

## Definition of conceptual framework

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- > Definition of risk and vulnerability **concept**
- > Identification of relevant **vulnerability indicators**
  - >> Literature/expert knowledge
  - >> Criteria: Saliency, Credibility, Legitimacy
  - >> Data availability

## Indicator pre-processing

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- > **Data acquisition, pre-processing and statistical analysis**
  - >> Creating prevalence surfaces based on DHS data
  - >> Resampling to 10x10 km<sup>2</sup> grids
  - >> Data transformation
  - >> Data imputation and outlier treatment
  - >> Normalization
  - >> Multicollinearity analysis
- = **Final Indicator List**

## Regionalization

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- > **Expert-based weighting exercise**
  - >> Budget allocation to weight the single indicators
- > **Delineating homogeneous vulnerability regions**
  - >> Regionalization (multi-resolution segmentation)
  - >> Taking into account the expert weights
- > **Vulnerability index**
  - >> Calculation of a vulnerability index for each unit based on the vector magnitude

## Local sensitivity analysis

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- > **Local sensitivity analysis**
  - >> Evaluating the influence of the input indicators on the output vulnerability index

## Modeling of integrated geons

Aim: to represent homogenous, integrative spatial regions of social vulnerability to malaria, independent from administrative units

## Visualization

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- > **Cartography**
- > **Explorative analysis and visualization**
  - >> Pie-charts
- > **WebGIS/DSS integration**