

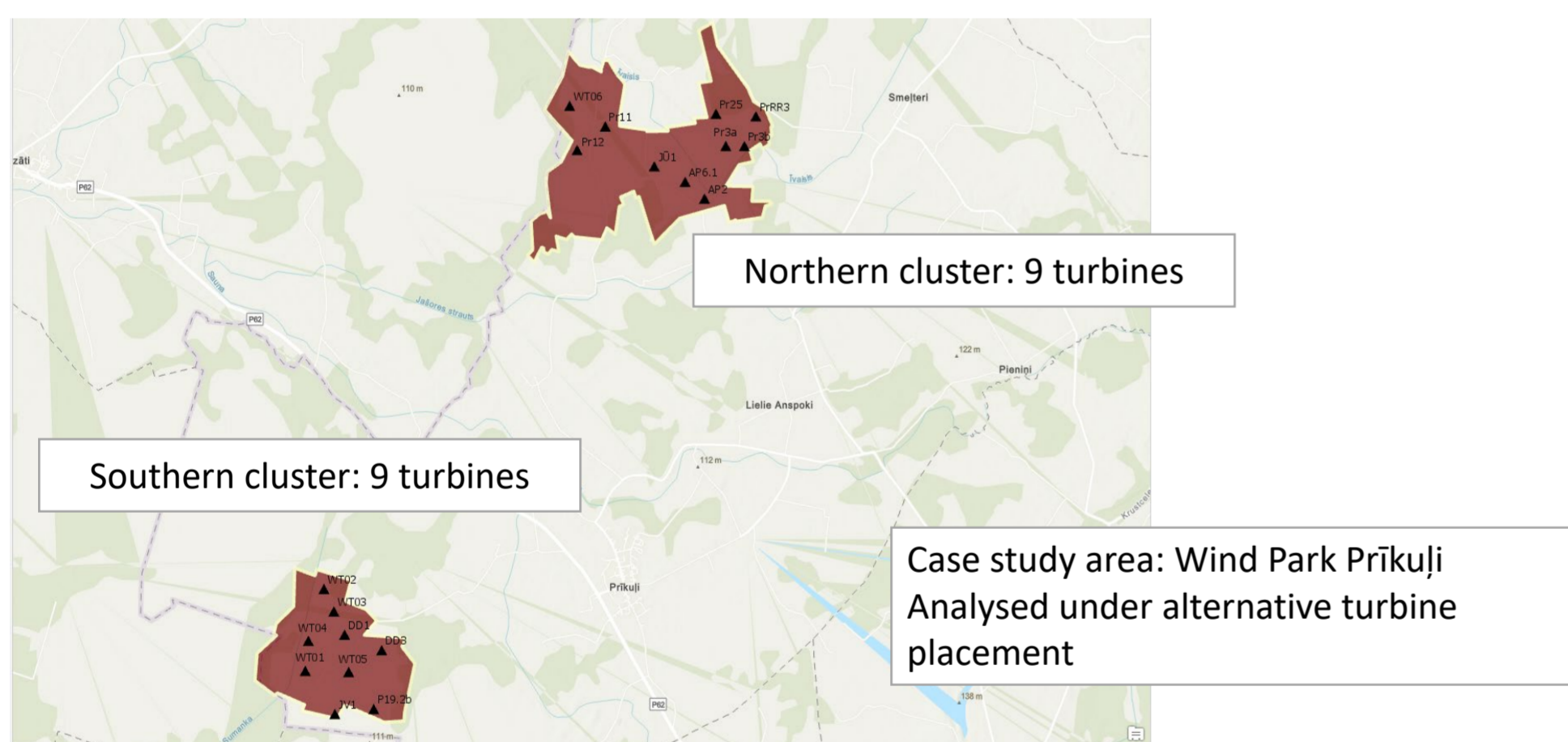
Updated Spanish Method enables reliable visual impact assessment of wind parks in rural mosaic landscapes

- In rural mosaic landscapes of Latvia, the visual impact of wind parks is not uniform despite high visibility and reflects strong spatial variability of exposure;
- Distance and turbines configuration are the dominant factors controlling visual impact;
- The method provides a transparent and applicable tool for planning and landscape integration, supporting planners, developers, and local communities in decision-making process.

