Social Vulnerability and Policy: Changes Associated with Local Land Use and Zoning in Kampen

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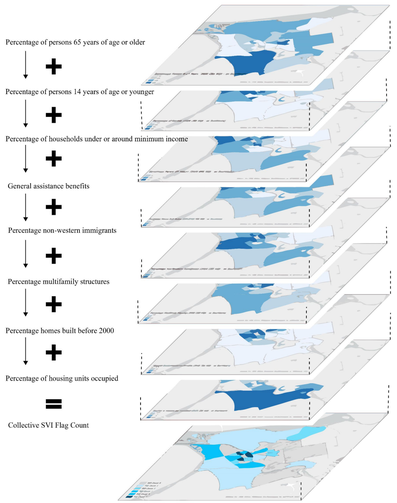
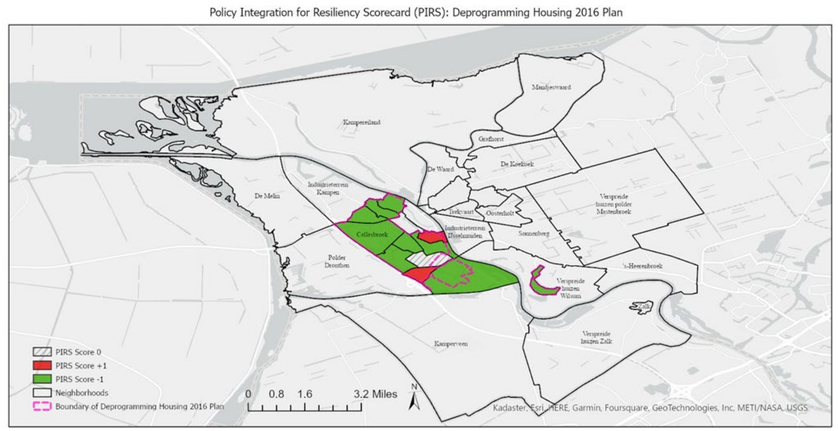
Abstract

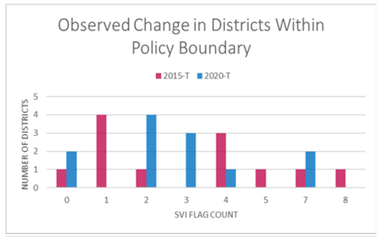
As disasters increase in severity and frequency it is imperative to ensure community plans and policies avoid contradictions by holistically evaluating their progress towards resiliency. The Deprogramming Housing 2016 plan of Kampen is evaluated by creating a socially vulnerable index and calculating the change before and after implementation both inside and outside the effective policy boundary. It is found that across the five-year period of 2015 to 2020 there is a decrease in measured social vulnerability across the municipality following the Deprogramming Housing 2016 updates to existing land use and zoning policies within Kampen.

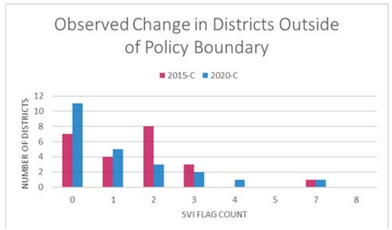


Social Vulnerability

11 indicators utilized by the CDC (average income, number of rentals, etc.) were adapted to the Dutch context and evaluated at the neighborhood level of Kampen. Each of the variables were ranked separately with the neighborhoods in the 75th percentile or higher receiving a 'flag'. Each neighborhoods 'flag count' was summed to identify districts with higher proportions of social vulnerability in both 2015 and 2020.







Results

The average difference in social vulnerability within the policy boundary [V2020T – V2015T] is -.25, and the average difference in social vulnerability outside the policy boundary [V2020C – V2015C] is -.35. The 12 districts within the policy boundary saw reduction in vulnerability by steering development away from flood risk except two, Kampen-Zuid and Stationskwartier. Both were to receive additional housing and redevelopment and thus encouraged greater residential population in hazard zones. When comparing SVI flag counts, Stationskwartier saw the strongest increase in vulnerability going up 2 flag counts in the SVI to a total of 3 in 2020, the only neighborhood to see such an increase.

