

Data Appendix : worked example: Housing Score for “Dhanmondi Studio”

Coordinates: (90.354, 23.674)

Raw inputs (example):

- GPW density: 10,697 people/km²
- VIIRS radiance: decile check
- MODIS NDVI mean: 0.354
- IMERG 30-day rainfall total: 60 mm
- MODIS AOD: 0.10
- Commute: 24 minutes

Normalization (demo):

1. commute_score = 72.0
2. flood_score = 100.0
3. pollution_score = 86.21
4. density_score = 73.26
5. green_score = 35.40

Weighted sum:

MAPLIFY_SCORE = 77/100 — “Good: Low flood risk, moderate commute, moderate green cover.”

Repro steps:

- gdalwarp clip VIIRS
- xarray sum IMERG 30 days
- compute NDVI mean
- run compute_maplify_score.py

Confidence & notes:

- density mapping uses quantile remapping;
- flood thresholds locally calibrated.