

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 = "Papua_New_Guinea"
```

Exposure files:
Exposure_Com_Papua_New_Guinea.csv
Exposure_Ind_Papua_New_Guinea.csv
Exposure_Res_Papua_New_Guinea.csv

Sanity checks and formats

Exposure at National level

Summary by occupancy type

	OCCUPANTS	BUILDINGS	COST_USD	BUILDINGS_%	COST_USD_%
OCCUPANCY					
Res	7,246.7K	1,344.7K	\$28,286.2M	94.53%	88.54%
Ind	0.0K	19.4K	\$977.8M	1.36%	3.06%
Com	44.9K	58.4K	\$2,684.7M	4.11%	8.40%

Other metrics to consider

	AREA_SQM	COST_BUILDING_USD	AVG_BUILDING_AREA_SQM	AVG_COST_PER_AREA_USD
OCCUPANCY				
Total	90,940.8K	\$23,390.5M	64	\$351
Res	82,496.9K	\$21,021.9M	61	\$343
Ind	2,098.9K	\$564.5M	108	\$466
Com	6,345.0K	\$1,804.0M	109	\$423

Exposure summary at Admin level 1

	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
NAME_1						
Morobe Province	\$3,141.3M	135.0K	677.0K	9.83%	9.49%	9.28%
Eastern Highlands Province	\$3,011.9M	142.7K	585.2K	9.43%	10.03%	8.03%
Madang Province	\$2,026.3M	91.7K	498.6K	6.34%	6.45%	6.84%
East Sepik Province	\$2,014.6M	92.5K	452.8K	6.31%	6.50%	6.21%
Southern Highlands Province	\$2,007.4M	93.1K	517.2K	6.28%	6.54%	7.09%
Western Highlands Province	\$1,895.4M	88.8K	363.0K	5.93%	6.24%	4.98%
National Capital District	\$1,847.0M	42.0K	364.1K	5.78%	2.96%	4.99%
Chimbu (Simbu) Province	\$1,695.3M	79.9K	378.8K	5.31%	5.61%	5.20%
Enga Province	\$1,693.6M	80.2K	404.4K	5.30%	5.64%	5.55%
Jiwaka Province	\$1,436.2M	68.4K	345.4K	4.50%	4.81%	4.74%
East New Britain Province	\$1,388.5M	61.7K	330.5K	4.35%	4.34%	4.53%
Hela Province	\$1,312.8M	60.8K	251.7K	4.11%	4.27%	3.45%
Milne Bay Province	\$1,236.7M	57.8K	279.5K	3.87%	4.06%	3.83%
Autonomous Region of Bougainville	\$1,088.7M	50.5K	249.4K	3.41%	3.55%	3.42%
West New Britain Province	\$1,086.2M	48.1K	267.0K	3.40%	3.38%	3.66%
West Sepik (Sandaun) Province	\$1,045.4M	47.7K	250.8K	3.27%	3.35%	3.44%
Central Province	\$933.7M	43.7K	272.8K	2.92%	3.07%	3.74%
Northern (Oro) Province	\$808.5M	36.0K	187.4K	2.53%	2.53%	2.57%
Western Province	\$756.7M	33.4K	202.3K	2.37%	2.35%	2.77%
New Ireland Province	\$710.0M	31.5K	193.1K	2.22%	2.21%	2.65%
Gulf Province	\$589.3M	27.3K	160.2K	1.84%	1.92%	2.20%
Manus Province	\$223.2M	9.6K	60.5K	0.70%	0.68%	0.83%

Exposure by simplified taxonomy

Adding `MACRO_TAXO` column						
	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
MACRO_TAXO						
W	\$25,253.5M	1,160,547	5,959.3K	79.04%	81.59%	81.73%
OT	\$3,609.2M	200,677	1,151.2K	11.30%	14.11%	15.79%
RC	\$1,919.9M	22,379	45.0K	6.01%	1.57%	0.62%
MR	\$578.9M	21,173	8.8K	1.81%	1.49%	0.12%
MUR	\$564.2M	16,450	121.5K	1.77%	1.16%	1.67%
ADO/E	\$16.8M	1,167	5.8K	0.05%	0.08%	0.08%
S	\$6.2M	34	0.0K	0.02%	0.00%	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			
W	W+WBB/LPB+DUM/H:1/RES	\$9,039.4M	448,736	31.54%
	W+WBB/LPB+DUM/H:1+HFAPP:1/RES	\$8,924.3M	444,889	31.14%
	W+WO/LN+DUM/H:1/RES	\$2,404.8M	128,443	8.39%
	W+WLI/LWAL+DUM/H:1/RES	\$2,184.2M	64,528	7.62%
OT	ME+MEO/LN+DUL/HBET:1-2/RES	\$1,674.9M	85,411	5.84%
	ME+MEO/LN+DUL/H:1+HFAPP:1/RES	\$1,446.6M	78,090	5.05%
	W+WLI/LWAL+DUM/HBET:1-3/RES	\$691.8M	3,803	2.41%
W	W+WBB/LPB+DUM/H:1/COM	\$639.4M	17,904	2.23%
	W+WO/LN+DUL/H:1+HFAPP:1/RES	\$595.7M	32,264	2.08%
MR	MR/LWAL+DUL/H:1/COM	\$540.1M	20,165	1.88%
RC	CR+CIP/LFINF+DUM/H:2/COM	\$515.8M	7,450	1.80%