Introduction

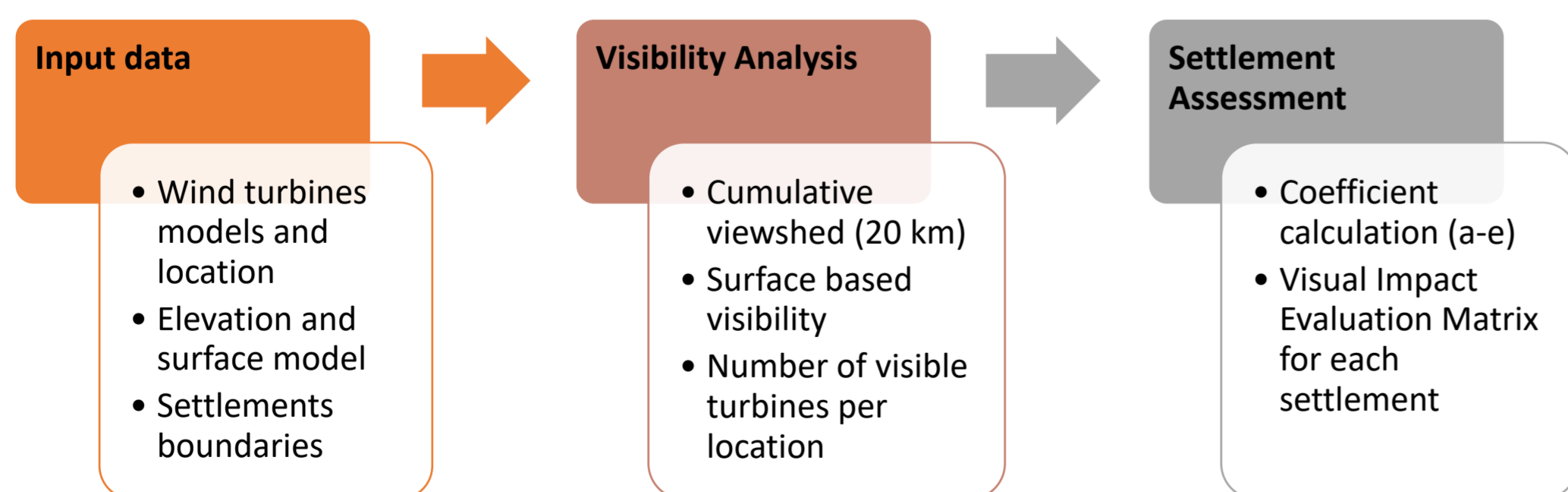
The updated Spanish Method was selected as a structured approach for quantifying visual impact using spatial and geometric parameters supported by GIS-based visibility analysis.

The method is applied to the wind park Pīkuļi (design phase) located in the Latgale Upland (eastern Latvia), consisting of two spatially separated turbine clusters forming a split-layout configuration.



The surrounding landscape is characterised by high visual exposure because of combination of agricultural land, small forest patches and dispersed settlements

