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 S
hapely GEOS version (3.9.1-CAPI-1.14.2) is incompatible with the GEOS version PyGEOS was compil
ed with (3.10.1-CAPI-1.16.0). Conversions between both will be slow.
  warnings.warn(
```

```
# Parameters
country = "Guinea"
```

```
Exposure files:
  Exposure_Com_Equatorial_Guinea.csv
  Exposure_Com_Guinea.csv
  Exposure_Com_Guinea_Bissau.csv
  Exposure_Ind_Equatorial_Guinea.csv
  Exposure_Ind_Guinea.csv
  Exposure_Ind_Guinea_Bissau.csv
  Exposure_Res_Equatorial_Guinea.csv
  Exposure_Res_Guinea.csv
  Exposure_Res_Guinea_Bissau.csv
```

Sanity checks and formats

```
  Guinea
   Exposure/Exposure/Exposure_Com_Guinea.csv
   Exposure/Exposure/Exposure_Ind_Guinea.csv
   Exposure/Exposure/Exposure_Res_Guinea.csv
   Occupants / Dwellings = 6.2
   Reference avg household size (2019) = 6.22
   Population (exposure / UN_2021) = 0.97
  Exposure models  OK
```

Exposure at National level

Summary by occupancy type

OCCUPANCY	OCCUPANTS	BUILDINGS	COST_USD	BUILDINGS_%	COST_USD_%
Res	13.1M	2,037.9K	$43,855.2M	96.66%	87.28%
Ind	0.0M	9.7K	$1,244.0M	0.46%	2.48%
Com	0.0M	60.8K	$5,150.0M	2.88%	10.25%

Other metrics to consider

OCCUPANCY	AREA_SQM	COST_BUILDING_USD	AVG_BUILDING_AREA_SQM	AVG_COST_PER_AREA_USD
Total	166,915.2K	$40,703.9M	79	$301
Res	152,826.1K	$36,039.5M	75	$287
Ind	2,755.6K	$815.7M	285	$451
Com	11,333.5K	$3,848.6M	186	$454

Exposure summary at Admin level 1

NAME_1	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
Kankan	$10,075.8M	431.9K	2,672.3K	20.05%	20.49%	20.44%
Kindia	$8,664.7M	371.5K	2,298.1K	17.24%	17.62%	17.58%
Conakry	$8,505.0M	318.5K	1,999.2K	16.93%	15.11%	15.29%
Nzerekore	$6,852.5M	293.8K	1,817.5K	13.64%	13.93%	13.90%
Boke	$4,376.9M	187.7K	1,161.3K	8.71%	8.90%	8.88%
Faranah	$4,363.6M	187.1K	1,157.7K	8.68%	8.88%	8.86%
Labe	$4,303.2M	184.5K	1,141.7K	8.56%	8.75%	8.73%
Mamou	$3,107.6M	133.3K	824.5K	6.18%	6.32%	6.31%

Exposure by simplified taxonomy

```
Adding `MACRO_TAXO` column
```

MACRO_TAXO	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
ADO/E	$24,142.9M	1,066,627	6,445.7K	48.05%	50.59%	49.31%
MUR	$10,243.8M	322,065	2,052.6K	20.39%	15.28%	15.70%
W	$9,983.1M	568,302	3,515.9K	19.87%	26.95%	26.90%
RC	$2,740.6M	36,552	312.6K	5.45%	1.73%	2.39%
MCF	$2,240.0M	45,412	312.6K	4.46%	2.15%	2.39%
OT	$489.7M	67,002	432.9K	0.97%	3.18%	3.31%
S	$409.1M	2,418	0.0K	0.81%	0.11%	0.00%

Exposure by taxonomy

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

MACRO_TAXO	TAXONOMY	COST_USD	BUILDINGS	COST_USD_%	BUILDINGS_%
ADO/E	MUR+ADO/LWAL+CDN/H:2/RES	$7,685.2M	259,394	17.08%	13.11%
	E+ETO/LWAL+CDN/H:1/RES	$7,017.5M	480,081	15.59%	24.27%
W	W+WWD/LWAL+CDN/H:1/RES	$5,730.9M	392,065	12.73%	19.82%
ADO/E	MUR+ADO/LWAL+CDN/H:1/RES	$4,666.6M	266,045	10.37%	13.45%
W	W+WWD/LWAL+CDN/H:2/RES	$4,044.9M	163,829	8.99%	8.28%
MUR	MUR+CB/LWAL+CDN/H:2/RES	$2,655.4M	80,659	5.90%	4.08%
	MUR+CL/LWAL+CDN/H:2/RES	$2,232.8M	67,825	4.96%	3.43%
ADO/E	MUR+ADO/LWAL+CDN/H:2/COM	$1,732.8M	15,802	3.85%	0.80%
	MUR+ADO/LWAL+CDN/H:1/COM	$1,687.6M	31,597	3.75%	1.60%
MUR	MUR+CB/LWAL+CDN/H:1/RES	$1,612.4M	82,731	3.58%	4.18%
	MUR+CL/LWAL+CDN/H:1/RES	$1,355.8M	69,565	3.01%	3.52%
ADO/E	MUR+ADO/LWAL+CDN/HBET:3-6/RES	$1,016.1M	3,500	2.26%	0.18%
RC	CR/LFINF+CDL/H:3/RES	$940.3M	13,160	2.09%	0.67%
	CR/LFINF+CDL/H:2/RES	$765.3M	16,471	1.70%	0.83%
MCF	MCF+CB/LWAL+CDL/H:2/RES	$656.7M	13,301	1.46%	0.67%
RC	CR/LFINF+CDL/HBET:4-7/RES	$419.5M	605	0.93%	0.03%
MCF	MCF+CB/LWAL+CDL/H:1/RES	$398.8M	13,641	0.89%	0.69%
	MCF+CL/LWAL+CDL/H:2/RES	$388.8M	7,872	0.86%	0.40%