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 = "Turkmenistan"
```

```
Exposure files:
  Exposure_Com_Turkmenistan.csv
  Exposure_Ind_Turkmenistan.csv
  Exposure_Res_Turkmenistan.csv
```

Sanity checks and formats

```
Turkmenistan
  Exposure/Exposure/Exposure_Com_Turkmenistan.csv
  Exposure/Exposure/Exposure_Ind_Turkmenistan.csv
  Exposure/Exposure/Exposure_Res_Turkmenistan.csv
  Occupants / Dwellings = 6.0
  No refence household size data available
  Population (exposure / UN_2021) = 1.0
Exposure models  OK
```

Exposure at National level

Summary by occupancy type

OCCUPANCY	OCCUPANTS	BUILDINGS	COST_USD	BUILDINGS_%	COST_USD_%
Res	6.1M	476.9K	$49,548.9M	88.65%	85.34%
Ind	0.0M	6.7K	$790.6M	1.24%	1.36%
Com	0.0M	54.4K	$7,723.2M	10.11%	13.30%

Other metrics to consider

OCCUPANCY	AREA_SQM	COST_BUILDING_USD	AVG_BUILDING_AREA_SQM	AVG_COST_PER_AREA_USD
Total	91,995.7K	$48,476.9M	171	$631
Res	81,654.0K	$42,396.8M	171	$607
Ind	1,060.1K	$483.8M	159	$746
Com	9,281.6K	$5,596.3M	171	$832

Exposure summary at Admin level 1

NAME_1	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
Mary Region	$12,818.4M	118.8K	1,352.1K	22.08%	22.08%	22.08%
Dashoguz Region	$11,833.1M	109.6K	1,248.1K	20.38%	20.38%	20.38%
Lebap Region	$11,543.1M	106.9K	1,217.5K	19.88%	19.88%	19.88%
Ashgabat	$8,584.8M	79.5K	905.5K	14.79%	14.79%	14.79%
Ahal Region	$8,468.8M	78.5K	893.2K	14.59%	14.59%	14.59%
Balkan Region	$4,814.5M	44.6K	507.8K	8.29%	8.29%	8.29%

Exposure by simplified taxonomy

Adding `MACRO_TAXO` column

MACRO_TAXO	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
RC	$24,957.1M	39.2K	2,449.6K	42.98%	7.29%	40.00%
ADO/E	$8,676.6M	217.9K	1,224.8K	14.94%	40.51%	20.00%
MUR	$6,082.6M	92.3K	612.4K	10.48%	17.17%	10.00%
MCF	$5,752.5M	19.0K	612.4K	9.91%	3.54%	10.00%
MIX	$5,452.9M	88.9K	612.4K	9.39%	16.52%	10.00%
W	$3,369.0M	48.0K	306.2K	5.80%	8.93%	5.00%
S	$2,616.9M	10.0K	183.7K	4.51%	1.85%	3.00%
OT	$1,155.1M	22.6K	122.5K	1.99%	4.19%	2.00%

Exposure by taxonomy

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

MACRO_TAXO	TAXONOMY	COST_USD	BUILDINGS	COST_USD_%	BUILDINGS_%
MCF	MCF/LWAL+CDL/HBET:1-4/RES	$5,358.5M	17,012	10.33%	3.59%
MIX	MIX(MUR+W)/LWAL+CDL/HBET:1-2/RES	$4,763.1M	81,656	9.18%	17.23%
RC	CR+PC/LPB+CDL/HBET:5-9/RES	$4,539.0M	2,297	8.75%	0.48%
	CR+PC/LWAL+CDL/HBET:5-9/RES	$4,539.0M	2,297	8.75%	0.48%
MUR	MUR+CLBRS/LWAL+CDL/HBET:1-2/RES	$4,286.8M	73,489	8.26%	15.51%
ADO/E	MUR+ADO/LWAL+CDN/H:1/RES	$3,810.5M	102,067	7.35%	21.54%
	EU+ETR/LWAL+CDN/H:1/RES	$3,810.5M	102,067	7.35%	21.54%
RC	CR+PC/LPB+CDL/HBET:9-12/RES	$3,026.0M	1,113	5.83%	0.23%
	CR+PC/LWAL+CDL/HBET:9-12/RES	$3,026.0M	1,113	5.83%	0.23%
	CR+CIP/LFINF+CDL/HBET:1-3/RES	$3,026.0M	17,012	5.83%	3.59%
W	W/LWAL+CDL/HBET:1-2/RES	$2,679.3M	40,826	5.17%	8.62%
S	S/LFM+CDL/HBET:1-10/RES	$2,229.2M	7,656	4.30%	1.62%
RC	CR+CIP/LWAL+CDL/HBET:4-7/RES	$2,118.2M	1,786	4.08%	0.38%
	CR+CIP/LWAL+CDL/HBET:3-/COM	$1,943.0M	2,454	3.75%	0.52%
	CR+CIP/LFINF+CDL/HBET:1-2/COM	$1,457.3M	7,851	2.81%	1.66%
MUR	MUR+CLBRS/LWAL+CDL/H:1/COM	$1,259.4M	13,085	2.43%	2.76%