14.88%
W	W+WO/LN/H:1/RES	\$24,688.3M	658,355	4.28%	11.10%
RC	CR/LDUAL+DUM/HBET:6-12/RES	\$18,611.2M	2,611	3.23%	0.04%
	CR/LFM+DUL/HBET:1-2/IND1	\$12,808.8M	7,116	2.22%	0.12%
MIX	MIX(CR-W)/RES	\$12,565.6M	335,084	2.18%	5.65%
	MIX(M-W)/RES	\$12,517.1M	333,789	2.17%	5.63%
OT	UNK/H:1/RES	\$10,181.1M	329,674	1.77%	5.56%
RC	CR/LDUAL+DUL/HBET:6-12/COM3	\$8,978.8M	1,959	1.56%	0.03%
S	S/LFM+DUL/HBET:1-2/IND1	\$5,938.0M	2,999	1.03%	0.05%
RC	CR/LDUAL+DUM/HBET:13-/RES	\$5,405.4M	455	0.94%	0.01%
	CR/LFINF+DUL/HBET:3-5/COM1	\$5,315.3M	6,903	0.92%	0.12%
	CR/LDUAL+DUL/HBET:13-/COM12	\$4,900.0M	735	0.85%	0.01%
W	W/H:1/RES	\$4,327.3M	98,910	0.75%	1.67%