Conclusion

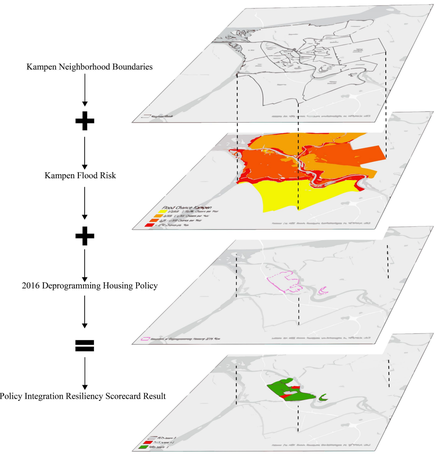
Results of comparing the assessed effect on SVI with the Deprogramming Housing 2016 Plans scorecard suggest policy implementation influences social vulnerability. While the measured SVI changes may not align precisely with the PIRS, it is essential that the comprehensive network of plans in Kampen is to be evaluated to understand incongruities and contradictions within policy overlap so that a holistic evaluation can be conducted to better resiliency to those that unconditionally need it the most.

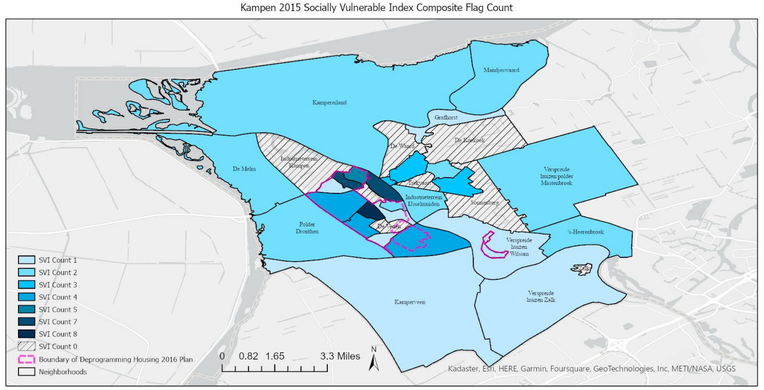
Methodology

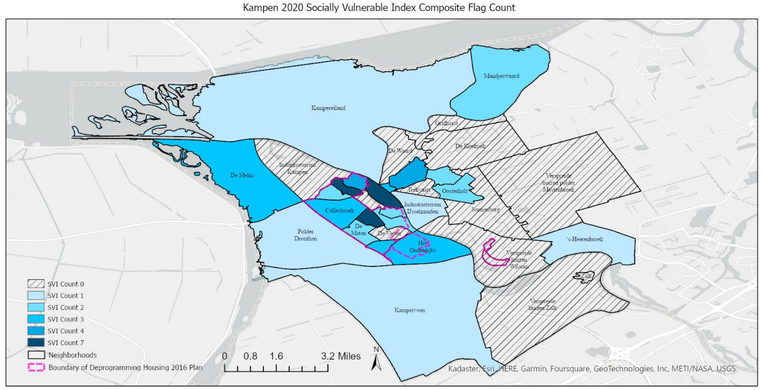
1. Generate lists of applicable policies and select one for evaluation
2. Determine planning districts, delineate flood zones and map selected policy
3. Create tables, maps, socially vulnerable index and policy scorecard
4. Assess social vulnerability to determine effect of policy $[V_{2020}{}^{T} - V_{2015}{}^{T}] - [V_{2020}{}^{C} - V_{2015}{}^{C}]$.
5. Compare the assessed effect on SVI with the Deprogramming Housing 2016 Plan Integration For Resilience Scorecard (PIRS)

Policy Evaluation

The Deprogramming Housing 2016 policy was evaluated based on whether the policy was exposing people or structures to greater flood chance. By asking "does this policy encourage greater residential population density in flood zones?", every district within the boundary of the policy received one of three scores. No effect (0), increasing vulnerability (+1), or reducing vulnerability (-1).







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Work was completed with funding provided from NSF Grant #1545837 "PIRE- Coastal Flood Risk Reduction Program: Integrated, multi-scale approaches for understanding how to reduce vulnerability to damaging events" Summer 2022