**General Model Description**

The model simulates the decision-making process of the water authorities and residents (hereafter “actors”), and its effect on the spatial distribution of socio-hydrological vulnerability in Mexico City. The model operates at the scale of a census block and it is fed by census blocks geographical attributes which correpond to each of the criteria defined by the actors. Each actor is represented in the model as an agent that modifies the census blocks geographical attributes. Criteria are modified by the decisions taken by the agents and through four submodels: water supply, flooding, gastrointestinal diseases and subsidence.

**Decision-making process**

Census block attributes are modified by the decisions taken by the agents. These decisions are the result of a selection process that involves the normalization of attributes by a given value function and the calcuation of a metric (“distance to ideal point”) for each alternative of action. In the case of water authorities, a site selection is also involved. The rational behind this site selection process is to optimize the “benefit”, that is, the selection of the best set of alternatives of action for the best set of sites. On the other hand, residents identify the highest calculated metrics to implement an action. The decisions dinamically update the attrbutes of the census block.

Note1: Complement with equations

Note2: Complement with a glossary

**Model submodels**

Water supply: this submodel simulates water scarcity measured as the number of days without water within each census block. Input data comes from a survey carried out at the municipality level. The calculation is made by fitting a Poisson distribution to the data and then use this distribution to obtain a probability that each census block will experience one or more days without water. Andres: we need u toexplain datails

Flooding: this submodel simulates the probabilty of flooding given the amount of precipitation observed in a census block. These probabilities were derived from a bayesian approach in which categories of obseved frequencies and total precipitation were used to characterize the census blocks.

Gastrointestinal diseases: this submodel simulates the probabilty of gastrointestinal diseases as a function of the spatial distribution of the driver variables. Andres: we need u toexplain datails

Subsidence: this submodel is based on the idea that more subground water extraction leads to more subsidence (this is a simplification of the goal submodel)

Nata: hay que tener consistencia entre los términos usados en el diagrama y el texto

Nota: mostrar en el diagrama las diferentes escalas temporales y los loops

Nota: el diagrama debe incluir los 4 steps que están en esta descripción