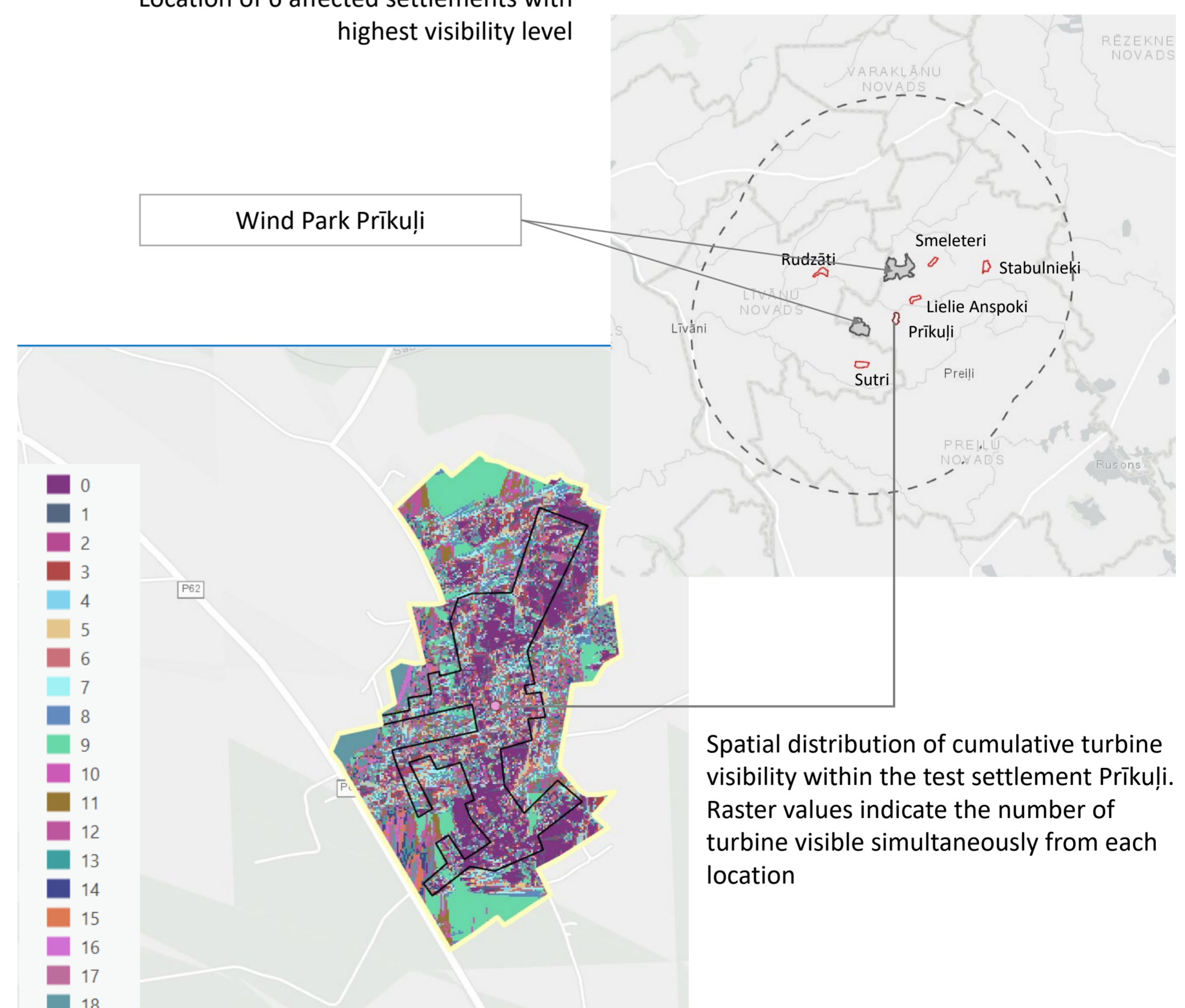
Workflow



Results

- A total of 27 settlements are affected with visibility ranging from 5% to 88% of inhabited area;
- Six settlements with the highest visibility level were selected for detailed evaluation using the updated Spanish Method;
- Visual impact levels vary significantly from *Minimum* to *Serious* where distance and turbine configuration dominate while visibility alone is insufficient for decision-making;
- The method is effective but requires further integration of landscape specific characteristics, such as sensitivity into visual impact assessment for more reliable outcomes.

Location of 6 affected settlements with highest visibility level



Longitudinal DSM profile between the centroid of Pīkuļi settlement and a wind turbine

