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 Sh
apely 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 = "Kuwait"
```

```
Exposure files:
  Exposure_Com_Kuwait.csv
  Exposure_Ind_Kuwait.csv
  Exposure_Res_Kuwait.csv
```

Sanity checks and formats

Exposure at National level

Summary by occupancy type

OCCUPANCY	OCCUPANTS	BUILDINGS	COST_USD	BUILDINGS_%	COST_USD_%
Res	4,322.3K	569.1K	$142.1B	90.05%	75.77%
Ind	0.0K	6.7K	$5.3B	1.07%	2.81%
Com	0.0K	56.1K	$40.2B	8.88%	21.43%

Other metrics to consider

OCCUPANCY	AREA_SQM	COST_BUILDING_USD	AVG_BUILDING_AREA_SQM	AVG_COST_PER_AREA_USD
Total	150,209.8K	$134,106.1M	238	$1,248
Res	124,109.4K	$106,723.2M	218	$1,145
Ind	4,628.8K	$2,545.4M	688	$1,137
Com	21,471.6K	$24,837.5M	383	$1,871

Exposure summary at Admin level 1

NAME_1	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
Hawalli	$48.5B	136.5K	948.4K	25.88%	21.59%	21.94%
Farwaniya	$40.1B	127.3K	1,154.0K	21.40%	20.14%	26.70%
Ahmadi	$33.9B	118.3K	829.2K	18.06%	18.72%	19.18%
Al Asimah	$23.1B	83.6K	460.6K	12.34%	13.23%	10.66%
Mubarak Al-Kabeer	$21.7B	76.4K	364.9K	11.58%	12.10%	8.44%
Jahra	$20.2B	89.9K	565.1K	10.75%	14.22%	13.07%

Exposure by simplified taxonomy

Adding `MACRO_TAXO` column

MACRO_TAXO	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
RC	$132,932.3M	413,102	3,111.0K	70.89%	65.37%	71.98%
MCF	$23,005.9M	87,800	631.0K	12.27%	13.89%	14.60%
MUR	$18,896.5M	94,185	481.6K	10.08%	14.90%	11.14%
MR	$7,480.0M	17,585	0.0K	3.99%	2.78%	0.00%
S	$4,570.4M	3,987	0.0K	2.44%	0.63%	0.00%
OT	$643.0M	15,333	98.6K	0.34%	2.43%	2.28%

Exposure by taxonomy

Showing only taxonomies that represent 90% of the total `COST_USD`

MACRO_TAXO	TAXONOMY	COST_USD	BUILDINGS	COST_USD_%	BUILDINGS_%
RC	**CR/LFINF+CDL/HBET:4-7/RES**	$36,323.6M	155,174	21.66%	27.44%
	CR/LFINF+CDL/HBET:8-/RES	$18,440.4M	77,469	11.00%	13.70%
	CR/LFINF+CDL/H:3/RES	$18,022.5M	77,802	10.75%	13.76%
	CR/LFINF+CDL/H:1/RES	$8,941.6M	39,379	5.33%	6.96%
	CR/LFINF+CDL/H:2/RES	$8,941.6M	39,022	5.33%	6.90%
	CR/LDUAL+CDL/HBET:4-7/RES	$8,149.3M	1,683	4.86%	0.30%
MCF	**MCF/LWAL+CDL/HBET:3-6/RES**	$7,901.0M	31,941	4.71%	5.65%
	MCF/LWAL+CDL/H:2/RES	$7,677.1M	32,477	4.58%	5.74%
MUR	**MUR+STDRE/LWAL+CDN/H:1/RES**	$5,359.6M	30,633	3.20%	5.42%
	MUR+STDRE/LWAL+CDN/H:2/RES	$5,359.6M	30,633	3.20%	5.42%
RC	**CR/LDUAL+CDL/HBET:8-/RES**	$4,980.1M	464	2.97%	0.08%
MCF	**MCF/LWAL+CDL/H:1/RES**	$3,838.6M	16,774	2.29%	2.97%
RC	**CR/LFINF+CDL/HBET:4-7/COM**	$3,773.2M	1,494	2.25%	0.26%
	CR/LDUAL+CDL/H:3/RES	$3,621.9M	1,544	2.16%	0.27%
MR	**MR+CB/LWAL+CDL/HBET:3-6/COM**	$3,229.6M	1,848	1.93%	0.33%
MUR	**MUR+CB/LWAL+CDN/HBET:3-6/COM**	$3,229.6M	1,848	1.93%	0.33%
RC	**CR/LFINF+CDL/HBET:8-/COM**	$2,915.1M	372	1.74%	0.07%
	CR/LDUAL+CDL/HBET:4-7/COM	$2,495.8M	990	1.49%	0.18%
	CR/LWAL+CDL/HBET:4-7/COM	$2,495.8M	990	1.49%	0.18%
MR	**MR+CB/LWAL+CDL/H:2/COM**	$2,420.9M	6,160	1.44%	1.09%
MUR	**MUR+CB/LWAL+CDN/H:2/COM**	$2,420.9M	6,160	1.44%	1.09%
RC	**CR/LDUAL+CDL/HBET:8-/COM**	$1,916.7M	245	1.14%	0.04%
	CR/LWAL+CDL/HBET:8-/COM	$1,916.7M	245	1.14%	0.04%
MCF	**MCF/LWAL+CDL/HBET:3-6/COM**	$1,727.9M	990	1.03%	0.18%
MR	**MR+CB/LWAL+CDL/H:1/COM**	$1,598.1M	9,237	0.95%	1.63%