

# Project proposals

## 1. Segregation

- **Data:** census data (household, population) and the corresponding basemap
- **Objects:** categories of population (scheduled castes or tribes, professional status, etc.)
- **Methods:** similarity index, theil entropy, segregation index tournament, autocorrelation, implementation of Cortese's Z
- **References:** Cortese et al., 1976, "Further considerations on the methodological analysis of segregation indices", *American Sociological Review*, vol.41, n°4, pp.630-637

## 2. Amenities

- **Data:** census data (amenities) and the corresponding basemap and OSM data
- **Objects:** multivariate and spatialized characterization of the set of amenities (hospital, school, water, etc.) at the household level and at the village level
- **Methods:** multivariate geometrical analysis (PCA, hierarchical clustering), distance gradients, highlighting multiscale variation (regional vs. subregional effect)
- **References:** Duncan (2012) "Space, race, and poverty: spatial inequalities in walkable neighborhood amenities?", *Demographic research* vol.26, pp.409-448

## 3. Fire occurrence

- **Data:** fire occurrence database (MODIS), census data (amenities or population) and the corresponding basemap and OSM data
- **Objects:** crisis management, urbanization, socio-economical processes (agricultural practices)
- **Methods:** point pattern analysis, routing, accessibility measures, time series
- **References:** David et al. (2014) "How risk management can prevent future wildfire disasters in the wildland-urban interface", *PNAS*, 111(2), pp.746-751