

Mapping Social and Natural Hazards: A Survey of Potential for Managed Retreat in the United States

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Abstract : The purpose of this study was to investigate how factoring the impact of natural disasters beyond flooding would affect managed retreat policy eligibility in the United States. For the study design, a correlation analysis method compared weighted measures of flooding and other natural disasters (e.g., wildfires, tornadoes, heatwaves, etc.) to CBSA Populated areas, the prevalence of cropland, and relative poverty on a county level. The study found that the vast majority of CBSAs eligible for managed retreat programs under a policy inclusive of non-flooding events would have already been covered by flood-only managed retreat policies. However, it is noteworthy that a majority of those counties that are not covered by a flood-only managed retreat policy have high rates of poverty and are either heavily populated and/or agriculturally active. The correlation is particularly strong between counties that are subject to multiple natural hazards and those that have both high rates of relative poverty and cropland prevalence. There is currently no managed retreat policy for agricultural land in the United States despite the environmental implications and food supply chain vulnerabilities related to at-risk cropland. The findings of this study suggest both that such a policy should be created and, when it is, that special attention should be paid to non-flood natural disasters affecting agricultural areas. These findings also reveal that, while current flood-based policies in the United States serve many areas that do need access to managed retreat funding and implementation, other vulnerable areas are overlooked by this approach. These areas are often deeply impoverished and are therefore particularly vulnerable to natural disaster; if and when those disasters do occur, these areas are often less financially prepared to recover or retreat from the disaster's advance and, due to the limitations of the current policies discussed above, are less able to take the precautionary measures necessary to mitigate their risk.

Keywords : flood, hazard, land use, managed retreat, wildfire

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